Abstract for "International Competiveness and Productivity Growth"

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Supply chains of firms and industries have become global in scope as firms and industries take advantage of differences in production costs and technologies across countries. The rise of international production sharing has posed a number changes to analyses and measures of countries' competitiveness as traditional measures such as gross export share are often based on the assumption that all production activities take place in closed economies. New measures of countries' competitiveness are being developed. For example, Timmer et al. (2012) proposed a measure of "global value chain income" and argued that country's competitiveness and growth is about capturing large share of global value chain income.

This paper argues that the conventional measure of multifactor productivity growth (MFP) becomes less informative as a measure of international competitiveness in a world of global production and international production sharing. It proposes that the effective rate of MFP growth is more appropriate measure of international competitiveness.

The effective rate of multifactor productivity (MFP) growth measures the productivity gains in the production of final goods and services, and it captures technical process taking place in both final goods-producing industries and upstream industries producing intermediate inputs. This is in contrast to the conventional MFP index which measures productivity gains at the industry level and captures technical progress for the individual industries. The measure was proposed by Domar (1961), Rymes (1971), Hulten (1978), Cas and Rymes (1991), and has been used in a number of studies including Durand (1996) and Aulin-Ahmavaara (1999). The effective rate of MFP growth in the production of final goods and services is estimated as the difference between the growth in the output of final goods and services and the growth in combined capital and labour inputs that are used directly and indirectly in the final goods-producing industries and the upstream industries. The measure was developed in a closed economy in those studies. This paper extends those previous studies to develop an effective rate of MFP growth in an open economy when industries and firms source their intermediate inputs both domestically and from abroad.

International competiveness can be defined as relative output price between two countries (Jorgenson and Nishimizu, 1978). For MFP growth to be good indicator of international competiveness, MFP growth should be similar to the change in output price. The effective rate of productivity growth for the production of final product is similar to change in the price of final product. In contrast, the conventional MFP growth differs from change in the price of final product. The difference is the change in the price of intermediate inputs both domestically produced and imported.

The paper has a number of objectives. First, it constructs effective rate of the productivity growth for the production of final goods and services in Canada and the United States using data from the world KLEMS and world input-output tables. It focuses on the production of consumption goods, investment

goods and exports, and then compares the effective rates of productivity growth in their production. Second, it decomposes the effective rates of productivity growth into contribution of individual countries and industries. The decomposition results answer the question of how much of gains in productivity and competitiveness in a country originates from different countries. Third, the paper estimates the correlation between effective rate of productivity growth and the price of output across final goods and services and compares that with the correlation between conventional MFP growth and final product prices. It will provide evidence for the theoretic result that the effective rate of productivity growth is a more informative measure of competitiveness compared with conventional productivity growth measure.