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How Does Protectionist Trade Policy Interact with FDI?

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Executive Summary

In this study, we investigate the question whether importing countries' implementation of protective trade measures, such as antidumping duties, leads to changes in foreign direct investment from trading partners. That is, we examine the prevalence of "ADP-jumping FDI" across countries. We use more recent and organized non-tariff measure data provided by the WTO I-TIP and Ghodsi *et al.* (2017), which can be matched with other trade-related variables. Using econometrically sensible identification strategies, the Tobit and the Heckman two-stage selection models, we find out that ADP-jumping FDI to importing countries prevails rather consistently around the world. These results are also consistent with those using Poisson and linear fixed effects models.

Keywords: Foreign direct investment, Antidumping policy, trade policy, Tariff-jumping

JEL Classification: F13

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Jongduk Kim[†] and Moonhee Cho^{††}

1. Introduction

In recent years concerns with regard to protectionist trade policies since the Global Financial Crisis and the following Great Recession are growing. Even though it is well-recognized that trade liberalization benefits all engaging economies, international trade is almost always the first thing to blame for the economic hardship of domestic economic agents when an economy slows down. In times of recession industries facing deeper economic contraction tend to pressure the government to take action to alleviate competition from the outside, the government at a political risk responds by placing trade protectionist measures at the top of its priority list along with other expansive macroeconomic policies. Restricting imports using protectionist trade policies is likely to cause changes in foreign direct investment (FDI) flows. The so-called phenomenon of tariff-jumping FDI has been known to economists and there are several theoretical frameworks to address FDI decisions from the perspective of international trade. However, empirical investigation with regard to the effects of trade policy, i.e. tariffs, on foreign direct investment has been rare. The reason is that since the establishment of the General Agreement of Tariffs

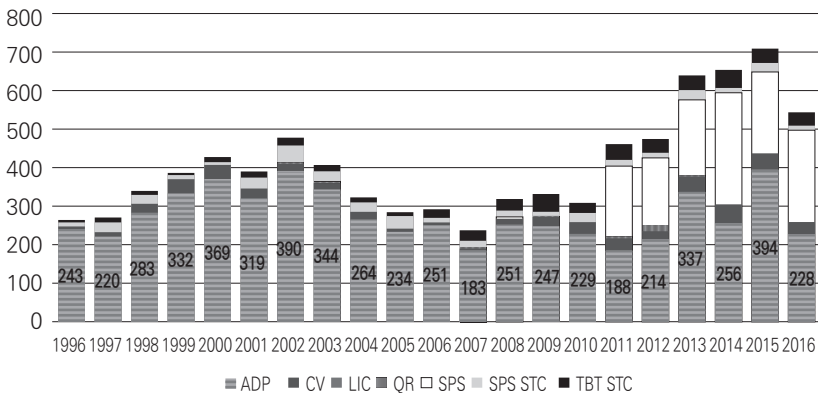
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and Trade (GATT) and the World Trade Organization (WTO), arbitrary use of tariffs has been strictly limited. However, there are exceptions where the WTO allows the use of trade-restricting measures. Antidumping (ADP) action is one of these, and along with countervailing measures and safeguards is referred to as a form of trade remedies. Antidumping duties are relatively more frequently used to protect domestic industries from foreign competition. Figure 1 presents the trends of bilateral non-tariff trade measures from 1996 to 2016. As shown, ADP was the most frequently used trade measure before 2010 and still is one of the primary tools. Overall, from 1996 to 2016 antidumping accounts for about 67.5% of bilateral non-tariff measures. Roughly about 200–400 antidumping cases are reported to the WTO every year. The cumulative number of bilateral antidumping cases reported to the WTO has reached 5,776.

Tables 1 and 2 show the numbers of filing and target cases of major economies from 1996 to 2016, respectively. In terms of ADP filings, the United States and India are at the top of the list. Both countries file almost 40 ADP cases annually on average. As for ADP targets, China is the country most filed against. The United States is ranked at 4th. What seems interesting is that both lists include major emerging economies such as China, India, Brazil, Argentina, Indonesia etc. These emerging markets are heavily involved with global production networks and thus are heavily engaged in international trade and foreign direct investment.

Figure 1. Bilateral Non-tariff Trade Measures



Note: Antidumping is the primary non-tariff measure up to 2010. The number of cases reported to the WTO ranges from 183 (in 2007) to 394 (in 2015) and sums up to 5,776 in total.

