An Empirical Inquiry on the Ecological Genesis of Foreign Direct Investment in the North American Wood Products Industry

Joy Das
Department of Agricultural Economics and Agribusiness, Louisiana State University

Abstract

The study investigates the devastation of forests due to a sudden pine beetle outbreak in Canada to estimate the effect of foreign direct investment in the US by Canada on the export of wood products from Canada to the US. The strategic acquisition of the southern US sawmills by Canadian producers since 1990, has influenced the economic decision-making in the North American wood products industry. On this context, the study throws light on the largely debated issue on whether FDI substitutes or complements export. Considering the total volume of wood products harvested in Canada as an instrument for the flow of exports from Canada to the US, the study estimated significant positive impacts of wood products exports on the flow of FDI from Canada to the US. When the effect of export is controlled for, the US-Canada exchange rate, GDP of Canada and the bilateral Tariff imposed on export of wood products from Canada to the US.

Background

- Since early 2001, the Canadian softwood lumber producers have been purchasing sawmills in the southeastern parts of the U.S (Taylor, 2015).
- Compared to the acquisition of only one US sawmill in 2001, the major Canadian producers such as West Fraser, Canfor and Interfor had assumed control of 35 southern US sawmills by the end of 2014 (Taylor, 2015).
- Over that same period 2001 – 2014 about 60 percent of the harvestable timber had been lost in British Columbia (Donville and Marx, 2015).

Objective

Whether foreign direct investment substitutes or supports the growth of exports in the North American wood products industry.

Flow of FDI and Wood Products Exports from Canada to the US
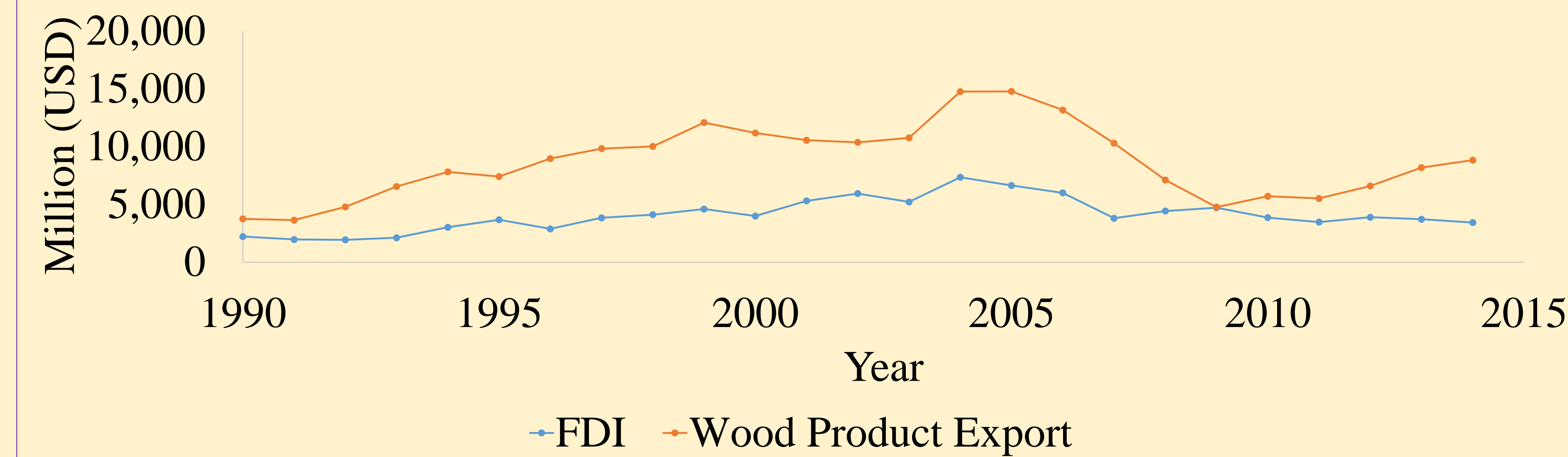
Theory

- Beginning in 1966, Raymond Vernon introduced the production cycle theory.
- The eclectic paradigm or the ownership location internalization (OLI) paradigm proposed by John H Dunning in 1977 is one of the most powerful theories that explains the factors determining foreign direct investment and production at the international levels.
- Internationally firms usually have four objectives, market seeking, resource seeking, efficiency seeking and strategic assets seeking.
- Poloz (2007), has talked about the new paradigm of "Integrative Trade" that integrates FDI flows and exports – Vertical FDI and Horizontal FDI.

