Industrial Policy and Retaliatory Protection under the WTO: Lessons from China

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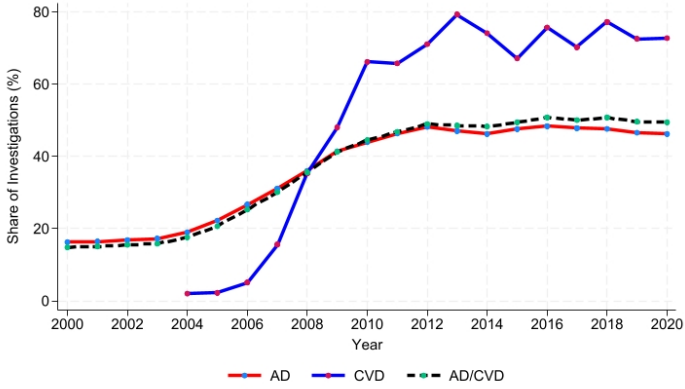
Industrial Subsidies Increased Foreign Anti-dumping and Countervailing Duties under WTO

- Industrial policies are promoted for benefits such as economic development, supply chain diversification, and national security
- Ignored cost: subsidized industries and firms face higher foreign anti-dumping and countervailing duties, as permitted by WTO rules ▸ Increasing AD/CVD Investigations Over Time
- Ignoring these costs leads to overstated benefits of industrial policies and greater global fragmentation
- **This paper**: evaluate (1) subsidy effects on AD/CVD investigations and (2) how subsidies and AD/CVD duties affect firm growth using Chinese firm data

China Uses Industrial Policies Heavily and Faces Most AD/CVD Investigations

- China is said to have an "overcapacity" problem due to industrial policies
- China is most frequently targeted by AD and CVD investigations



Notes: Share of other countries' AD/CVD investigations against China. Source: Authors' calculation using Temporary Trade Barriers Database.

Institution: Process of AD and CVD Investigations

- WTO rules allow countries to impose AD/CVD duties through a formal investigation process
- Importing country domestic firms file complaint to their government, claiming that domestic industry is injured due to foreign unfair trade practice
- Government initiates investigation if it finds evidence of injury
- Sold less than fair value $\Rightarrow$ AD; Excessively subsidized by foreign government $\Rightarrow$ CVD; "Double Remedies" $\Rightarrow$ AD & CVD ▸ SCM Agreement

Institution: Process of AD and CVD Investigations

- Government surveys domestic firms and foreign exporters to collect price, quantity, input, and subsidy information
- Determine whether (1) foreign export price is less than fair value (AD) and (2) whether subsidy is excessive (CVD)
- If final ruling is affirmative, duty will be imposed and reviewed every five years

Institution: Process of AD and CVD Investigations

- AD duty
  - (fair value - foreign export price)/ foreign export price
  - For non-market economies (China, Vietnam), fair value uses third country price
  - Subsidies increase likelihood of affirmative AD ruling and AD duties, because they lower Chinese price relative to third countries
- CVD duty
  - CVD duty equals subsidy rate for the surveyed firms
  - Subsidies directly increase likelihood of affirmative CVD ruling and duties
- Total duty equals sum of AD and CVD

Institution: Process of AD and CVD Investigations

- Foreign exporters can apply for *lower firm-specific duties* by submitting petitions during survey and comment phases
- Exporters need to demonstrate its independence from government control
- Subsidies reduce likelihood of firm-specific duties: Exporters receiving substantial subsidies are less likely to demonstrate such independence

Findings

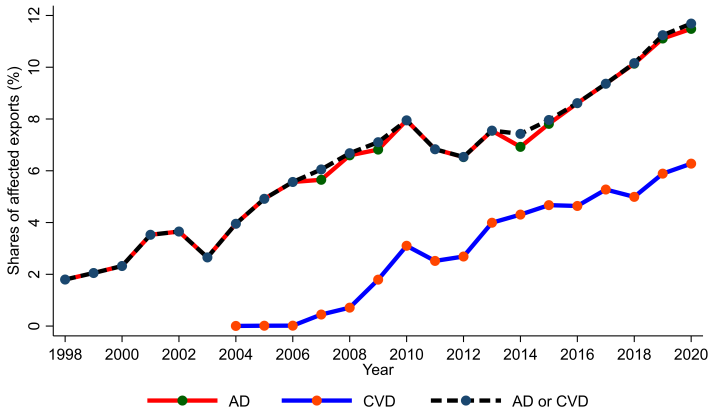
- At *all* stages of AD/CVD investigations, subsidies result in higher duties
  - More likely to receive affirmative investigation rulings, which result in duties
  - Receive higher AD/CVD duties
  - Less likely to receive the lower, firm-specific duty
  - Receive higher firm-specific duty
- Impact is moderate for an average firm but important for highly-subsidized firms and those applying for firm-specific duties
- AD/CVD duties offset positive effects of subsidies on firm sales by 25%

