


# Exports versus FDI: do firms use FDI as a mechanism to smooth demand volatility?

Yang-Ming Chang  Philip G. Gayle

Published online: 30 August 2009  
Kiel Institute 2009

Abstract

determinants of exports versus FDI.<sup>1</sup>

The remainder of the paper is organized as follows. Section 2 develops a two-period theoretical model of oligopoly under demand uncertainty to characterize the export and FDI decisions of a firm in serving foreign markets. In Sect. 3, we examine

to examine how changes in demand volatility (V



Substituting Eqs. 3-5 into the FOC and solving for  $x_0$  yields:

$$x_0 = \frac{1}{4} \frac{V(3a - 6c)}{\text{_____}}$$

The findings of the analysis allow us to state the following proposition.

**Proposition 1:** The domestic firm's optimal ocean shipment decreases while its











The numerical examples illustrate that the theoretical model by itself cannot unconditionally tell us whether foreign demand volatility influences the export–FDI decision. To advance our understanding of the issue we must formally analyze actual data. However, as suggested above, the theoretical analysis does provide motivation and context for the subsequent empirical analysis.

#### 4 The empirical model

In this section, we outline the empirical model used to evaluate the plausibility of theoretical predictions derived in the previous sections. First, and most important, we empirically evaluate if foreign market demand volatility levels influence firms' export–FDI decisions. Second, in the event that volatility levels do influence firms'







is that in period  $t$



demand in this foreign country. Summary data in the table reveal that volatility is

market size and market volatility increase, but the effect of market size is not statistically significant at conventional levels of significance. There is evidence that foreign demand volatility influences firms' export-FDI decision. However, this first column of estimates do not allow for nonlinearity in the effects of market volatility as our theory warrants.

In column (2) of Table 6, we only allow

possible independent effects of GDP growth on FDI in order to better discern the pure

growing market demand from the effects of demand volatility on the firm's decision

Anderson, J. E., & Wincoop, E. (2004). Trade costs. *Journal of Economic Literature*, 42(3), 691–751.  
Bernard, Ard, & dñ (2004). somde