Hypothesis, Methodology and Data

- We hypothesize that pine beetle outbreak has affected the flow of exports from Canada to the US. Exports affected the flow of FDI from Canada to the US; and earlier FDIs persisted and formed the basis of current FDIs in the US
- All the data is from 1990 to 2014
- We take the cumulative volume of wood products harvested in Canada as the plausible instrument for cumulative exports
- The producers take decisions to harvest and export wood products in the current period. So, there is a direct relation between current period's wood product exports with the volume harvested, but no direct relationship with FDI decisions.
- Cumulative volume of wood products harvested has a strong correlation with the exports from Canada to the US in the current period.

Analysis

The two stage least squares (2SLS) regression using instrumental variable,

$FDI = f \{EXP, EXR, TAR, GDPC\} + u$

$CFDI = \beta 0 + \beta 1\ CEXP + \beta 2 EXR + \beta 3\ TAR + \beta 4\ GDPC + e$

The working of the 2SLS method assumes the following equations in this case,

$CEXP = \alpha 0 + \alpha 1\ ER + \alpha 2\ CVWH + \alpha 3\ GDPC + \alpha 4 TAR + u$ (first-stage)

$CFDI = \beta 0 + \beta 1\ CEXP * + \beta 2\ ER + \beta 3\ TAR + \beta 4\ GDPC + e$ (second-stage)

Results

To Staged Least Squares (2SLS) Results	dependent variable is flow of FDI from Canada to the US
Log of cumulative flow of wood products exports from Canada to the US	2.92**
	(1.54)
Log of GDP of Canada	1.93
	(2.34)
Log of exchange rate (Canadian Dollar to USD)	-4.2*
	(3.20)
Log of weighted average tariff (%) on imports of wood products by the US from Canada	6.13*
	(3.52)
R^2	0.66
Number of observations	24

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$ (Standard errors are in parenthesis)
Notes: Table reports the two-stage least-squares estimates where log of cumulative flow of FDI from Canada to the US is the dependent variable. Standard errors are in parenthesis.

Conclusion

- In this study, we have obtained a robust complementing impact of exports on FDI in the North-American wood products industry. This re-establishes the results reported by Nagubadi and Zhang (2011), Bloningen (2001)*, Shapiro (1999)* and Desai et al (2005)*.
- To the contrary Uusivuori and Laaksonen-Craig (2001)*, Bloningen (2005)* and Nagubadi and Zhang's (2008)* studies have reported that FDI and exports are substitutes.
- We incorporated the tariff that are being imposed in wood products trade between Canada and the USA.
- Globerman and Shapiro (1999)* have said that FDI and Export are more likely to be substitutes under restricted trade due to high tariffs, but under unrestricted trade they are likely to be complements. This contradicts our results as we see that even in the presence of tariff we have obtained a relationship where FDI supports exports.
- But it is to be noted that the data considered in the model is during post NAFTA where most of the trade agreements between the US and Canada are unrestricted, but there was some tariff imposed on wood products trade.
- So, in a sense our results may feebly support Globerman and Shapiro's (1999) conclusion as the tariff that was imposed on wood products trade during 1990-2014 was very low.

References

Donvillee C. and Marx W. (2015, June 23). Beetle plague pushes Canadians to stock up on U.S. lumber mills. The Globe and Mail. Dunning, John H. (1977) "Trade, location of economic activity and the MNE: A search for an eclectic approach." *The international allocation of economic activity*. Palgrave Macmillan UK. 395-418.

Globerman, S., & Shapiro, D. M. (1999). The impact of government policies on foreign direct investment: The Canadian experience. *Journal of International Business Studies*, *30*(3), 513-532.

Nagubadi, R. V., & Zhang, D. (2011). Bilateral foreign direct investment in forest industry between the US and Canada. *Forest Policy and Economics*, *13*(5), 338-344

Poloz, S. (2007). Financial Intermediation under the New Trade Paradigm: EDC and Integrative Trade. *Export Development Canada, Ottawa*

Taylor, Russ. (2015). Canada's lumber producers expanding further — but in the U.S. *Logging and Sawmilling Journal*.

Vernon, R. (1966). International investment and international trade in the product cycle. *The quarterly journal of economics*, 190-207.

(*citation couldn't be referred due to space constraint)

Contact Information: jdas2@lsu.edu