Data

- Temporary Trade Barriers Database [Bown et al. (20)] ▸ TTB
  - Firm-specific duties and firm names
- Chinese Customs Data ▸ CCD
  - Firm-product level import and export for universe of Chinese trading firms (00-16)
  - Exclude wholesalers [Ahn et al. (11) and Fan et al. (15)]
- Firm-level business information ▸ Firm
  - Annual Survey of Industrial Firms (00-08) and Annual Tax Survey (09-16), linked through unique firm ID. Focus on manufacturing firms
  - Match TTB firm names (English) to Chinese datasets using AI and manual verification; match customs data and firm data with fuzzy name matching

Fact 1: In 2020, 12% of Chinese Exports to G7 Countries Faced AD/CVD Investigations

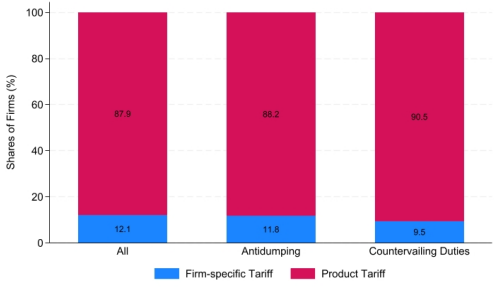
▸ Duty ▸ Formula ▸ CN on US



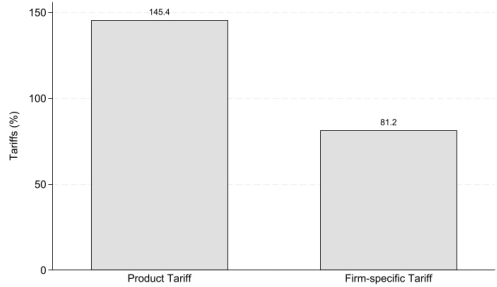
Notes: Share of Chinese exports to G7 countries facing AD/CVD investigations. Source: Authors' calculation using GAD and BACI (CEPII).

Fact 2: About 10% of Firms Facing AD/CVD Duties Receive Firm-specific Duties. Firm-specific Duties Are Lower than Product-level Duties

(a) More Firms Faced Product Duties



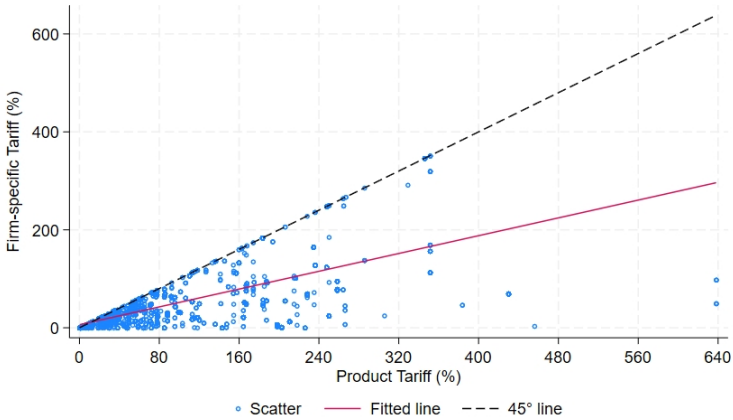
(b) Product Duties Higher than Firm-specific Duties



Notes: Left panel: Share of firms subject to firm-specific and product duties. Right panel: Average levels of firm-specific and product duties.

- Firms facing product duties are defined as those that exported tariffed products at any point within three years before investigation

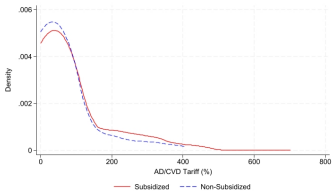
Fact 2: About 10% of Firms Facing AD/CVD Duties Receive Firm-specific Duties. Firm-specific Duties Are Lower than Product-level Duties



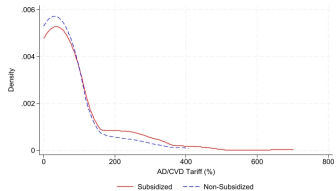
Notes: The figure shows firm-specific and product duties that China faces. Each affirmative investigation corresponds to one product duty and potentially multiple firm-specific duties. The black dashed line represents the 45-degree line. The red line is the fitted line for the scatter points.

