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“Reversal of trade liberalization and emerging market firms’ exports”



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Agenda

- About this paper
- Introduction
- Empirical specifications
- Results
- Discussion

About this paper

- We study the relationship between reversal of trade liberalization and firms' exports in emerging markets.
- Using firm-level data over 2008-2011 in a difference-in-difference approach, we analyse the consequences for firms' exports of a trade barrier for imports of iron and steel introduced in Indonesia in 2009.
- The reversal of trade liberalization episode analysed reduces exports of emerging market firms in the affected sectors by 5%.
- Firms engaged in importing activities, foreign-owned firms, and SMEs register a greater decrease in exports.
- Manufacturing firms that provide services are resilient to reversal of trade liberalization and export more.

Introduction

- Growing protectionism
 - What are the export consequences for firms in emerging markets?
 - What are the mechanisms?
 - Internationalization and size
 - **Services**
 - Vandermerwe and Rada (1988)
 - » when firms do not control services crucial to their own business they become vulnerable.
 - Di Gregorio et al. (2009), Jensen (2009), (2012)
 - » importance of considering services vs manufacturing activities
 - Lodefalk (2014), Li et al. (2017), Ariu et al. (2020)
 - » firms' resources and capabilities can be deployed in multiple geographical and country settings, firms may increase their participation in outward activities.

Introduction: Policy background

“Provisions on Iron and Steel Imports” (Decree of the Minister of Trade No 08/MDAG/PER/2/2009)

- **Announced on 18 February 2009, this decree introduced new procedures for the import of iron and steel including updated registration requirements, pre-shipment import technical verification procedures, and submission of quarterly reports on imports.**

- **This regulation excludes steel and iron:**
 - (i) in the automotive industry, electronics industry, ship dock industry and their relevant components;
 - (ii) subject to import verification based on the User Specific Duty Free Scheme; and
 - (iii) for the industrial needs in Free Trade Zones, Free Ports and Bonded Zones.

Empirical specifications: DID

Baseline equation:

$$Exports_{ijt} = \beta_0 + \beta_1 Treated_j \times Post_t + X'_{it}\theta + \delta_j + \gamma_t + \epsilon_{it}, \quad (1)$$

Mechanism equation:

$$\begin{aligned} Exports_{ijt} = & \alpha_0 + \alpha_1 Treated_j \times Post_t \times Mechanism_i \\ & + \alpha_2 Treated_j \times Post_t + \alpha_3 Treated_j \times Mechanism_i + \alpha_4 Post_t \\ & \times Mechanism_i + X'_{it}\theta + \delta_j + \gamma_t + \epsilon_{it}, \end{aligned} \quad (2)$$

Empirical specifications: Data

“Manufacturing Survey of Large and Medium-Sized Firms (Survei Industri Besar/Sedang, IBS)”

- an annual census, conducted by the Indonesian Statistical Agency (BPS), of all manufacturing firms in Indonesia with 20 or more employees.
- The raw data set includes 96,877 firm-year observations for the period 2008-2011. If we exclude firms that are not available in the data set for the entire period, we are left with 82,604 observations.

Empirical specifications: Data

Table 1. Summary Statistics

	mean (standard deviation)					
	alternative control groups					
	(1)	(2)	(3)	(4)	(5)	(6)
all firms	iron & steel (treatment group)	all other manufact uring firms	exclude F&B	exclude F&B and other non-metal	only firms located in Batam	
<i>Dummies</i>						
Exporter dummy	0.18 (0.38)	0.15 (0.36)	0.18 (0.38)	0.20 (0.40)	0.30 (0.46)	0.48 (0.50)
Importer dummy	0.18 (0.38)	0.33 (0.47)	0.17 (0.38)	0.21 (0.40)	0.25 (0.43)	0.58 (0.49)
FDI dummy	0.10 (0.30)	0.18 (0.38)	0.10 (0.29)	0.11 (0.32)	0.19 (0.39)	0.64 (0.48)
SME dummy	0.16 (0.37)	0.26 (0.44)	0.16 (0.36)	0.15 (0.36)	0.16 (0.36)	0.24 (0.43)
Manufacturing Services dummy	0.22 (0.41)	0.30 (0.46)	0.22 (0.41)	0.26 (0.44)	0.26 (0.44)	0.57 (0.50)
<i>N</i>	82,604	3,388	79,216	56,532	14,516	1,021