Source: wiiw NTM Data, <https://wiiw.ac.at/wiiw-ntm-data-ds-2.html>.

Table 1. Major ADP Filing Economies

Rank	Country	'96-'16		
		number of cases (cumulative)	average (annual)	share (%)
1	U.S.	812	39	14.1
2	India	803	38	13.9
3	EU	505	24	8.7
4	Brazil	475	23	8.2
5	Argentina	382	18	6.6
6	Australia	287	14	5.0
7	China	260	12	4.5
8	South Africa	248	12	4.3
9	Turkey	239	11	4.1
10	Canada	185	9	3.2
11	Mexico	182	9	3.2
12	South Korea	157	7	2.7
	World (total)	5,776	275	100

Source: wiiw NTM Data, <https://wiiw.ac.at/wiiw-ntm-data-ds-2.html>.

Table 2. Major ADP Target Economies

Rank	Country	'96-'16		
		number of cases (cumulative)	average (annual)	share (%)
1	China	1,379	66	23.9
2	Korea	397	19	6.9
3	Chinese Taipei	311	15	5.4
4	U.S.	297	14	5.1
5	India	234	11	4.0
6	Japan	231	11	4.0
7	Indonesia	224	11	3.9
8	Thailand	223	11	3.9
9	Russia	173	8	3.0
10	Brazil	155	7	2.7
	World (total)	5,779	275	100

Source: wiiw NTM Data, <https://wiiw.ac.at/wiiw-ntm-data-ds-2.html>.

As protectionist sentiment and policies across countries become more prevalent, this is expected to be accompanied by economic changes including trade and investment flows.

The relationship between trade policy and foreign direct investment has been looked at from various angles in the literature.

A series of papers investigating trade policies and their impacts are in line with the literature of political economy and strategic trade policy. The endogenous connection between trade policy and the political economy behind it was one of the most riveting research considerations in the 1990's in the field of international trade. Notable works are Findlay and Wellisz (1982), Feenstra and Bhagwati (1982) [tariff-formation with factor-specificity], Hillman (1989), Van Long and Vousden (1991) [political support], Mayer (1984) [median voter] and Magee, Brock and Young (1989), Grossman and Helpman (1994) [political contribution]. Rodrik (1995) surveys papers and categorizes a broad spectrum of studies in this regard. Trefler (1993) is the first paper that shows an increase in import penetration stimulates demands for non-tariff barriers. Research in strategic trade policy gives another perspective.

Brander-Spencer type interactive strategic trade policy models explain what could be the losses of protectionist trade wars and the importance of trade agreements (Brander, 1995). However, since the outcomes of strategic trade models heavily depend on the market structure of involved economies and policy tools in use, practical implications of strategic models and satisfactory empirical studies are rather limited (Krugman, 1994). At first, FDI was not properly integrated in strategic trade models and empirical work was even rarer.

Tariff-jumping FDI presents a more specified explanation. There are various theoretical explorations in terms of the government's optimal policy and FDI decisions of multinational firms (Motta 1992; Flam 1994; Grossman and Helpman 1996; Blonigen and Ohno 1998; Ellingsen and Warneryd 1999; Kayalicz and Lahiri 2007; Ichino 2013). Even though there are theoretical studies exploring "ADP-jumping" FDI, empirical evidence is relatively rare due to the lack of properly corresponding ADP and FDI data across countries. Recently as multinational activities gain pace, more attention has been paid to the importance and determinants of FDI in trade policy. The relationship between protectionist policies and FDI used to be considered quite clear: firms facing trade protectionist policies increase affiliate production or establish a new one in order to circumvent rising trade costs. As noted,