Fact 3: Subsidized Firms Face Higher AD/CVD Duties Compared to Non-subsidized Firms

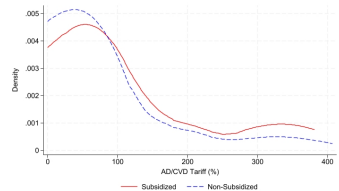
(a) All Firms



(b) Large Firms

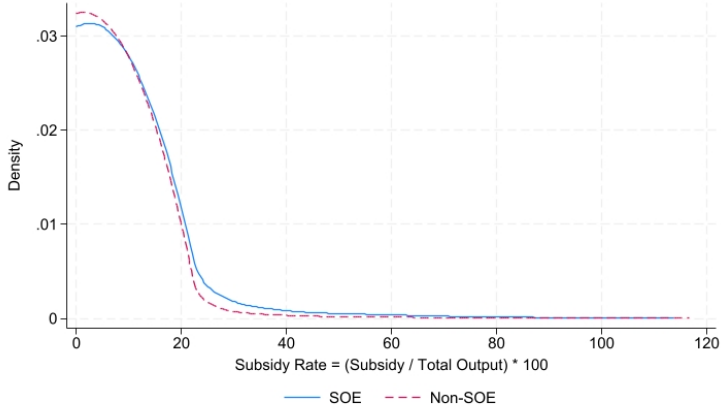


(c) Small Firms



Notes: This figure compares the distribution of AD/CVD duty rates between subsidized and non-subsidized firms. Panel (??) presents the overall distribution, where the red solid line represents subsidized firms and the blue dashed line represents non-subsidized firms. Panels (??) and (??) show the distributions separately for large firms (above-median assets) and small firms (below-median assets), respectively. Firm size is measured using the natural logarithm of total assets.

Fact 4: State-Owned Enterprises Receive Higher Subsidy Rate than Other Firms



Notes: This figure shows the distribution of the subsidy rate, which is defined as subsidies received as a percentage of a firm's total output. The blue solid line depicts the distribution for state-owned enterprises (SOEs), while the red dashed line represents private firms. To improve exposition, the distributions are winsorized at top and bottom 0.1%.

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

- Cross-investigation sample: investigation $\times$ investigated HS 6-digit product $\times$ firm
- Compare investigated products from exporters receiving more subsidies with those from exporters receiving fewer subsidies
- Firms affected by an investigation: Those exported investigated products at any point within three years before investigation

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

$$Affirmative_{pi} = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 \, \log \, price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \lambda \, \mathbf{Z}_{pd(i)t(i)} + \delta_{p2d(i)t(i)} + \delta_{s(f)} + \varepsilon_{fpi}$$

- $Affirmative_{pi}$: whether investigation i by country $d(i)$ on product p leads to duty

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

$$Affirmative_{pi} = \beta_1 \, Subsidy\ Rate_{fi} + \beta_2 \log price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \lambda \, \mathbf{Z}_{pd(i)t(i)} + \delta_{p2d(i)t(i)} + \delta_{s(f)} + \varepsilon_{fpi}$$

- $Subsidy\ Rate_{fi}$: subsidy income to output ratio [Aghion et al. 2015] for firm f, averaged over three years prior to investigation i
- **Identification assumption**: government subsidy is unlikely to base on *anticipation of future* AD/CVD investigations

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

$$Affirmative_{pi} = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 \log \; price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \lambda \, \mathbf{Z}_{pd(i)t(i)} + \delta_{p2d(i)t(i)} + \delta_{s(f)} + \varepsilon_{fpi}$$

- $\log price_{fpi}$: log average export price over three years prior to investigation

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

$$Affirmative_{pi} = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 \log price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \lambda \, \mathbf{Z}_{pd(i)t(i)} + \delta_{p2d(i)t(i)} + \delta_{s(f)} + \varepsilon_{fpi}$$

- SOE_{fi}: whether the firm is state-owned in the year prior to the investigation

$$Affirmative_{pi} = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 \log price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \mathbf{X}_{fi} + \lambda \mathbf{Z}_{pd(i)t(i)} + \delta_{p2d(i)t(i)} + \delta_{s(f)} + \varepsilon_{fpi}$$

- $\mathbf{X}_{fi}$: other firm level controls, including size (log asset averaged over three years before investigation) and whether firm is foreign-owned
- $\mathbf{Z}_{pd(i)t(i)}$: product-destination-year controls: importing country demand, price, and Herfindahl–Hirschman index (HHI) pdt controls
- $\delta_{p2d(i)t(i)}$: destination $\times$ 2-digit HS code $\times$ investigation year fixed effect; $\delta_{s(f)}$: 2-digit industry fixed effect

Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

Dep.Var.	$Affirmative_{pi}$			
	(1)	(2)	(3)	(4)
$Subsidy\ Rate_{fi}$ (%)	0.003**	0.004**	0.004**	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)
log $price_{fpi}$		-0.004***	-0.004***	-0.004***
		(0.001)	(0.001)	(0.001)
SOE_{fi}			0.010**	0.007
			(0.004)	(0.005)
N	44,891	42,138	42,138	36,907
adj. R^2	0.878	0.878	0.877	0.882
Other Firm Controls	No	No	No	Yes
pdt Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
HS2×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned; "pdt Controls" refer to importing country demand, weighted average of unit value, and HHI, using import data for each product-destination from BACI. Robust standard errors clustered at the firm level are reported in parentheses below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Summary: Subsidies Increase Probability of Affirmative AD/CVD Investigation Rulings