Results: Baseline

Table 2. Baseline Results

	exports as a percentage of total sales				
	(1)	(2)	(3)	(4)	(5)
Treated.Post	-5.404 ^{***}	-4.745 ^{***}	-5.675 ^{***}	-5.181 ^{***}	-4.888 ^{***}
	(1.715)	(1.689)	(1.890)	(1.844)	(1.722)
Size		6.815 ^{***}		6.990 ^{***}	5.717 ^{***}
		(0.675)		(0.837)	(0.690)
Labour Productivity			2.033 ^{***}	0.844 ^{***}	0.361
			(0.284)	(0.308)	(0.287)
Foreign Ownership					0.218 ^{***}
					(0.0156)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
<i>N</i>	82,604	82,604	76,188	76,188	76,188
adj. <i>R</i> ²	0.213	0.272	0.227	0.284	0.312

Standard errors in parentheses, clustered by sector.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. Robustness Checks: Alternative Control Groups, Alternative Period, and Placebo Tests

	exports as a percentage of total sales				
	alternative control groups			placebo tests	
	(1)	(2)	(3)	(4)	(5)
	excluding F&B sectors	including only other metal sectors	using only 2008-2009 period	using F&B as pseudo-treated sectors	using Batam as pseudo-treated area
Treated.Post	-4.996 ^{***} (1.734)	-5.523 ^{***} (1.900)	-3.468 ^{***} (1.167)	-0.544 (1.873)	18.43 ^{***} (6.554)
Size	6.286 ^{***} (0.745)	5.923 ^{***} (0.713)	5.370 ^{***} (0.661)	5.855 ^{***} (0.707)	5.835 ^{***} (0.704)
Labour Productivity	0.204 (0.347)	-0.721 [*] (0.381)	0.449 [*] (0.252)	0.357 (0.298)	0.376 (0.297)
Foreign Ownership	0.226 ^{***} (0.0144)	0.246 ^{***} (0.0202)	0.208 ^{***} (0.0141)	0.218 ^{***} (0.0166)	0.220 ^{***} (0.0164)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
<i>N</i>	53,871	16,385	38,121	73,109	73,485
adj. <i>R</i> ²	0.310	0.310	0.287	0.314	0.315

Standard errors in parentheses, clustered by sector.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Results: Mechanism

Table 4. Mechanisms on Exports Intensity (Triple DID)

	exports as a percentage of total sales						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			only importing firms		only importing firms		only importing firms
Treated.Post.Importer	-4.889** (2.242)						
Treated.Post.FDI		-15.87*** (2.474)	-16.59*** (4.381)				
Treated.Post.SME				-10.73*** (2.636)	-12.10*** (3.216)		
Treated.Post.Services						2.128 (1.634)	8.496*** (2.689)
Treated.Post	-1.139 (0.690)	-0.571 (0.660)	0.795 (2.058)	-0.289 (0.784)	0.759 (2.254)	-2.549*** (0.841)	-6.684*** (2.207)
<i>N</i>	53,200	53,200	11,928	53,200	11,928	53,200	11,928
adj. <i>R</i> ²	0.311	0.300	0.323	0.276	0.310	0.308	0.341

Standard errors in parentheses, clustered by sector. All specifications include control variables, sectoral dummies, and year dummies. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Discussion

- Firms that engage in importing activities, as well as foreign-owned firms, register a greater decline in exports, and exports of small and medium-sized enterprises decrease more than those of large firms.
- Importing manufacturing firms that provide services increase their exports as a consequence of reversal of trade liberalization.

Thank you!