few studies have investigated tariff-jumping FDI and even these have shown somewhat mixed results. Blonigen and Feenstra (1997) explain the idea of “quid pro quo FDI” and empirically test whether antidumping measures bring more investment to the ADP-imposing country, using Japanese investment data to the U.S. Barrell and Pain (1999) examine aggregate FDI flows into the United States and the European Union and find that antidumping is positively correlated with inward FDI from Japan at country level. Belderbos (1997) empirically tests the effects of the U.S. and the EU antidumping investigations on FDI from Japan using firm-level data across 36 electronics products, and finds that the probability of Japanese FDI after an affirmative antidumping decision drastically increases both in the EU (19.6% to 71.8%) and the U.S. (19.7% to 35.9%). However, Blonigen (2002) shows a different, rather modest outcome using more extended data country-wise. Since previous studies use Japanese FDI data, he raises the question whether those ADP-jumping outcomes are dependent upon U.S.-Japan specificity. The study includes all target countries of the U.S. and finds that magnitudes of antidumping duties decrease substantially. Since the Global Financial Crisis of 2008, there are studies arguing that protectionist measures have broadened to foreign direct investment and hence shown negative effects on FDI inflows. Sauvart (2009) argues that screening of inward M&As is becoming more frequent and FDI protectionism is being done under the guise of “national interest” or similar concepts, often linked to strategic sectors and national champions, especially after the Global Financial Crisis. Görg and Labonte (2012) examine the impact of trade protectionist measures on FDI inflows among OECD and partner economies from 2006 to 2009 and draw a conclusion that the implementation of trade protectionist measures are associated with 40-80% lower FDI inflows.

There are two main questions this paper intends to tackle. First, we seek to answer whether “ADP-jumping FDI” practices have prevailed across countries since the Global Financial Crisis in 2008. With the exception of Görg and Labonte (2012), most of empirical work done so far includes a very limited selection of economies such as the United States, EU and Japan because of the lack of data available. In this paper, we investigate the impact of antidumping measures on inward FDI and try to examine the prevalence of ADP-jumping FDI around the world. Now we have relatively rather more recent and more organized non-tariff measure data provided by the WTO I-TIP and Ghodsi *et al.* (2017), which can be matched with other trade-

related variables. Using these data, this paper aims to empirically investigate whether “ADP-jumping” FDI prevails across countries. Second, we also explore how we can estimate ADP-jumping FDI sensibly when the destinations of FDI are determined endogenously. Lack of data availability is not the only challenge; another concern is seen with the large proportion of zero data. To address the zero data problem, we try to adopt rather more sensible econometric identification strategies by using Heckman’s two-stage selection model and the Tobit model, also known as a censored regression model. In addition, Poisson and linear fixed effects models are also used for robustness check. All outcomes are provided and compared to investigate the prevalence of ADP-jumping FDI.

This paper is organized as follows. Section 2 introduces identification strategies concerning zero FDI and summarizes the data. Section 3 provides the outcomes of our analysis. Finally, Section 4 concludes.

2. Analysis

As aforementioned, the aim of this paper is to find out whether antidumping as a trade protectionist measure affects foreign direct investment from partner countries.

We first examine the effect of antidumping measures on import flows. Then we apply identification strategies other than the linear fixed effects model to investigate the impact of antidumping measure on foreign direct investment: namely, the Tobit and Heckman two-stage selection, and Poisson models. One of the reasons why we adopt these regression models is to address excessive zeros in the FDI data. Traditional linear regression models cannot properly deal with excessive zeros in data sets. These three models have their own strengths to deal with data with zeros. Tobit and Heckman two-stage regression models are used to explicitly address selection biases of data. Poisson model is mostly applied for count dependent variable analysis. In this study, another statistical strength of Poisson regression model is considered: Poisson model provides heteroscedasticity-robust standard errors. We compare the outcomes of all four different regression models to provide a consistent and robust explanation with regard to the ADP-jumping FDI including linear fixed effects model.

2-1. Identification Strategy

FDI data have many zero values intrinsically. It is not surprising that the number of country pairs with positive FDI is much smaller than the number of total country pairs. For example, the share of zero bilateral FDI in our sample is about 45%. The share of zero bilateral outward FDI from the world's ten largest economies is as below in Table 3. A notable pattern in outward FDI is that developed economies such as the U.S. or European countries show much smaller share of zeros compared to emerging economies such as Brazil or India. In other words, emerging economies have rather more limited access to other markets than developed economies.

Table 3. Share of Zero Bilateral Outward FDI

Country	Percentage	Country	Percentage
USA	18.86 %	India	41.61 %
China	34.07 %	France	16.64 %
Japan	29.39 %	Italy	26.53 %
Germany	21.33 %	Brazil	59.43 %
UK	18.08 %	Canada	27.70 %

Source: Authors' calculation using IMF CDIS.