- Subsidies reduce Chinese exporters' cost relative to third countries, triggering AD/CVD duties
- 1 p.p. increase in subsidy leads to 0.3 p.p. increase in probability that AD/CVD investigation is ruled affirmative
- Lower export price and SOE status also increase affirmative ruling probability

Subsidies Increase AD/CVD Duties Among Affirmative Investigations

- Cross-investigation sample for affirmative investigations: investigation $\times$ tariffed HS 6-digit product $\times$ firm
- Compare duties on products exported by firms receiving more subsidies with those from firms receiving fewer subsidies
- The identification takes advantage of cross-firm variation within an investigation

$$Duty_{fpi} = \beta_1 \ Subsidy \ Rate_{fi} + \beta_2 \ \log \ price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X_{fi}} + \delta_{pd(i)t(i)} + \varepsilon_{fpi}$$

- $Duty_{fpi}$: AD/CVD duty resulting from investigation i imposed by country $d(i)$ on product p exported by firm f
- $\delta_{pd(i)t(i)}$: 6-digit HS code $\times$ destination $\times$ investigation-year fixed effect

Subsidies Increase AD/CVD Duties Among Affirmative Investigations

Dep.Var.	$AD/CVD\ Duty_{fpi}$ (%)			
	(1)	(2)	(3)	(4)
$Subsidy\ Rate_{fi}$ (%)	1.122***	0.326***	0.353***	0.356***
	(0.414)	(0.111)	(0.119)	(0.120)
$\log(Price_{fpi})$		-0.037	-0.032	-0.022
		(0.057)	(0.060)	(0.061)
SOE_{fi}			0.437	0.528
			(0.303)	(0.388)
N	34,971	31,856	29,306	29,306
adj. R^2	0.972	0.993	0.992	0.992
Other Firm Controls	No	No	No	Yes
HS6×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Subsidies Reduce Probability of Receiving Firm-specific Duties Among Affirmative Investigations

$$\textit{Firm Duty Dummy}_{fpi} = \beta_1 \textit{ Subsidy Rate}_{fi} + \beta_2 \log \textit{price}_{fpi} + \beta_3 \textit{SOE}_{fi} + \gamma \mathbf{X}_{fi} + \delta_{pd(i)t(i)} + \varepsilon_{fpi}$$

- Compare the likelihood to receive firm-specific duties for firms receiving higher subsidies against those receiving lower subsidies
- $\textit{Firm Duty Dummy}_{fpi}$: equals to 1 if a firm receives firm-specific duty and 0 if firm receives product-level duty

Subsidies Reduce Probability of Receiving Firm-specific Duties Among Affirmative Investigations

Dep.Var.	*Firm Duty Dummy*$_{fpi}$			
	(1)	(2)	(3)	(4)
Subsidy Rate$_{fi}$ (%)	-0.008**	-0.003*	-0.005**	-0.007***
	(0.004)	(0.002)	(0.002)	(0.002)
log(*Price*$_{fpi}$)		0.0004	0.0002	-0.0003
		(0.001)	(0.001)	(0.001)
SOE$_{fi}$			0.002	-0.013**
			(0.005)	(0.005)
N	40,226	36,774	32,448	32,448
adj. R^2	0.435	0.150	0.159	0.163
Other Firm Controls	No	No	No	Yes
HS6×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels * < 0.1, ** < 0.05, *** < 0.01.

Subsidies Increase Firm-Specific Duties

$$\textit{Firm Duty}_{fpi} = \beta_1 \textit{ Subsidy Rate}_{fi} + \beta_2 \log \textit{price}_{fpi} + \beta_3 \textit{SOE}_{fi} + \gamma \mathbf{X}_{fi} + \delta_{pd(i)t(i)} + \varepsilon_{fpi}$$

- Cross-investigation sample for firms receiving firm-specific duties: investigation $\times$ tariffed HS 6-digit product $\times$ firm
- $\textit{Firm Duty}_{fpi}$: firm-specific AD/CVD duties imposed by country $d(i)$ on firm f's product p resulting from investigation i

Subsidies Increase Firm-Specific Duties

Dep.Var.	*Firm Duty*$_{fpi}$ (%)			
	(1)	(2)	(3)	(4)
Subsidy Rate$_{fi}$ (%)	4.047*	4.312*	4.276*	2.051
	(2.144)	(2.321)	(2.570)	(2.239)
log *price*$_{fpi}$		1.508	1.475	1.427
		(1.132)	(1.209)	(1.184)
SOE$_{fi}$			4.057	-2.362
			(4.920)	(6.009)
N	3,192	927	880	880
adj. R^2	0.804	0.855	0.847	0.848
Other Firm Controls	No	No	No	Yes
HS6×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

- In the sample with both affirmative and negative investigations, subsidies increase AD/CVD duties ▸ All investigations
- Focus on investigations where subsidy and other firm variable from same dataset (baseline: 00-08 from ASIF and 09-16 from Annual Tax Survey) ▸ Same dataset
- Include other measures of government connections as controls ▸ Other Gov Connections
  - Interest rate, tax rate, entertainment expense rate, land discount rate, output and capital misallocation not attributed to subsidy rate ▸ Details

