

in Canada's overall global benchmark may then be identified as potential examples to emulate in other countries ("lessons learned"). Sectors that perform relatively worse may in some cases be identified as potential opportunities, and hence targeted for trade promotion efforts.

Measures of Competitiveness

To measure the competitiveness of Canada's exports, we employed the concept of **revealed comparative advantage** (RCA).¹⁹ Dating back to the original motivation for international trade as expressed by David Ricardo, this concept is simply an observation that countries should export goods that they are relatively good at producing, and import the rest. To the extent that world trade can be explained by this simple Ricardian model, the observed competitive patterns may be interpreted as revealing the underlying comparative advantage through a real-life experiment.²⁰

To define comparative advantage, it is usually stated that if the share of a commodity in Canada's exports to a country is greater than the share of the same commodity in the world's exports to the same country, then Canada is said to have a revealed comparative advantage in this particular commodity in this country. This advantage, however, will be compensated for by a disadvantage in some other area, as all commodity shares sum to a value of 1.

For example, the share of construction, mining and lifting machinery in Canadian exports to South Africa is 7.7 percent, while the share of that commodity in global exports to South Africa is 3.9 percent. This means that Canada has a revealed comparative advantage in construction, mining and lifting machinery in South Africa relative to the world.

To actually calculate comparative advantage, we used the normalized RCA (NRCA)²¹ approach, which allows comparisons across different industry sectors, countries and time periods. A positive NRCA value indicates a comparative advantage, and a negative value indicates a disadvantage.²²

Fixing the Benchmark: Canada's Competitiveness in non-U.S. markets

To benchmark Canada's comparative advantage in the emerging markets, we compared it with the Canadian RCA pattern in the *rest of the world* (which, for the purposes this article, is the world market excluding the United States), since the patterns of Canada's RCA in the world as a whole are driven largely by the disproportionate influence of the United States on Canadian trade.

The pattern of Canadian exports to the world is very distinct from its exports to the non-U.S. markets. The NRCA index shows that in 2006²³ (and generally over the 2000-2006 period), in the world

19 The Balassa index (BRCA) was first developed to measure RCA in 1965. See Balassa (1965), "Trade liberalisation and revealed comparative advantage," *Manch Sch Econ Soc Sci* 33:99-123.

20 This Ricardian concept would be very poor at explaining modern trade between advanced nations. However, it is still a plausible simplification for countries that are very different (as is the case for Canada's trade with emerging markets). Note also that in the presence of trade barriers and trade costs, RCA is more accurately interpreted as measuring the competitiveness of a country's export industry against a competitor in a given market rather than the pure underlying comparative advantage—and this is exactly what we intended to measure.

21 Yu, Cai and Lung (2009), "The normalized revealed comparative advantage index," *The Annals of Regional Science* Vol. 43, No. 1

22 Note: NRCA is a symmetric index and the sum of NRCA indices across all trading sectors of a country always equals zero.

23 As we are analyzing total world trade by HS commodity, the latest year of available data with sufficient global coverage is 2006. This base year should be borne in mind when we compare these benchmarks to individual country results (most of which are available for 2008), but is not expected to invalidate these comparisons. NRCA results differ slightly from year to year, as the analysis over the 2000-2006 period shows. However, changes are usually small and occur around the middle of the distribution, for products with moderate (positive or negative) advantage.