In order to investigate the impact of trade policies on foreign direct investment, the following empirical model is adopted. Considering that FDI destination choices are not random but endogenously selected, we cannot ignore the selection process as well as many cases of zero FDI. Assuming that decisions on FDI proceed in two stages – that is, investors decide whether they invest or not at the first stage and then they determine the amount of investment at the second stage – we use the Heckman two-stage selection model as a baseline estimation model to adjust for the selection bias. The Heckman two-stage selection model procedure is as follows.

$$\log(IFDI_{rpt}) = \begin{cases} \log(IFDI_{rpt}^*) = \log(ADP_{rpt-1})\beta_{ADP} + \mathbf{X}_{rpt}\beta_X + \epsilon_{rpt} & \text{if } S_{rpt}^* > 0 \\ 0 & \text{if } S_{rpt}^* \leq 0, \end{cases}$$

where $IFDI_{rpt}^*$ is a latent variable which is unobserved FDI from partner (target) country p to reporting (imposing) country r in year t and $IFDI_{rpt}$ is observed FDI from p to r in year t ; ADP_{rpt-1} is the number of antidumping measures which were brought by r country against p country in year $t-1$; \mathbf{X}_{rpt} is a vector of explanatory variables; S_{rpt}^* is also a latent variable and a selection indicator whether IFDI occurs or not; ϵ_{rpt} is error term. We need to note that $IFDI_{rpt} = IFDI_{rpt}^*$ when investor profit surpasses the threshold level, in other words $S_{rpt}^* > 0$, and $IFDI_{rpt} = 0$ otherwise.

Selection equation to decide whether they invest or not is as below.

$$S_{rpt}^* = \mathbf{Z}_{rpt}\delta_Z + u_{rpt},$$

where \mathbf{Z}_{rpt} is a vector of explanatory variables which include the same set of variables in \mathbf{x}_{rpt} and one additional variable for the identification. The additional variable is the FTA dummy variable affecting FDI selection but not the size of FDI. Note that the OLS regression using the only observed positive value of FDI leads to inconsistent estimates if the error terms are correlated in the above two equations (Heckman 1979).

Because we cannot observe S_{rpt}^* , we define an indicator equation as below.

$$d_{rpt} = \begin{cases} 1 & \text{if } S_{rpt}^* > 0 \\ 0 & \text{otherwise} \end{cases},$$

where $d_{rpt} = 1$ if FDI occurs and $d_{rpt} = 0$ otherwise.

The expected value of $IFDI_{rpt}$ conditional on the case that $IFDI_{rpt}$ take a positive value is as below.

$$E(\log(IFDI_{rpt})|d_{rpt} = 1) = \log(ADP_{rpt-1})\beta_{ADP} + \mathbf{X}_{rpt}\beta_X + \lambda_{rpt}\beta_\lambda,$$

where $\lambda_{rpt} = \frac{\phi(\mathbf{Z}_{rpt}\delta_Z)}{\Phi(\mathbf{Z}_{rpt}\delta_Z)}$ and $\phi(\cdot)$ is the standard normal pdf and $\Phi(\cdot)$ is the standard normal cdf. And, the selection equation is given by

$$\text{Prob}(d_{rpt} = 1) = \text{Prob}(S_{rpt}^* > 0) = \text{Prob}(-\mathbf{Z}_{rpt}\delta_Z < u_{rpt}) = \Phi(\mathbf{Z}_{rpt}\delta_Z).$$

We estimate β and δ in the above two equations.

2-2. Data

As noted, organized data on non-tariff measures linked with industrial classification codes such as International Standard Industrial Classification (ISIC) or Harmonized System (HS) are scarce and thus so are empirical studies. Bown (2007, 2016) are the rare exceptions using compiled data on antidumping measures and later on other temporary trade restrictiveness indicators, respectively. Ghodsi *et al.* (2017) build a non-tariff database that can be matched with other trade related variables

using the Integrated Trade Intelligence Portal (I-TIP) of the World Trade Organization (WTO).

The Integrated Trade Intelligence Portal (I-TIP) is an excellent source of non-tariff data for econometric analysis and provides a compilation of seventeen non-tariff measures, seven of which are applied bilaterally (see Table 4) and others are applied to all trading partners. For each notification, the I-TIP database offers information on the reporting (filing) countries, the (target) partner countries and other information on the non-tariff measures. It covers the period from 1979 to 2016. The number of reporting (filing) and partner (target) economies are both 111.

