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Competitiveness of the Estonian timber products and comparison with Scandinavian and Baltic countries

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Abstract

The aim of the study is to find the Estonian timber sector competitiveness in the world timber markets. The different foreign trade related indices –Balassa index a.k.a. revealed comparative advantage index (RCA), relative import advantage (RMA), revealed competitiveness RC – were calculated for the assessment. The foreign trade data from UN COMTRADE database are used for the calculations. The ranks for different product groups were calculated for the year 2010. The best result for Estonia was in the prefabricated buildings product group, where Estonia ranked first in the world (RC = 3.50).

Keywords. Forest sector, Estonia, foreign trade, revealed competitiveness

1 Introduction

The aim of the current study is first, to find the competitiveness of the Estonian timber sector in the world timber markets by using different foreign trade related indices, and second, to compare the Estonian position and situation with neighbors and competitors from the Baltic (Latvia & Lithuania) and Nordic (Denmark, Finland, Norway & Sweden) countries. The change of market shares of different timber products and revealed comparative advantage indexes are calculated for the assessment.

2 Short overview of methods

In international trade analysis the revealed comparative advantage index (RCA), also known as Balassa index (BI), is widely used. The Balassa index provides different mathematical formulations to be used for specific problems (Dieter and Englert 2007).

(1a)

$$RCA_{ij} = \frac{\dfrac{X_{ij}}{\sum_i X_{ij}}}{\dfrac{\sum_j X_{ij}}{\sum_i \sum_j X_{ij}}}$$

Where X=export value, i=commodity class, j=country.

Here the numerator describes the share of country j export value to the world total export value of the commodity i. In formula 1a this share can be called the country's market share of the total world export market. The denominator shows the share of country j export in total world export.

The RCA calculation can also be given as

(1b)

$$RCA_{ij} = \frac{\dfrac{X_{ij}}{\sum_j X_{ij}}}{\dfrac{\sum_i X_{ij}}{\sum_i \sum_j X_{ij}}}$$

If RCA$_{ij}$ >1, then a country has a comparative advantage; the country of interest is specialized in producing the commodity of interest. The country which has relatively cheaper production factors exports the goods (Dieter and Englert 2007). If the RCA$_{ij}$ <1, then the country is at a comparative disadvantage with this product.

As in Formulas 1a and 1b are observed only export, then in some literature the same RCA index is also called RXA index – revealed comparative export Advantage. There are two problems: a) the RCA is double counting the product and/or country information in the same formula, as shown by Vollrath in 1991 (Bojnec and Ferto, 2009), and b) only export is analyzed. For import analysis the similar index RMA-Relative iMport Advantage is used.

(2)

$$RMA_{ij} = \frac{\dfrac{M_{ij}}{\sum_j M_{ij}}}{\dfrac{\sum_i M_{ij}}{\sum_i \sum_j M_{ij}}}$$

where *M* is import value, *i*=commodity class, *j*=country. If the RMA$_{ij}$ >1, then the country has an import advantage: import exceeds export.

Revealed competitiveness – RC

(3)

$$RC_{ij} = \ln(RXA_{ij}) - \ln(RMA_{ij})$$

Positive values of the RC index indicate a competitive/comparative advantage, while negative values indicate a comparative/competitive disadvantage.

3 Data

The current study uses data from United Nations Commodity Trade Statistics Database (UNCOMTRADE). The queries were made according to the SITC (Standard International Trade Classification) classification – revision 3, which included data from 2007-10. According to STIC classification the group 811 – prefabricated buildings – is a part of section 8 – miscellaneous manufactured products, not necessarily wood products. In the current study we assume that prefabricated buildings are wood products, either log houses or indoor factory-made prefabricated modules, in which the main construction frames and most other components are made from wood.

4 Short overview of results

Fig. 1 shows Estonia's position in the global ranking of world timber markets. The most competitive industries are those producing prefabricated wood houses. Results for year 2010 indicate that Estonia has the highest RC value (3.50) in the group of prefabricated buildings among the 116 countries included. The second best result is in other manufactured wood, where Estonia ranked 8[th,] but the RC value was relatively low – 2.01. For Estonia the second highest RC value (3.23) was in chips and particles, but in world ranking it placed 22nd among 94 countries.

