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The US–Bangladesh commodity trade: An asymmetry analysis

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ABSTRACT

The new direction on the link between the exchange rate and the trade balance today is asymmetry analysis. We enter into this direction by investigating the asymmetric effects of exchange rate changes on the trade balance of 11 industries that trade between the US and Bangladesh. These 11 industries together engage in 85% of the trade. We find evidence of short-run asymmetric effects in almost all industries. The short-run asymmetric effects last into long-run asymmetric effects in seven industries. At best our findings are industry specific.

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1. Introduction

The J-curve effect posits that subsequent to a devaluation or depreciation, the trade balance deteriorates in the short run and improves in the long run. Early studies that attempted to test the phenomenon used aggregate trade data between one country and rest of the world through VAR or Almon lag structure imposed on the real exchange rate in a trade balance model. The list includes Bahmani-Oskooee (1985, 1989), Bahmani-Oskooee and Malixi (1992), Gupta-Kapoor and Ramakrishnan (1999) and Hsing and Savvides (1996). The aggregation bias in these studies could be avoided through studies on bilateral trade of a specific country with her trading partners. The methodologies used in this category are error correction modeling to detect short-run effects and cointegration to establish the long-run effects. Examples include Wilson (2001), Lal and Lowinger (2002), Sim and Chang (2006), Halicioglu (2007), Mustafa and Rahman (2008), Chang (2009), and Kim (2009).

The most recent survey article by Bahmani-Oskooee and Hegerty (2010) reveals that further disaggregation of bilateral trade by industry yields relatively more support for the J-curve effect. Some examples in this category are: Bahmani-Oskooee and Zhang (2014) and Durmaz (2015). The literature in each category is so large that every country today has its own literature. As far as our country of concern, Bangladesh, is concerned, there are scant empirical works on the link between the exchanges rate changes and the trade balance on aggregate exports and imports of Bangladesh with her trading partners (Khatoon and Rahman, 2009; Aziz, 2012). However, there is no study on industry specific trade of Bangladesh with any of her major trading partners. Our goal in this paper is to fill this gap.

Although Bangladesh may not be a major trading partner of the US, the US is an important and major partner to Bangladesh. The major trade partners of Bangladesh are China with 13.67% share of trade, the United States with 8.38% trade share, India with 8% trade share, Germany (7.15% share), Singapore (6.05% share), UK (share 4.05%) and Turkey (4.23%

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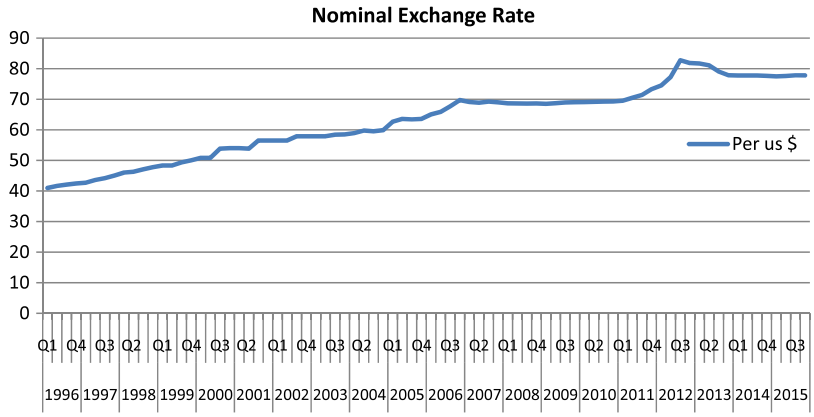

Fig. 1. Plot of nominal bilateral exchange rate (#Taka/dollar).

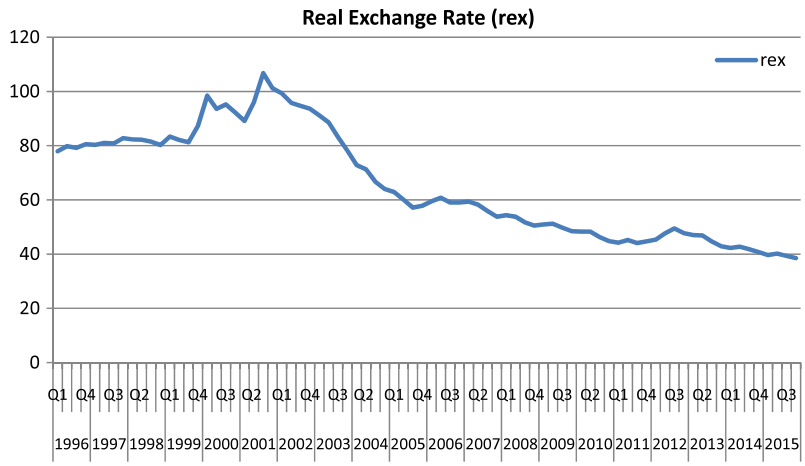

Fig. 2. Plot of the real bilateral exchange rate (REX).

share). These counties constitute over 50% of the total volume of merchandise trade. Another eight countries constitutes roughly 20% of the trade. Thus, approximately fifteen countries constitute 70% of the total merchandise trade. Though this estimate is based on the export and import data of 2014–15, historical data for 2013–14, 2012–13, and 2011–12 represents the same trend both in percentage and on trade balance issue; trade deficit or surplus.[1] Thus, United States is the second largest trade partner of Bangladesh with 8.38% of total trade and Bangladesh is the 58th trading partner of the United States.

In an effort to promote exports to the US, Bangladesh has allowed its currency, Taka to depreciate in the foreign exchange market over the last two decades as evidenced from Fig. 1. However, inflationary effects of Taka depreciation has caused Bangladesh to lose competitiveness and this has resulted Taka to appreciate against the US dollar as a reserve currency or the US dollar to depreciate in real term (Fig. 2). Our concern is to determine which sector in Bangladesh is hurt by Taka appreciation. To that end, due to availability of data at commodity level we concentrate on the trade between Bangladesh and the US and disaggregate their trade flows by industry. We then investigate the short-run and long-run effects of the real bilateral taka–dollar rate on the trade balance of 11 industries that trade between two countries. These 11 industries account for more than 85% of trade between them, reflected by their trade shares to be discussed later. To this end we outline the models and methods in Section 2 and report the results in Section 3. A summary is provided in Section 4 and definition of variables and sources of data are cited in an Appendix.

2. The trade balance models and methods[2]

In formulating the trade balance model at commodity level we follow the literature (e.g., Durmaz, 2015, and Bahmani-Oskooee and Baek, 2016) and assume that the main determinants of the trade balance of each industry are the level of

[1] Data are used from Statistical Pocket Book Bangladesh 2015.

[2] This section closely follows Bahmani-Oskooee and Baek (2016).

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