Table 4. Non-tariff Trade Measures

Bilateral measures	
ADP	Antidumping duties
CV	Countervailing duties
SPS	Sanitary phytosanitary
SPS STC	Specific trade concerns in sanitary phytosanitary
TBT STC	Specific trade concerns in technical barriers to trade
QR	Quantitative restrictions
LIC	Licenses

Source: WTO I-TIP (2019).

Among those various measures, this paper includes antidumping measures as bilateral trade-protective measures in the analysis. Antidumping is a contingent protection measure along with countervailing and safeguards, and is the primary trade policy tool, accounting for around 10% of all notifications (Ghodsi *et al.* 2017).

As for foreign direct investment data, we use the IMF's coordinated direct investment survey data (CDIS). According to the IMF, the CDIS is a worldwide statistical data collection effort led by the IMF and the purpose of the CDIS is to improve the quality of direct investment position statistics in the international investment position (IIP) and the availability of these statistics by immediate counterpart economies. CDIS data are available from 2009 over 119 economies. However, eight countries that have no inward FDI from 2009 to 2015 are omitted

in the analysis. The complete list of economies for our analysis is provided in Appendix A.

As for imports, the World Bank provides data on bilateral trade data (World Integrated Trade Solution, WITS) and GDP (World Development Indicators, WDI) of economies. Finally, other gravity-type controls such as bilateral distances and (official) common languages shared among countries for analysis are available from CEPII. Overall summary statistics with regard to the variables we use are provided below in Table 5.

Table 5. Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
$\log(IFDI_{rpt})$	85,250	5.851462	8.622227	0	27.84518
$\log(GDP_{rt} + GDP_{pt})$	85,250	26.58777	1.645462	21.06569	31.00638
$\log(GDPPC_{rt} - GDPPC_{pt})$	85,250	9.248888	1.502659	-1.00388	11.68179
$\log(Import_{rpt-1})$	85,250	12.80412	7.638525	0	26.91008
$\log(ADP_{rpt-1})$	85,250	0.332397	0.819866	0	5.47227
$\log(DIST_{rp})$	85,250	8.63556	0.843957	4.087945	9.898699
<i>Common Language_p</i>	85,250	0.101842	0.302442	0	1
<i>FTA_{rpt}</i>	85,250	0.213889	0.410052	0	1

Source: Authors' calculation.

3. Results

3-1. Import-restricting Measures

Before we dive into analyses on the relationship between antidumping measures and foreign direct investment, it is important to know which measures among the seven bilateral non-tariff measures in the WTO have affected import flows and hence whether strategic direct investment of a targeted partner economy (or ADP-jumping) is necessary to avert losses from such measures. In order to identify import-restricting measures, the gravity-type regression model is run first. In order to avoid the simultaneity problem, lagged measures (by 1 period) are included in the analysis. In addition, to address the problems of zero bilateral trade flows and heteroscedastic errors, a panel Poisson regression model is adopted. To the extent that data allow for the analysis, we use data from 1996 to 2016. The following table presents the results.

Table 6. Measures Affecting Imports

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable: $\log(IMP_{rpt})$							
$\log(GDP_{rt})$	0.690*** (15.97)	0.688*** (15.65)	0.704*** (15.85)	0.700*** (15.65)	0.705*** (15.93)	0.708*** (15.74)	0.705*** (15.82)	0.689*** (15.73)
$\log(GDP_{pt})$	0.512*** (12.93)	0.487*** (14.11)	0.480*** (12.95)	0.481*** (13.34)	0.482*** (13.96)	0.490*** (13.62)	0.479*** (12.98)	0.521*** (14.22)
FTA_{rpt}	0.0623** (2.23)	0.0686** (2.41)	0.075*** (2.61)	0.0715** (2.49)	0.0689** (2.44)	0.079*** (2.73)	0.076*** (2.64)	0.065** (2.29)
$\log(ADP_{rpt-1})$	-0.0002*** (-3.37)							-0.0001* (-1.92)
$\log(CV_{rpt-1})$		-0.0006*** (-2.73)						-0.0004 (-1.37)
$\log(SPS_{rpt-1})$			-0.0013 (-0.25)					0.0072 (1.35)

