Sectoral exports dynamics of Turkey: a panel co-integration analysis

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Received: 16 February 2007 / Accepted: 9 February 2009 / Published online: 5 March 2009
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Abstract This paper analyzes the role of unit labor costs and individual cost components in determining sectoral export dynamics and the change in the impact of these costs after the sequence of structural reforms in Turkey as of 2001. It employs a multivariate panel co-integration technique across 17 Turkish manufacturing sectors at different time periods. Results suggest that average elasticity changes not only between the time periods but also across the sectors. Cross-sectional elasticity differences are mostly attributable to the sectoral competitiveness and factor intensities.

Keywords Sectoral export dynamics · Unit labor costs · Panel co-integration

JEL Classification C22 · F0 · F31 · J30

1 Introduction

Ricardian trade model suggests that, assuming capital is mobile, a country whose unit labor costs are lower than that of its trading partners in production of a good, has a comparative advantage in exchange of that good. Empirical analysis of Turner and Van’t Dack (1993); Turner and Golup (1997); Golup and Hsieh (2000) and Edwards and Golup (2004) show that unit labor costs are the best competitiveness indicator, particularly in the markets where international competition is high, since unit labor costs reflect the effects of both wage and productivity differences, as well as the exchange
rate differences between trade partners. However, Carlin et al. (2001) argue that an increase in competition as a result of globalization may have two opposing impacts on trade pattern: it may strengthen the relationship between prices, by forcing firms to charge prices equal to marginal cost, and demand by allowing consumers to reach alternative suppliers, but at the same time it may weaken the demand-price relationship by improving the product sophistication. Thus, unit labor costs sometimes may not sufficiently explain trade dynamics.

This paper has two questions: the role of unit labor costs and individual cost components on export dynamics and change in impact of these costs following the sequence of structural reforms in Turkey as of 2001. The analysis is conducted for 17 Turkish manufacturing sectors for the period of 1995q1–2006q2 and two sub-periods of 1995q1–2000q4 and 2002q1–2006q2. By splitting the time period, we want to examine how export dynamics change as a response to the sequence of structural reforms. The paper, which follows an approach similar to that of Carlin et al. (2001); Edwards and Golup (2004); Aydın et al. (2004) and Sarıkaya (2004) revisits Ricardian model of trade where unit labor costs are considered as the major determinant of export performance. However, it differs from them, first by applying a multivariate panel co-integration technique developed by Pedroni (1999) and Pedroni (2004), second by including sectoral export dynamics to the model and third by analyzing individual long-run elasticities of sectoral exports to unit labor costs and its components; real wages, productivity and real effective exchange rates. Investigation of panel co-integrating vectors reveals that the impact of the cost variables on exports varies not only across the periods, but also across the sectors. Cross-sectional elasticity differences are mostly attributable to the sectoral competitiveness and factor intensities. Average export elasticity to real unit labor costs is found to be significant and negative in all periods. Even though, absolute value of the average export elasticity to real unit labor costs is higher in capital-intensive sectors, it gets smaller in magnitude with the structural reforms implemented as of 2001. Thus, it may be concluded that increase in significance of non-price competition strategies in determining export dynamics results in a change in the relationship between exports and costs.

Analysis of panel co-integrating vectors for sectoral exports and the cost components shows that the average export elasticity of real unit labor costs decreased generally in capital-intensive sectors, primarily because of the fact that the long run relationship between productivity and exports, as well as real effective exchange rates and exports increased after 2001. Elasticity of exports to productivity is higher across the capital-intensive sectors in all periods, but it increased relatively fast across the labor-intensive sectors, after 2001. Also, the analysis suggests that capital-intensive sectors are more sensitive to real effective exchange rates and the sensitivity rises as the export shares of these sectors’ have gone up in recent years. Whereas, the structural changes as of 2001 tend to decrease the elasticity of exports to real effective exchange rates across the labor-intensive sectors.

The structure of the paper is as follows. The second section discusses the empirical specification of the model. The third section explains panel co-integration tests employed in the econometric analysis. The fourth section presents the results of the tests, while the fifth section concludes.