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# Firms and products in international trade: Evidence from Hungary

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#### ABSTRACT

This paper provides a detailed description of Hungarian trade data and key patterns drawn at the firm and product level. In the Bernard et al. (2007) tradition, statistics describe the prevalence of trading activity, typology of firms by internationalisation, and concentration of trade volume within and across sectors both for exports and imports. There are several similarities as well as differences to key US and EU findings. Trade concentration in Hungary is slightly higher than in most European countries and foreign ownership and the role of foreign firms in trade is higher. Furthermore, firm heterogeneity is also studied in terms of traded products as well as partner countries. While the share of single-product exporters is similar to the US, there are certainly fewer Hungarian singlecountry exporters. With some transition-related differences, we find Hungarian trade activity to broadly match most open economy evidence. Throughout the paper, we use the IEHAS-CEFiG Hungary dataset, an almost universal panel of balance sheet information (1992–2006) merged with firm-product-country level customs data (1992-2003) taken until the 2004 EU accession.

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#### 1. Introduction

In the past decade, the appearance of firm-level datasets helped the micro-level statistical examination of international trade. Datasets from the US (Bernard et al., 2007), France (Eaton et al., 2009), Italy (Castellani et al., 2008), Belgium (Muuls and Pisu, 2009) or Columbia (Eaton et al., 2007) all

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described the patterns of international trade at the firm level. Research based on firm-level data resulted in discovering an important empirical regularity: the exceptional performance of exporting and importing firms and the importance of firm heterogeneity (see Mayer and Ottaviano, 2008).

This paper follows this strain of literature by examining firm-level heterogeneity and its relationship with trading activity. For this purpose we use detailed firm-and product-level data from Hungary. The IEHAS-CEFIG Hungary dataset connects the balance sheet data of firms for the period 1992–2003 with a firm-product-country panel of manufacturing export and import observations.

This small open economy has been through fast restructuring and trade liberalisation since the economic transition. As the 1992–2003 period witnesses Hungary's rapid trade integration into the European single market, these data may be especially suitable to study the firm-level effects of trade liberalisation. Manufacturing plays a dominant role in both import and export activity by volume and is more directly related to trade theories based on firm heterogeneity, therefore this discussion focuses on the manufacturing sector, which also makes our results more comparable with evidence from other countries.

The purpose of this study is to provide a great deal of empirical evidence of firm behaviour in terms of trade, both exporting and importing. To our knowledge, this is the first paper that offers such a detailed and extensive description of trade activities of heterogeneous firms in a transition economy. Importantly, the paper looks at both the import and the export side of trade, often comparing these two activities. In addition, this study provides additional information to a list of empirical studies on firm behaviour, specifically international trade, that have been using the IEHAS-CEFiG dataset as their primary source.<sup>1</sup>

There are two key contributions of this paper. First, internationally comparable stylised facts have been derived to detect key differences among countries. For instance, we know that trade concentration in Europe is quite high, and we find that it is even higher in Hungary than in most European countries. In 1999 the largest 5% of exporters were responsible for 81.5% of total trade, while in the case of imports the figure is 84.4%. Second, given the quality of the data, we could uncover some interesting features of firm heterogeneity in a small open economy. For example, when export and import partner countries are sorted according to trade volume, the ranking (both export and import side) follows an exponential decay function.

When Hungarian results are compared to those obtained for the US in Bernard et al. (2007), one finds that though the share of single-product exporters is similar, the number of Hungarian ones is certainly smaller. This result may be the consequence of different country sizes and a greater set of neighbouring countries.

The rest of the paper is structured as follows. In Section 2, we briefly describe the two datasets first. Section 3 discusses the prevalence of trading activity across sectors. It also investigates how trading firms are different from non-trading firms in terms of key characteristics and describes the concentration of trading volume across and within sectors. Using customs data, Section 4 presents a broader picture of Hungarian trade regarding products principal trading partners. Finally, the key stylised facts are summarised. In addition, we offer a range of additional tables of descriptive statistics in a Web Appendix.<sup>2</sup>

#### 2. The Hungarian firm-product dataset

The IEHAS-CEFiG Hungary dataset is compiled with the purpose of investigating international trade at the level of the firm. To this end, balance sheet information for the period 1992–2006 is merged with a firm-product-country panel of manufacturing trade customs data. The first dataset is from the Hungarian Tax Authority (APEH) and contains an almost universal sample of firms with double-entry bookkeeping. Data include common balance sheet and income statement information such as output, labour, capital or ownership. Balance sheet data are available for the whole economy.

<sup>&</sup>lt;sup>1</sup> The studies include Halpern et al. (2009), Békés and Muraközy (2009), Görg et al. (2008), Halpern and Muraközy (2009) and, more recently, Görg et al. (2010).

<sup>&</sup>lt;sup>2</sup> The Web Appendix is available at http://econ.core.hu/file/download/bekes/Bekes\_etal2011ES\_webappendix.pdf. For more details, see the working paper version. http://www.econ.core.hu/file/download/mtdp/MTDP0919.pdf.

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