

which they have a comparative advantage. If China and Canada have the same comparative advantages, they will export the same types of goods and compete for market share. On the other hand, if they have different comparative advantages, they will export different products and not be in direct competition. To see if China and Canada share the same comparative advantages, one can look at revealed comparative advantage (RCA). This method looks at the composition of trade between countries to reveal areas of specialization and hence their comparative advantage. One measure of this is the Balassa index which measures “the ratio of the share of a given product in a country’s exports to another country or region to the share of the same product in that country or region’s total exports”.<sup>2</sup> More specifically:

$$BI(EX) = (x_{ij}^k / X_{ij}) / (x^k / X),$$

Where  $x_{ij}^k$  is exports of good  $k$  from country  $i$  to country  $j$ ,  $X_{ij}$  is total exports of country  $i$  to country  $j$ ,  $x^k$  is exports of good  $k$  by the reference region or country (in this case the U.S.) and  $X$  is total exports of the reference country. If the index  $BI(EX)$  is greater than one, the country is said to have a comparative advantage in exports of that good. This index can be calculated for Canada and China at the 2HS level<sup>3</sup> to reveal which sectors each country has a comparative advantage in regards to exporting to the U.S. market.

Tables C1, C2 and C3 show the sectors in which Canada and China have a RCA with respect to the U.S. (average  $BI(EX)$  for the past five years). Of the 96 HS 2 product codes, Canada has a RCA in 35, of these 35; 15 are sectors where China also has a RCA. Canada exhibits the largest RCAs mainly in resource areas, whereas China has the largest RCAs in mainly textiles and low skilled manufacturing. Overall the RCAs for China and Canada are not positively correlated; this would indicate that China and Canada are not competitors in the U.S. market.

Although the theory of comparative advantage might tell us that China is not a direct competitor to Canada in the U.S. market, this theory might not completely explain all the realities of international trade. Often countries trade in goods that do not correspond to their comparative advantages. For instance a significant portion of Canada-US trade is intra industry, which could be explained by other factors.

An alternative method for analyzing China’s threat to Canadian exports is the use of constant market share analysis (CMSA). This type of analysis decomposes the growth of Canadian exports to the U.S. into two effects, a share effect (which assumes Canada keeps a constant share of the U.S. market) and a competitiveness effect (allowing for changing market share). This competitive effect can then be split into two; the change in market share relative to China and the change relative to the rest of the world.<sup>4</sup> Mathematically this is shown in the following equation:<sup>5</sup>

$$\Delta X_{ij} = \Delta Q_i \cdot S_{ij} + S_{ij} \cdot Q_i \cdot (\Delta S_{ij} / \Delta S_{ij} - S_{ik} / S_{ik}) + \Delta S_{ik} / S_{ik} \cdot S_{ij} \cdot Q_i$$

Where  $\Delta$  is absolute change,  $X_{ij}$  is exports of good  $i$  by country  $j$  (in this case Canada’s exports to the U.S.),  $Q_i$  is total imports of good  $i$  (by the U.S.) at the beginning of the period,  $S_{ij}$  is the initial market share of country  $j$  (Canada) and  $S_{ik}$  the initial market share of the competitor (China) in U.S. imports of good  $i$ . For a more thorough discussion on this version of CMSA, see Holst and Weiss (2004).

Applying the constant market share analysis to U.S. imports of Canadian goods, for the period of 1995 -2005 reveals that Canada has experienced a high degree of competition from China in almost all areas of the U.S. market. Table C4

<sup>2</sup> Widgren (2005), “Revealed comparative advantage in the internal market”, Turku School of Economics, the Research Institute of the Finnish economy, 2005.

<sup>3</sup> Refers to the international “Harmonized System” of commodity classification. The 2HS level breaks up commodities into approximately 99 categories based on type of product.

<sup>4</sup> Holst and Weiss (2004), ASEAN and China: Export rivals or partners? *The World Economy*, Vol. 27, No. 8, August 2004.

<sup>5</sup> Holst and Weiss (2004), *ibidem*.