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The J-curve: evidence from commodity trade between US and China

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Abstract

In testing the short-run (J-curve effect) and the long-run effects of currency depreciation on the trade balance many researchers have used either trade data between one country and the rest of the world or between one country and another trading partner. Both groups are said to suffer from aggregation bias. To reduce the bias, in this article we consider trade data between one country (the US) and her trading partner (China) disaggregated by commodity. We use imports and exports of 88 industries (2-digit and 3-digit classifications) and cointegration analysis to show that the trade balance of at least 34 of the industries react favourably to real depreciation of the dollar. The J-curve effect is detected in 22 industries. Furthermore, most of these industries that are sensitive to currency depreciation are durable commodity groupings.

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Notes

[1]Other studies that have used aggregate trade data to address different issues related to the trade balance are Briguglio (1989), Tegene (1991), Vamvoukas (1999), Miljkovic et al. (2000), Bahmani-Oskooee (2001), Dar and Amirkhalkhali (2003), Dutta and Ahmed (2004) and Berument and Dincer (2005).

[2]See Rose and Yellen (1989, p. 58).

[3]Marwah and Klein (1996), Rahman et al . (1997), Bahmani-Oskooee and Brooks (1999) and Kyereme (2002) are examples of other studies that used bilateral data.

[4]For an anlysis of the impact of value-added tax on trade at commodity level see Rousslang and Van Leeuwen (1990) and for the impact of antidumping policies on the trade balance see Mah (2000).

[5]Unlike other four studies in the group, Brada et al . (1993) who used Johansen's cointegration technique showed that there is at most one cointegrating vector among the trade balance, real effective exchange rate, and income variables. However, following Cheung and Lai (1993), when their trace and λ-max statistics are adjusted, cointegration disappears.

[6]Another body of the literature aims at estimating import and export demand functions separately. Examples include King (1993), Alse and Bahmani-Oskooee (1995), Charos et al . (1996), Truett and Truett (2000), Du and Zhu (2001), Love and Chandra (2005), Agbola and Damoense (2005) and Narayan and Narayan (2005).

[7]Normalization is done by dividing estimate of λ_4 by $-\lambda_1$. The same is true of other long-run estimates.

[8]For the list of industries see Table 1.

[9]Two lags are imposed due to limited number of observations, i.e., 25. Note that Hakkio and Rush (1991) have argued that cointegration is a long-run concept and requires long

spans of data rather than a large number of observations. Thus, 25 annual observations are as good as 100 quarterly ones.

[10]These industries are coded in Table 2 or 3 as: 21, 61, 611, 64, 642, 65, 651, 656, 75, 751, 76, 77, 772, 774, 775, 778, 87, 874, 88, 881, 885 and 893.

[11]To provide additional and strong support for cointegration, we use estimates of $\lambda_1 - \lambda_4$ and form an error-correction term EC. We then replace the linear combination of the lagged level variables by the lagged EC and estimate model (4) after imposing the optimum lags. A negative and significant coefficient obtained for EC_{t-1} will support cointegration. These results are also reported in Table 2 and they do indicate that cointegration is supported in all but four cases.

[12]More precisely, the dummy was positive and significant in industries numbered 05, 057, 51, 515, 516, 54, 551, 656 and 897. It was negative and significant in industries 21, 641, 642, 663, 692, 74, 764, 893 and 894.