Table 6. Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable: $\log(IMP_{rpt})$							
$\log(SPSSTC_{rpt-1})$				-0.0004 (-1.42)				-0.00002 (-0.04)
$\log(TBTSTC_{rpt-1})$					-0.0011** (-2.22)			-0.00022 (-0.27)
$\log(QR_{rpt-1})$						-0.0573*** (-9.99)		-0.0627*** (-11.34)
$\log(LIC_{rpt-1})$							0.0330 (0.90)	0.0351 (0.94)
Observations	340,454	340,454	340,454	340,454	340,454	340,454	340,454	340,454

Note: t-statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

It turns out that all seven measures have negative impact on imports except licensing (LIC), which has a positive coefficient with no statistical significance. Among these, antidumping (ADP), countervailing (CV), specific trade concerns in technical barriers to trade (TBTSTC) and quantitative restriction (QR) reveal more significant impacts on imports. In the following Section 3.2. we focus on analyzing the impact of antidumping measures on inward FDI.

3-2. Antidumping Measure as an FDI Determinant

The impact of antidumping measures on inward FDI is tested using two different econometric specifications: Tobit and Heckman two-stage selection models. The sample period for the analysis is from 2009 to 2015 over 111 countries. As noted, a large share of FDI data consists of zeros, which bears relation with the location choice of FDI. In other words, the destination of FDI is not randomly chosen but endogenously determined. Then, such decision processes should be properly considered in identification strategies to avoid biased estimates. Both Heckman's two-stage selection and the Tobit models address the concern. Table 7 provides the results from these two models. First, in the first stage of the Heckman selection model (third column in Table 7), it turns out that free trade agreements (FTAs) play

a significant triggering role in deciding destination. Countries with FTAs are more likely to be FDI destinations. In the second stage (second column in Table 7), the volume of IFDI depends on the usual gravity-type variables and the number of antidumping measures imposed on partners. The results show that the coefficients of the usual gravity-type variables are consistent with theoretical expectations. The variable of our interest, $\log(ADP_{rpt-1})$, has a positive coefficient with statistical significance at 1%. In other words, ADP-jumping FDI exists. Regression outcomes from the Tobit model (fourth column in Table 7) are in line with those from the Heckman two-stage selection model. The Tobit model also confirms ADP-jumping FDI.

Table 7. Impact of ADP on IFDI (Tobit and Heckman)

VARIABLES	(1)		(2)
	Heckman Selection		Tobit
	$\log(FDI_{rpt})$	Selection eq.	$\log(FDI_{rpt})$
$\log(GDP_{rt} + GDP_{pt})$	1.0559*** (0.0287)	0.2641*** (0.0040)	5.5807*** (0.1169)
$\log(GDPPC_{rt} - GDPPC_{pt})$	0.0918*** (0.0141)	-0.01186*** (0.0036)	0.0769 (0.0782)
$\log(IMP_{rpt-1})$	0.0134*** (0.0019)	0.0289*** (0.0008)	0.1622*** (0.0109)
$\log(ADP_{rpt-1})$	0.1703*** (0.0383)	0.1151*** (0.0060)	2.4321*** (0.1976)
$\log(DIST_{rp})$	-1.2488*** (0.0465)	-0.3513*** (0.0070)	-7.6812*** (0.2112)
<i>Common Language_p</i>	1.7998*** (0.1291)	0.30767*** (0.0157)	7.0385*** (0.5509)
<i>FTA_{rpt}</i>		0.2961*** (0.0136)	1.3532*** (0.2439)
Year dummy	Yes	Yes	Yes
Observations	85,250	85,250	85,250

Note: t-statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01.

3-3. Robustness Check

In the previous section, we find that antidumping measures have an influence on the volume of IFDI. For a robustness check, we conduct the same empirical analysis using two different types of estimation methods: linear fixed effects model and fixed effects Poisson model. Both have been used as the workhorses for estimation of gravity equation for years. For both models, we use country-pair fixed effects to control for time-invariant heterogeneity.

The outcomes consistently provide the evidence that antidumping measures increase inward FDI. Table 8 provides the results from linear fixed effects model and fixed effects Poisson model. Both column (1) and column (2) in Table 8 show expected outcomes that antidumping in the immediate prior period increases inward FDI to imposing (filing) countries. With regard to FTAs, the two methods provide less congruous outcomes to each other. In column (1) FTA has no impact on FDI, whereas in column (2) it has a positive coefficient with statistical significance.