Effect of Subsidy on Expected AD/CVD Duty Facing an Average Chinese Firm

- Not all subsidized firms are investigated for AD/CVD
- Matched difference-in-differences: for firms affected by investigation i, HS 6-digit product f, pair them with uninvestigated control firms $\Rightarrow$ group g
- Control firms export never investigated 6-digit products in same 4-digit category to same destination in investigation year

$$Duty_{fpg} = \beta_1 Subsidy\ Rate_{fg} + \beta_2 \log price_{fpg} + \beta_3 SOE_{fg} + \gamma \mathbf{X}_{fg} + \lambda \mathbf{Z}_{pd(g)t(g)} + \delta_g + \delta_{pd(g)} + \delta_{pt(g)} + \varepsilon_{fpg}$$

* δ_g: group fixed effect

Effect of Subsidy on Expected AD/CVD Duty Facing an Average Chinese Firm

Dep.Var.	$Duty_{fpgd}$ (%)				
	(1)	(2)	(3)	(4)	(5)
$Subsidy\ Rate_{fg}$ (%)	0.264	0.142**	0.137**	0.149**	0.156*
	(0.195)	(0.058)	(0.067)	(0.068)	(0.087)
$\log(Price_{fpg})$		-0.050*	-0.030	-0.030	-0.036
		(0.030)	(0.028)	(0.029)	(0.037)
SOE_{fg}			0.342*	0.411**	0.374
			(0.180)	(0.208)	(0.291)
N	68,666	61,023	52,629	52,629	39,943
adj. R^2	0.979	0.994	0.993	0.993	0.993
Other Firm Controls	No	No	No	Yes	Yes
pdt Controls	No	No	No	No	Yes
Group FE	Yes	Yes	Yes	Yes	Yes
HS6×Desti	Yes	Yes	Yes	Yes	Yes
HS6×InvestiYear	Yes	Yes	Yes	Yes	Yes

Notes: Matched sample pairs investigated firms with control firms to form groups. Control firms are those that exported non-investigated 6-digit products within the same 4-digit category to the initiating country no more than three years before the investigation. "Other Firm Controls" include "size" and "foreign"; "*pdt* Controls" refer to the level of foreign demand, HHI, and weighted average of unit value, using import data for each product-destination pair from the BACI dataset. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Summary: Effect of Subsidy on Expected AD/CVD Duty Facing an Average Chinese Firm

- 1 p.p. increase in subsidy rate leads to 0.16 p.p. increase in duty
- Considering the mean subsidy rate for SOEs (13%) and private firms (4%), subsidy effect on an average Chinese firm's expected AD/CVD duty is moderate
- WTO AD/CVD rules appear insufficient to deter overall Chinese subsidy

Firms Receiving High Subsidies and Applying for Firm-Specific Duties Face Higher Subsidy Cost

- AD/CVD rules create high trade barriers for firms receiving substantial subsidies
  - Increasing subsidy rate from the 5th percentile (0%) to the 99th percentile (115%) expects leads to an 18 p.p. increase in AD/CVD duties
- AD/CVD investigations also create significant subsidy costs for firms potentially receiving firm-specific duties
  - Besides higher AD/CVD duty-subsidy elasticity, they also risk being disqualified from firm-specific duty entirely
  - 1 p.p. increase in subsidy rate results in a 49 p.p. increase in expected duty faced by firms potentially receiving firm-specific duties

Other Findings

- Subsidies decrease export prices ▸ Export price
- Subsidies do not significantly increase probability of a product receiving AD/CVD investigation ▸ Investigation probability
- Subsidies increase AD/CVD duties faced by non-subsidized firms ▸ Spillover
- Other government connection measures *do not* affect AD/CVD outcomes
  * Interest rate, tax rate, entertainment expense rate, land discount rate, output and capital misallocation not attributed to subsidy rate ▸ Details
  * AD/CVD surveys focus on subsidies and SOE status but not other government connections

AD/CVD Duties Offset Positive Effect of Subsidies on Firms

$$\Delta \log(Revenue_{fi}) = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 Duty_{fi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \delta_{t(i)} + \varepsilon_{fi}$$

- Cross-investigation sample of investigated firms
- $\Delta \log(Revenue_{fi})$: Five-year revenue growth for firm f from investigation year $t(i)$
- $Duty_{fi}$: Firm-level duty aggregated from firm-product level duty, which equals zero if investigation is ruled negative
- IV for $Subsidy \;\; Rate_{fi}$ (and $Duty_{fi}$) is required
  - Subsidies might be motivated by development or political incentives, which may correlate with firm growth [Juhász et al. (23)]