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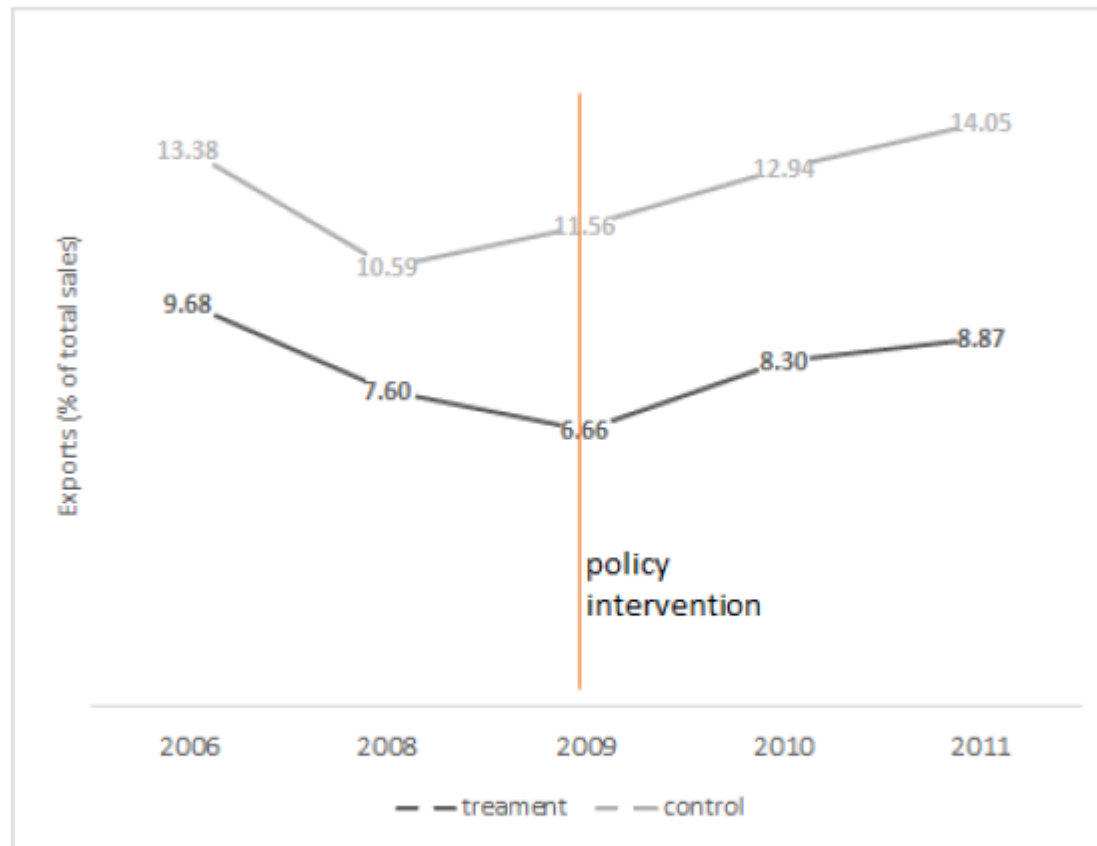
Appendix

Table A1. List of sectors in the treatment groups

5-digit industry code (KLBI 2000)	Description
27101	Manufacture of Basic Iron and Steel
27102	Manufacture of Steel Rolling
27103	Manufacture of Metal Pipe and Pipe Fitting of Steel and Iron
27310	Casting of Iron and Steel Industry
28113	Manufacture of Fabricated Structural Steel Products
28120	Manufacture of Tanks, Reservoirs and Containers of Metal
28910	Forging, Pressing, Stamping and Roll-Forming of Metal, Powder Metallurgy Industry
28920	Machining, Treatment and Coating of Metals Industry
28931	Manufacture of Cutlery, Hand Tools For Agricultural
28932	Manufacture of Cutlery, Hand Tools For Carpentry Cut
28933	Manufacture of Cutlery and Hand Tools Used In Household
28939	Manufacture of General Hardware
28939	Repair of fabricated metals.
28991	Manufacture of Kitchen Appliances and Equipment of Table Metals
28992	Manufacture of Safety Deposit Box, Goods of Filling the Office and Kinds
28993	Manufacture of Chain, Springs and Screw
28994	Manufacture of Pails, Cans, Drums and Similar Containers of Metal
28995	Manufacture of Wire Products
28996	Manufacture of Making Profiles
28997	Manufacture of Metal Lamp
28999	Manufacture of Other Metal Products N.E.C
29270	Manufacture of Weapons and Ammunition

Appendix

Figure 1. Trends before and after policy intervention



Note: The control group includes all Indonesian manufacturing firms with 20 or more employees, excluding those in the iron and steel sectors. The treatment group includes Indonesian manufacturing firms with 20 or more employees in the iron and steel sectors.