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Export competitiveness of dairy products on global markets: The case of the European Union countries

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ABSTRACT

This paper analyzed the export competitiveness of dairy products of the European Union (EU) countries (EU-27) on intra-EU, extra-EU, and global markets, using the revealed comparative advantage index over the 2000–2011 period. The results indicated that about half of the EU-27 countries have had competitive exports in a certain segment of dairy products. The results differed by level of milk processing and for intra-EU and extra-EU markets, and did so over the analyzed years. Belgium, Denmark, France, Ireland, and the Netherlands are old EU-15 countries with competitive dairy exports (from the lowest to the highest according to the level of milk processing). The majority of the new EU-12 countries have faced difficulties in maintaining their level of export competitiveness, at least for some dairy products and market segments. The more competitive EU-12 countries in dairy exports were the Baltic States (Estonia, Latvia, and Lithuania) and Poland. The duration of export competitiveness differed across the dairy groups of products according to the level of milk processing, indicating the importance of dairy chain product differentiation for export competitiveness and specialization. The export competitiveness of the higher level of processed milk products for final consumption can be significant for export dairy chain competitiveness on global markets.
Key words: global export competitiveness, duration analysis, dairy products differentiation, European Union

INTRODUCTION

The complexity of national and global dairy chain structures and possible changes in export competitiveness are of increasing private sector and public policy concern (Pinior et al., 2012). The dairy industry plays a more important role in the food industry in the European Union (**EU**) countries than it does in the United States in terms of share of turnover or value added in production (Tacken et al., 2009). In addition, exports of dairy products have considerable importance within the total agri-food trade for almost all of the EU-27 countries and in the global dairy trade (FAO, 2013).

Dairy chain export competitiveness on global markets is a crucial factor for the dairy sector's economic sustainability in the global marketing environment. Empirical studies have highlighted the weakness of the competitiveness in the EU dairy industry, with particular emphasis on the role of processed dairy products for the sector's competitiveness and economic sustainability, which has increased at the expense of bulk raw milk products (Drescher and Maurer, 1999; Kirner, 2005; Hockmann et al., 2007; Bojnec and Fertő, 2008; Tacken et al., 2009). In relation to the recent economic crisis, the EU dairy industry is confronted with high food prices on global markets; this has put the agri-food industry back at the top of the agenda of international trade policy forums.

The aim of this paper was to assess the export competitiveness of the dairy industry in the EU-27 countries on intra-EU and extra-EU markets during the 2000–2011 period. More specifically, its aim was to identify the most competitive EU-27 countries in the dairy industry and to evaluate the stability and the duration of export competitiveness for dairy products.

This paper contributes to the existing literature in at least 3 significant directions. First, it contributes to a better understanding of the level, composition, and evolution of export competitiveness in the dairy industry at various levels of the dairy supply chain for the analyzed EU-27 countries in intra-EU and extra-EU markets. Second, it compares the competitiveness of the EU-27 countries in the dairy industry over the 2000–2011 period, which covers the enlargements on May 1, 2004, with 10 new member states (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) and on January 1, 2007, with an additional 2 new member states

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(Bulgaria and Romania). Finally, it analyzes the evolution, stability, and duration of the EU-27 countries' competitiveness according to countries, intra-EU versus extra-EU market segments, and stages of dairy supply chain.

MATERIALS AND METHODS

Estimation Framework

Previous studies have analyzed the different production and specific trade structures of dairy products (Dunnett, 1933; Bailey, 2004; Van der Straeten et al., 2009; Pinior et al., 2012; Cecchinato, 2013). Dairy product competitiveness can be determined by different factors, such as milk quality assurance (Liebe and Schams, 1998), dairy cow diseases (Losinger, 2005), and various determinants in dairy supply chain management (Roupas, 2008). Dairy market deregulation creates pressures on lowering price supports in dairy product supply chains. In the increased competition on global dairy markets, the crucial issues are related to international competitiveness and marketing on global markets (Novakovic and Thompson, 1978; Marchant and Neff, 1995; Barney and Smith, 1998; Stukenberg and Blayney, 2006). Therefore, questions of comparative advantages among global dairy exporters, such as the United States, New Zealand, Australia (Buxton and Frick, 1976), and the enlarged EU-27 countries, on global markets are of particular research and policy relevance for politically and economically sensitive dairy product reforms in several countries (Suzuki and Kaiser, 2005), as well as dairy supply chain management.

Competitiveness can be analyzed at 3 different levels: the national (i.e., macroeconomic) level, the industrial (i.e., branch) level, and the firm (i.e., microeconomic) level. Another aspect of competitiveness exists with regard to the spatial or geographical dimension of the investigation, comparing enterprises or trade flows within a region of a particular country or between countries. The focus of this paper is on the competitiveness at the dairy branch level on intra-EU and extra-EU market segments.

A country's ability to compete in intra-EU and extra-EU markets depends on its comparative advantages. According to Balassa (1965), the nature of revealed comparative advantages for the dairy group of products according to the level of milk processing is investigated by using the methodological approach, which is widely used in empirical trade literature to identify a country's weak and strong export sectors. The revealed comparative advantage (**RCA**) index, as introduced by Balassa (1965), is defined as follows:

$$\text{RCA} = (\text{X}_{ij}/\text{X}_{im})/(\text{X}_{wj}/\text{X}_{wm}),$$

where X represents exports, i is a country, j is a commodity, m is a set of commodities, and w is a set of countries in the world. Despite some critiques of the RCA index as an export specialization index—such as the asymmetric value problem and the problem with logarithmic transformation (De Benedictis and Tamberi, 2004), the importance of the simultaneous consideration of the import side (Vollrath, 1991), and the lack of a sound theoretical background, which is provided by Costinot et al. (2012) and Leromain and Orefice (2013)—the RCA index remains a popular tool for analyzing export competitiveness in empirical trade literature. The RCA index is based on observed export patterns. It is computed as the share of dairy products j in country i's exports, divided by the share of these products in global exports; it measures the specialization of a country in some product (or group of products) relative to the global level; that is, to the share of this (these) product(s) in global trade. If RCA > 1, then a country's dairy product comparative advantage on the global market is confirmed. In other words, the country is relatively more specialized in terms of exports for a given group of dairy products. In this paper, X_{ij} describes individual EU-27 countries' i exports for a particular dairy product j to the global markets, whereas X_{im} is the total exports of individual EU-27 countries' i to global markets; X_{wj} denotes the global exports for a given dairy product (j); and X_{wm} denotes total global exports, which are used as a benchmark of comparison.

The EU-27 dairy market is known to be highly protected from foreign competition, leading to greater export performance of EU countries on the domestic (intra-EU) market compared with the extra-EU market. Therefore, we used 2 alternative benchmarks: the intra-EU-27 market and the extra-EU market, calculated as global exports minus EU-27 exports for each element in the equation of RCA indices.

The RCA can be equal to 1 (no specialization or no disadvantage when the country's exports structure reflects the exact structure of global trade), greater than 1 (the country has a comparative advantage in the concerned product), or less than 1 (the country has a comparative disadvantage in the concerned product). These boundaries are consistent with a theoretical interpretation appropriate for cross-country comparisons between RCA < 1 and RCA > 1, but the content of the categories can vary from year to year. The usual interpretation of an RCA index is that it identifies the extent to which a country has a comparative (dis)advantage with a given product. However, it does not necessarily mean that the RCA index can be interpreted as a cardinal index. Fertő and Hubbard (2003) show that the RCA index performs better as an ordinal or dichotomous measure.