AD/CVD Duties Offset Positive Effect of Subsidies on Firms

Details

- IV for $Subsidy\ Rate_{fi}$: Region-sector total subsidy growth $\times$ firm's share in region-sector total subsidy in initial year
  - **Identification assumption**: regional governments' overall industrial policies do not correlated with unobserved firm characteristics driving growth
- IV for $Duty_{fi}$: total number of past AD/CVD investigations by the investigating country on the product against countries except China, aggregated to firm level

AD/CVD Duties Offset Positive Effect of Subsidies on Firms

▸ Two Years ▸ Employment and TFP

Dep. Var.	$\Delta \log(Revenue_{fi}) = \log(Revenue_{f,t(i)+5}) - \log(Revenue_{f,t(i)})$					
	OLS		2SLS			
	(1)	(2)	(3)	(4)	(5)	(6)
$Subsidy\ Rate_{fi}$ (%)	0.0676*	0.0686*	1.109**	1.412*	1.117**	1.489*
	(0.039)	(0.039)	(0.54)	(0.721)	(0.568)	(0.764)
$AD/CVD\ Duty_{fi}$ (%)		-0.000490**		-0.00692***		-0.00673***
		(0.000)		(0.002)		(0.002)
SOE_{fi}	0.0744	0.0749	-0.0651	-0.181	0.0363	0.083
	(0.071)	(0.071)	(0.17)	(0.228)	(0.144)	(0.186)
N	3773	3773	1838	1838	1836	1836
C-D F-stat			23.6	9.4	23	9.7
Other Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Investigation Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	No	No	No	No	Yes	Yes

Notes: This table presents that AD/CVD duties undermine the subsidy effect on log firm revenue growth over the next five years. $\Delta \log(Revenue_{fi}) = \log(Revenue_{f,t(i)+5}) - \log(Revenue_{f,t(i)})$. "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Summary: AD/CVD Duties Undermine Firm Performance Gains from Subsidies

- 1 p.p. increase in subsidy leads to 1.5% increase in 5-year firm revenue growth, which falls to 1.1% when AD/CVD duties are not accounted for
- AD/CVD duties offset subsidy effect on firm revenue growth by 25%
- Regressing firm revenue growth on subsidy without accounting for the resulting AD/CVD duty leads to an omitted variable bias toward zero

Conclusion

- Ignored cost of industrial policy: subsidized firms face higher AD/CVD duties under WTO
- Industrial policy makers could direct subsidies toward sectors that generate smaller business losses for foreign countries
- They may also consider non-subsidy support measures, which are less likely to result in foreign AD/CVD duties
- AD/CVD rules create significant trade barriers for firms heavily subsidized and potentially receiving firm-specific duties
- They do not strongly deter the exporting country's overall subsidy

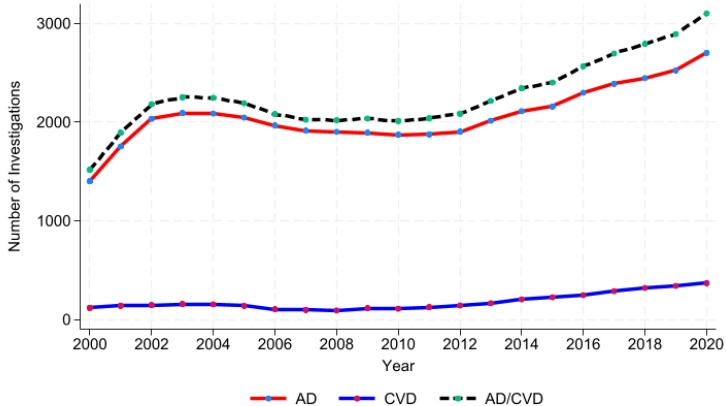
Agreement on Subsidies and Countervailing Measures: Prohibited and Actionable Subsidies

- Prohibited subsidies
  - Export subsidies
  - Local content subsidies
- Actionable (countervailable) subsidies
  - Injury to domestic economy
  - Serious prejudice against imports
  - Nullification of trade openness

Back

Annual Count of Global AD/CVD Investigations

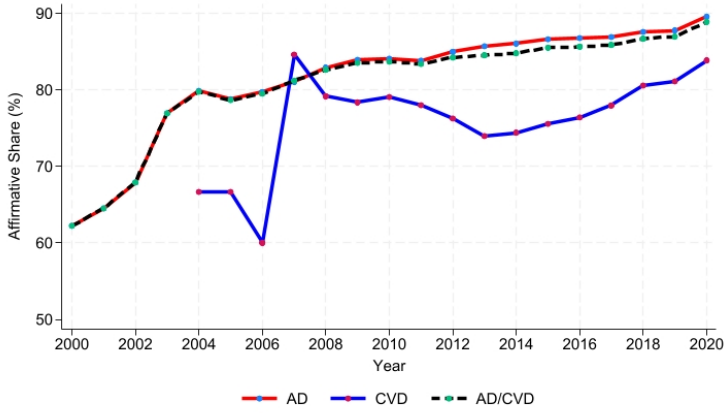
Back



Notes: This figure reports the annual count of investigations worldwide. Source: Authors' calculation using Temporary Trade Barriers Database.

