

The Impact of Foreign Direct Investment on Developing Countries' Terms of Trade

(extended abstract)

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Even six decades after the seminal contributions of Prebisch (1950) and Singer (1950), the question whether terms of trade of primary commodities and/or developing countries (for the relationship between these, see Lutz, 1999) are declining, continues to attract the interest of economists (see, inter alia, Kim et al. 2003; Harvey et al. 2010). While still being mainly a battlefield for time-series researchers, Spraos (1983: 112) initially had a structural economic model in mind and “heroically” interpreted the parameter estimate of a time trend as its “super-reduced form”. Also, another main empirical contribution in the time-series tradition, by Cuddington and Urzúa (1989: 438ff), interprets terms of trade as a stochastic trend model responding to exogenous shocks in dynamic general equilibrium models which raises the question about structural factors causing these shocks.

The present study adds new insights to the literature on structural models in explaining terms of trade movements. This is especially relevant from the policy perspective since the question of terms of trade volatility has gained more interest recently (cf. UNCTAD, 2005: 101-103, Blattmann et al., 2007, Santos-Paulino, 2010). A deeper knowledge about structural factors influencing terms of trade is thus needed. I hereby focus on the developing countries' net barter terms of trade (NBTT). This is motivated by Singer's (1975: 381) hypothesis that most export goods from developing countries share many of the characteristics which Prebisch and Singer attributed to primary commodities, which found empirical support by Sarkar/Singer (1991; cf. also Baxter/Kouparitsas, 2006; Ziesemer, 2010). More specifically, the role of multinational corporations (MNCs) in this context is addressed. It is shown that most economic arguments made in favor of the Prebisch-Singer hypothesis have implicitly attributed a negative terms of trade impact to MNCs. Singer's (1950) American Economic Review paper was entitled “The distribution of gains between investing and borrowing countries”, which already highlighted the role of foreign direct investment (FDI). Also, in Prebisch' (1950) contribution, profit transfers between industrialized and developing countries play a crucial role in linking elastic labor markets in the periphery to highly organized ones in the industrialized countries, although this has barely been recognized in the literature.

Remarkably, as of yet the relationship between MNCs' activities and NBTT has not been empirically investigated. In order to start closing this gap in research, data on 111 developing countries between 1980 and 2008 is analyzed, where inward FDI stock/GDP proxies the importance of MNCs in the developing countries under investigation. The empirical investigation starts with a reduced fixed effects model for all countries, where different types of countries (high, medium-high, low-medium, and low income; cf. Ziesemer, 2010) face different NBTT time trends

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and different impacts of FDI. Results are rather inconclusive. By adding a lagged dependent variable, which accounts for the persistence of the series, we obtain statistically significant (at least at the 10 % level, always using a Huber-White sandwich variance estimator if not noted otherwise) positive impacts of FDI on NBTT in developing, i.e. medium-low and low income countries. In a next step, a set of 18 control variables is added. FDI still exhibits a positive and statistically significant impact on NBTT in developing countries. Conducting some intuitive model selection, the set of control variables is cut down to 12 (inter alia the current account balance, inflation, the real effective exchange rate, the real interest rate, trade/GDP) and applied to the subsample of developing countries, supplementary adding global variables such as world GDP and oil prices. The resulting specification provides a positive and statistically significant (at least at the 5 % level) estimate for the impact of FDI on NBTT in developing countries using either a fixed effect, random effect or pooled OLS approach. An interesting finding is that the residual distribution for the subset of developing countries comes much closer to a normal distribution. This suggests that the model works better for developing countries and that market forces have stronger impact in their terms of trade behaviour than for industrialized countries.

A series of robustness and specification checks is performed. Clustering and a Newey-West procedure in order to account for the observed dependence of residuals within cross-sections still leads to standard errors that keep the estimated parameter statistically different from zero at least at the 10 % level. An alternative measure for the FDI stock is calculated from flow data using the perpetual inventory method. For the preferred fixed effect model, the 5 % level of statistical significance is still met and other specifications provide promising results too.

Finally, the identification problem is addressed using a generalized method of moments (GMM) approach. This has two reasons. First, fixed effects parameter estimates in a autoregressive/dynamic panel model will be biased, at least when T is small (which is no severe problem in the present analysis because there are approximately 10 time observations per cross section on average). Furthermore, there might be a simultaneity problem between factors influencing NBTT and FDI which will bias the fixed effects estimator (although the bias is of order T^{-1}). Both, the system and especially the difference GMM estimator provide a coefficient for the lagged dependent variable that we would expect from the fixed effects and pooled OLS results and from previous studies on these estimators. They also pass standard tests such as the Arellano-Bond tests for autocorrelation and the Hansen test, although the latter seems worrisome for difference GMM. The difference GMM estimate for the impact of FDI on NBTT is of the same magnitude as the fixed effects result but not statistically significant at the 10 % level. The system GMM estimate is statistically significant at the 5 % level but only about half the size of the fixed effect result: An increase of the FDI stock/GDP ratio of one percentage point will result in an increase of NBTT of 0.1 %.

This figure seems rather low on a first sight. But taking into account the considerable increase of the FDI stock/GDP ratio from 16.1 % to 46.2 % between 1980 and 2008, even this conservative estimate suggests that the actual inflow of FDI into developing countries countered the structural tendency of developing countries' NBTT to deteriorate by about 21.3 %. Thus, any economic model trying to explain movements in the developing countries' NBTT cannot abstract from the role played by multinational corporations. Contrary to the arguments made in the Prebisch-Singer literature, MNCs seem to play a rather positive role in this context.

Based on simulations with different depreciation rates in the perpetual inventory method robustness checks it can be shown that the impact of FDI on NBTT is not

caused by the (financial) inflow itself or short-run technical advancements but that foreign ownership, potentially related to market power and a reorganization of production processes, is the most likely channel through which the effect operates.

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