In the total sum of all observed product groups in 2010 Estonia holds 18th place (RC=1.32). In 2010, 132 countries reported export and import data of observed wood products. The most competitive country according to our calculation is Cameroon (RC=3.90), followed by Brazil (RC=2.52) and Guyana (RC=2.38). Of the Baltic and Scandinavian countries Latvia was in 5th place (RC=2.36); Lithuania, 17th (RC=1.37); Sweden, 31st (RC=0.74); Finland, 33rd (RC=0.66). 57 countries have positive RC value - their export value of observed products is higher than import value. Denmark ranked 62nd (RC=-0.28) and Norway, 102nd (RC=-2.09).
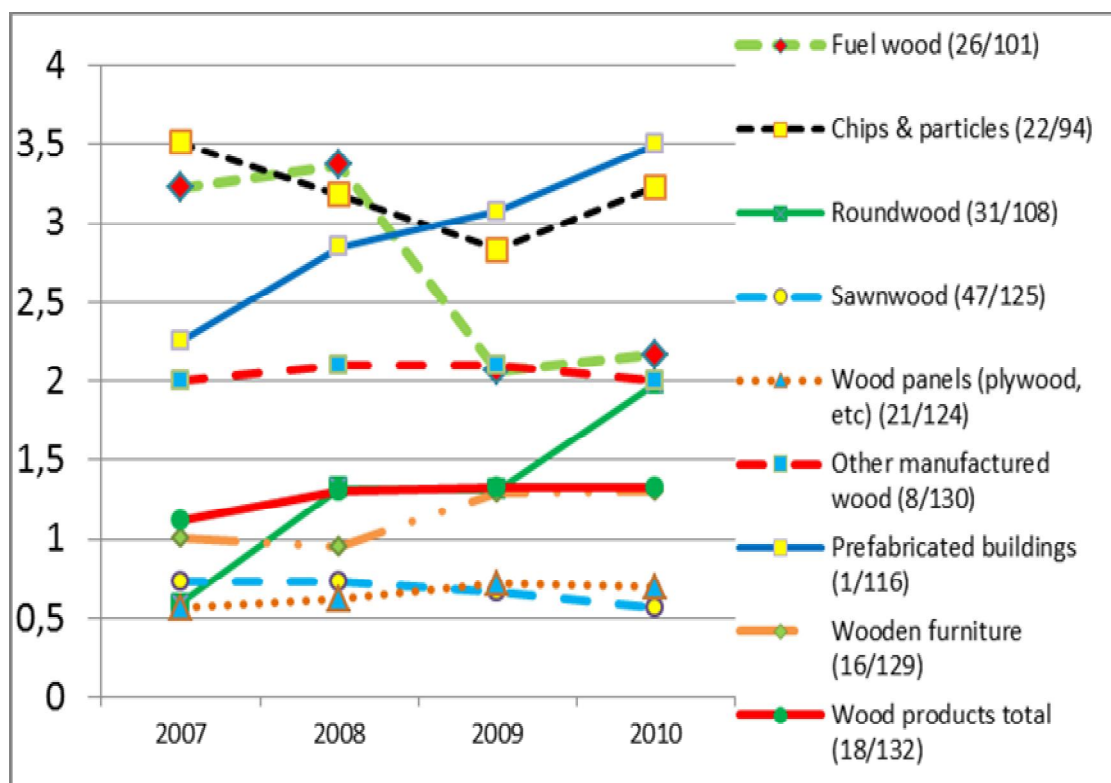

Fig. 1. Revealed competitiveness of Estonian timber products in 2010. (In parentheses Estonian rank in the world /the total number of countries in that product group in 2010, e.g. for fuel wood, Estonia ranked 26th of 101 countries.)

References

Bojnec,Š; Fertö I.(2009) Agro-food trade competitiveness of Central European and Balkan countries. Food Policy 34 (5), 417-425.

Dieter,M.; Englert,H.(2007). Competitiveness in the global forest industry sector: an empirical study with special emphasis on Germany. European Journal of Forest Research, 126, 3, 401-412.

UNCOMTRADE (2012) United Nations Commodity Trade Statistics Database http://comtrade.un.org/db/ (accessed 03.02.2012)

SITC (2006) Standard International Trade Classification, Revision 4,191 pages. United Nations. http://unstats.un.org/unsd/publication/SeriesM/SeriesM_34rev4E.pdf (accessed 03.02.2012)