Share of Investigations Against China Resulting in Duties

Back



Notes: The figure presents the share of investigations against China that resulted in affirmative outcomes (i.e., the imposition of duties). *Source*: Temporary Trade Barriers Database and authors' calculation.

Between 2000-2016 [Bown et al. (20)]

- Comprehensive details of all AD/CVD investigations
- Key dates, including initiation, enforcement, and revocation of measures
- Countries involved, specifying those imposing and those subject to AD/CVD investigations and duties
- Specific product duties targeted by the measures, identified by duty line
- Firm-specific duty rates and corresponding firm names

Against China: 28 economies initiated 964 AD/CVD investigations (769 affirmative), involving 1,029 HS6 products (899 affirmative) during 2000–2016.

Chinese Customs Data

Back

Universe of Chinese trading firms over 2000-2016

- Annual firm-level data on exports and imports by 8-digit HS product and trade partner
- Aggregated at HS6 (rev. 1996) [concordance tables by the UN Comtrade]
- Exclude wholesalers [see Ahn et al. (11) and Fan et al. (15)]

Firm-level Business Information

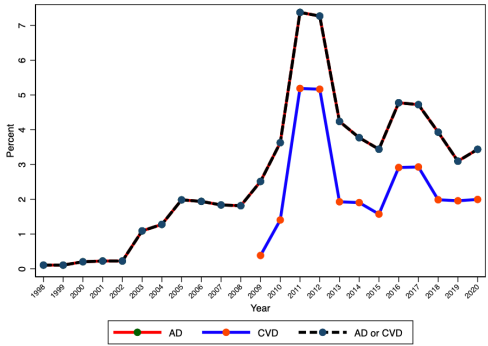
Back

- Annual Survey of Industrial Firms (00-07) and Annual Tax Survey (08-16), linked through unique firm ID. Focus on manufacturing firms
- The main firm-level variables we utilized include total output, total fixed asset, total liabilities, current liabilities, interest expenses, industry value added, number of employees, sales revenue, wage etc
- Match TTB firm names (English) to Chinese datasets using AI and manual verification. Chinese Ministry of Commerce collects AD/CVD investigations involving Chinese firms. These case reports include firm names in Chinese and can be linked to TTB Database
- The final sample size comprises 132,791 unique firms, among which 39,553 were investigated, 38,767 received product duties, and 1,858 received firm-specific duties

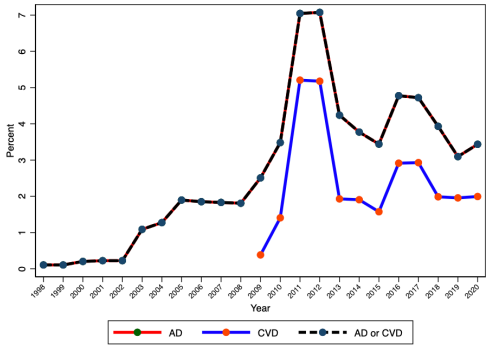
Share of the US exports subject to China AD/CVD

▸ Investigations

(a) Investigations



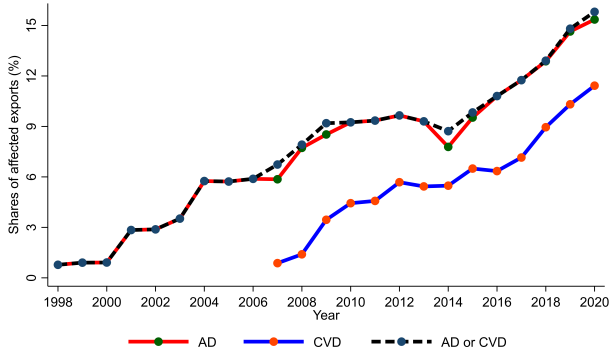
(b) Measures



Notes: Left panel: import share from the US subject to China's AD/CVD Investigations. Right panel: import share from the US subject to China's AD/CVD measures. Source: Authors' calculation using GAD and BACI.

Share of Chinese Exports to US Facing AD/CVD Duties

Investigations



Notes: The figure shows share of Chinese exports to US facing AD/CVD duties. Source: Authors' calculation using GAD and BACI.

Formula for Share of Chinese Exports to US Facing AD/CVD Investigations

$$IS_{kt}^{predicted} = \frac{\hat{M}_{k,t}^{ADCVD}}{\hat{M}_{k,t}^{ADCVD} + M_{k,t}^{nonADCVD}} \quad .$$

- k and t : represent the importing country and year, respectively.
- $\hat{M}_{kt}^{ADCVD}$: predicted value of imports for products subject to AD/CVD investigations or duties.
  - This is calculated as the dollar value of imports in the year *before* AD/CVD investigations or duties are first applied.
  - The value is adjusted using the average annual growth rate across all products that were *never* subject to any AD/CVD measures.
- $M_{k,t}^{nonADCVD}$: true import value of non-affected products.

