Can protectionism improve the trade balance?

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<Abstract>

This paper constructs a dynamic trade model with desirable features to analyze changes in trade balance in response to changes in trade policy. The model provides a laboratory environment in which we can conduct computational experiments to evaluate macroeconomic effects and welfare implications of various trade policies. The model is a large-scale three country model with two sectors. It features capital accumulation with adjustment costs and international bond trading. Trading in commodities and assets allow the model to endogenously capture both optimal intertemporal and intra-temporal allocation of resources. The three country setup allows us to endogenously calculate trade diversion and creation effects when trade policies change. A two country model cannot provide the analysis on how bilateral trade policies would affect trade with the third country.

A key feature of the model is its realistic representation of international financial markets. Most DSGE models feature complete asset markets, so that countries can insure against any eventuality. While the assumption of complete asset markets significantly simplifies model solution, it is not suitable for modeling of trade balance. On the other hand, modeling incomplete asset markets presents significant computational challenges, which we were able to overcome in this paper. In order to solve the model, we employ a linear approximation method based on a shooting algorithm. This method allows us to analyze how one-time permanent changes in tariff rates affect macroeconomic variables in the model over time. We also analyze the case of stochastic tariff rates where the changes are persistent but not permanent. Comparison of cases with permanent and temporary changes in tariff rates allows us to examine how the persistence of trade policy affects the macroeconomic outcome.

The three countries in the model economy are calibrated to US, China and the ROW. We use the model to study the effects of a permanent increase in US tariff on (a) Chinese goods and (b) goods from all countries under two scenarios: (1) without retaliation and (2) with retaliation. Modeling results from experiment (1a) show that US imports from China fall and US imports from the ROW increase. US trade balance improves in the short run, but returns to the initial state (or a level slightly below it) after about 13 years. Due to the temporary improvement in US trade balance, US increases its foreign asset position. Both savings and investment fall in the US, but the initial fall in investment is greater than the fall in savings.

The positive temporary effect of higher tariffs on US trade balance is much greater when tariffs are imposed on all imports than just imports from China. The effect on the trade balance is smaller when there is retaliation. With higher tariff rates, US welfare (measured by conditional welfare) increases, while foreign welfare decreases. Welfare gains become larger with tariff on more goods and higher tariff rates, but welfare gains disappear or even become negative with symmetric retaliation by foreign countries.