Table 8. Impact of ADP on FDI (OLS and Poisson)

VARIABLES	(1)	(2)
	OLS	Poisson
	$\log(IFDI_{rpt})$	$IFDI_{rpt}$
$\log(GDP_{rt} + GDP_{pt})$	0.6904*** (0.1936)	0.6939*** (0.1466)
$\log(GDPPC_{rt} - GDPPC_{pt})$	-0.0347 (0.0482)	0.0136 (0.0218)
$\log(IMP_{rpt-1})$	0.0352*** (0.0046)	0.0214*** (0.0053)
$\log(ADP_{rpt-1})$	0.9667*** (0.3303)	0.1896* (0.1040)
FTA_{rpt}	-0.0645 (0.1738)	0.1481* (0.0785)
Country-pair FE	Yes	Yes
Year dummy	Yes	Yes
Observations	85,250	39,115

Note: t-statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4. Concluding Remarks

This paper intends to provide the following two main contributions. First, using newer and more organized antidumping data, we have tried to answer whether ADP-jumping FDI practices prevailed across countries since the Global Financial Crisis. Second, we estimate ADP-jumping FDI more sensibly when the destinations of FDI are endogenously determined. Using the Tobit and Heckman two-stage selection models, we confirm the existence of ADP-jumping FDI. If a country uses an antidumping measure against a partner country to limit market access through exports, the partner country seeks access through FDI. One of the policy implications we can draw from our analysis is that protectionist trade policy may persist if one of the policy objectives is to increase foreign direct investment.

Of course there are limitations to this study and large room for improvement. In principle, the economic agents reacting to antidumping measures of importing countries are firms in exporting partner countries. Therefore, analysis using firm-level data controlling for country-, industry-, and firm-specific characteristics will provide much richer results and policy implications. Speaking of firm-level analysis, now that we have much detailed non-tariff measures not only for antidumping but also for SPS and TBT accounting for most of the non-tariff measures taken in recent years, it will be of interest to see the economic reactions in firms entailed by these non-tariff measures.

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Appendix

The following is a list of the 111 countries (ISO3 names) out of 119 economies provided for in the CDIS of the IMF used in our empirical analyses. The exclusion is made for economies that report no FDI inflows for the sample period from 2009 to 2015.

ALB	DEU	KWT	POL
ARG	DNK	LBN	PRT
ARM	DZA	LKA	PRY
AUS	ESP	LTU	ROU
AUT	EST	LUX	RUS
AZE	FIN	LVA	RWA
BEL	FRA	MAC	SAU
BEN	GBR	MAR	SEN
BFA	GEO	MDA	SGP
BGD	GHA	MEX	SLV
BGR	GRC	MLI	SVK
BHR	GTM	MLT	SVN
BIH	HKG	MMR	SWE
BLR	HND	MNG	SYC
BOL	HRV	MOZ	TGO
BRA	HUN	MUS	THA
BRB	IDN	MYS	TJK
BTN	IND	NAM	TUR
BWA	IRL	NER	TZA
CAN	ISL	NGA	UGA
CHE	ISR	NLD	UKR
CHL	ITA	NOR	URY
CHN	JOR	NPL	USA
CIV	JPN	NZL	VEN
CPV	KAZ	PAK	WSM
CRI	KGZ	PAN	ZAF
CYP	KHM	PER	ZMB
CZE	KOR	PHL	

Source: IMF CDIS.

국문요약

본 연구에서는 반덤핑조치 중심으로 보호주의 정책이 외국인직접투자에 미치는 영향을 분석하였다. 이를 위해 Heckman 모형, Tobit 모형 및 패널모형을 이용하여 반덤핑조치 부과가 상대국으로부터의 외국인직접투자 유입에 미치는 영향을 추정하였다. 모든 모형에서 일관된 결과를 얻었으며, 분석 결과를 요약하면 다음과 같다. 반덤핑조치 부과가 통계적으로 유의하게 상대국으로부터 외국인직접투자 유입을 증가시키는 것으로 추정되었다. 즉, 반덤핑조치로 인해 수출시장 접근에 제약이 발생할 경우 수출국은 FDI를 통해 시장접근을 개선하고자 함을 확인하였다.

핵심용어: FDI, 반덤핑 정책, 무역정책, 관세우회

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