The Rise and Fall of Q : The Story of India's Relative Price of Investment As Told by Quantitative Theory

Alok Johri Md Mahbubur Rahman

McMaster University

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Abstract

The behaviour of the relative price of investment (RPI) in India stands in fascinating contrast to its steady fall in the US. In India, the RPI rose about 50 percent in the decade leading up to 1991 and fell much faster than in the US in the following years from 1.6 to 1.2. This period saw rapid economic reform and a coincident rise in the growth rate of India's GDP. While there is a large body of empirical work that attempts to correlate the growth rate of GDP (especially of TFP in manufacturing) with various reform measures, there is little to no work that uses a dynamic general equilibrium model suitably calibrated to the Indian data to tease out the quantitative predictions of these reforms for key macroeconomic variables. In this paper, we focus on two specific reforms that may have influenced the RPI and use a theoretical model to generate quantitative predictions regarding the joint dynamics of RPI, aggregate investment and GDP. The first reform is the reduction in import duties on capital goods which fell from about 73% in 1990 to 4.5% by 2010, leading in turn to a significant reduction in the costs of importing intermediate goods and capital goods into India. The second reform (around 1996 onwards) involves a doubling in the efficiency of the banking/financial sector of the economy which led to a reduction in the cost of investment. For this study, we build a small open economy with a financial sector that imposes costs on the conversion of domestic savings into investment goods. In addition, capital producers face large tariffs on imports of foreign investment goods which are combined with domestic goods to create new capital goods. Before reforms, the relative price of investment in the economy is higher than abroad due the combined effects of financial frictions and import costs. As the economy grows due to population growth and productivity increases, it demands more capital which in turn drives up RPI due to the presence of the above mentioned frictions in the pre-reform period. Post reform, using data on implied tariff rates, we study the impact of the fall in tariff rates on the relative price of investment, on overall capital accumulation, productivity and output growth. The calibrated model implies a 19 percent fall in the RPI compared to the 25 percent seen in the data. Output grows by 13 percent as a result. We also study the marginal impact of financial sector inefficiencies on this transition process and quantify the drag on growth and capital accumulation imposed by these inefficiencies. Next we study the impact of a fall in the costs of financial intermediation on RPI and other macroeconomic variables. We discipline the change in intermediation costs by the change in key financial variables over the same time period. This period saw a rapid increase in the ratio of industrial loans to GDP as well as a rapid fall in the percentage of non-performing

loans in the banking system. We also obtain a sense of the likely gains from future financial sector reform in the process.