Exchange Rate Bands of Inaction and Play-Hysteresis in Euro Area Exports – The Role of Uncertainty

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Abstract

In this paper a non-linear model is applied, where suddenly strong spurts of exports occur when changes of the exchange rate go beyond a zone of inaction, which we call "play" area – analogous to mechanical play. We implement an algorithm describing path-dependent play-hysteresis into a regression framework. The hysteretic impact of real exchange rates on Greek exports is estimated based on the period from 1995Q1 to 2014Q4. Looking at some of the main export partners of Greece, the euro area, Turkey and the US, and some of its most important tradeable sectors we identify significant hysteretic effects for a part of the Greek exports. We find that Greek export activity is characterized by "bands of inaction" with respect to changes in the real exchange rate and calculate the further real depreciation needed to trigger a spurt in Greek exports. To check for robustness we (a) estimate Greek export equations for a limited sample excluding the recent financial crisis, (b) use export weight instead of deflated nominal exports as the dependent variable, (c) employ a political uncertainty variable as a determinant of the width of the area of weak reaction. Overall, we find that those specifications which take uncertainty into account display the best goodness of fit. In other words: the option value of waiting dominates the real exchange rate effect on Greek exports.

We expand our research by analyzing a larger set of countries exporting to a global set of export destinations. Concentrating on four of the biggest economies in the European Union, namely Germany, France, Italy and Great Britain, we examine their respective performance under uncertainty in trade to some of the biggest global export destinations (United States, Japan, Brazil, Russia, India and China). Our sample period ranges from 1992Q1 to 2015Q4 and focuses on the performance of total exports as well as on the most important sectors of our exporting countries. In our specifications we analyze the effect of economic and political uncertainty. We also extend our approach by employing both variables simultaneously to define the variable play area in our algorithm, thus using a more sophisticated procedure to consider uncertainty.