Product-Destination-Year Controls

Back

- $\text{Demand}_{pdt} = \sum_{c \in \mathcal{C}_{pdt}} \text{IMP}_{pdct}$
  - IMP_{pdct}: total import value of destination d of product p from country c in year t
  - $\mathcal{C}_{pdt}$: the set of all countries (excluding China) that export product p to destination d
  - purpose: controls for the total demand in the destination country d for product p, excluding imports from China
- $\text{Weighted Avg. UV}_{pdt} = \sum_{c \in \mathcal{C}_{pdt}} \underbrace{\left(\frac{\text{IMP}_{pdct}}{\text{Demand}_{pdt}} \right)}_{\text{Share}} \times \underbrace{\left(\frac{\text{IMP}_{pdct}}{\text{Quantity}_{pdct}} \right)}_{\text{Unit Value}}$
  - purpose: controls for the price of product p in the destination country d
- $\text{HHI}_{pdt} = \sum_{c \in \mathcal{C}_{pdt}} \left(\frac{\text{IMP}_{pdct}}{\text{Demand}_{pdt}} \right)^2$
  - purpose: controls for pd market concentration

Subsidies Increase AD/CVD Duties (Firm Information From Same Dataset)

Back

Dep.Var.	$Affirmative_{pi}$		$AD/CVD\ Duty_{fi}$ (%)		$Firm\ Duty\ Dummy_{fpi}$		$Firm\ Duty_{fpi}$ (%)	
$Subsidy\ Rate_{fi}$ (%)	0.005**	0.005**	0.328**	0.325**	-0.005**	-0.007***	2.409	0.995
	(0.002)	(0.002)	(0.146)	(0.149)	(0.002)	(0.002)	(1.948)	(1.649)
$\log(Pirce_{fpi})$	-0.004***	-0.004***	-0.059	-0.045	0.001	0.000	0.883	0.727
	(0.001)	(0.001)	(0.071)	(0.073)	(0.001)	(0.001)	(1.150)	(1.147)
SOE_{fi}	0.009*	0.007	0.701*	0.787	0.001	-0.013**	4.858	0.692
	(0.005)	(0.005)	(0.423)	(0.507)	(0.006)	(0.006)	(4.967)	(5.721)
N	37,013	32,409	25,048	25,048	25,048	25,048	743	743
adj. R^2	0.864	0.868	0.991	0.991	0.166	0.170	0.858	0.859
Other Firm Controls	No	Yes	No	Yes	No	Yes	No	Yes
pdt(i) Controls	Yes	Yes	No	No	No	No	No	No
Industry FE	Yes	Yes	No	No	No	No	No	No
HS6×Desti×InvestiYear	No	No	Yes	Yes	Yes	Yes	Yes	Yes
HS2×Desti×InvestiYear	Yes	Yes	No	No	No	No	No	No

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. To ensure the firm data are from the same dataset (do not span ASIF and STA), we exclude firms investigated in 2010 and 2011. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Interest Rate and Tax Rate

Back

- Interest rate (%): (interest expense/current liability)$\times$100
- Tax rate (%): $\frac{\text{business tax and surcharges} + \text{income tax}}{\text{total output}} \times 100$
- Entertainment Expense Rate (%): (entertainment expense/total output)$\times$100
- Land discount rate (%): (total discount received on land purchase compared to nearby parcels/total output)$\times$100 [Chen and Kung (19)]

Implied Misallocation Measures

Back

- Infer output and capital misallocation (τ^Y, τ^K) based on marginal product of labor and capital (Hsieh and Klenow 2009). Firms receiving government favors tend to have a higher τ^Y and τ^K (α_s: sector-level capital share):

$$1 + \tau_{fi}^Y = \frac{\sigma}{\sigma - 1} \frac{wL_{si}}{(1 - \alpha_s) P_{si} Y_{si}}$$

$$1 - \tau_{fi}^K = \frac{\alpha_s}{1 - \alpha_s} \frac{wL_{si}}{RK_{si}},$$

- Regress distortion measures τ_{fi}^Y, τ_{fi}^K, separately on firm's subsidy rate to get predicted misallocation measures, $\widehat{\tau}_{fi}^{Y,subsidy}$ and $\widehat{\tau}_{fi}^{K,subsidy}$

- Residuals $\tilde{\tau}_{fi}^Y = \tau_{fi}^Y - \widehat{\tau}_{fi}^{Y,subsidy}$ and $\tilde{\tau}_{fi}^K = \tau_{fi}^K - \widehat{\tau}_{fi}^{K,subsidy}$ denote the misallocation components that cannot be explained by subsidy

Other Government Connection Measures

Back

Dep.Var.	$Affirmative_{pi}$	$AD/CVD\ Duty_{fi}$ (%)	$Firm\ Duty\ Dummy_{fpi}$	$Firm\ Duty_{fpi}$ (%)
$Subsidy\ Rate_{fi}$ (%)	0.007**	0.724***	-0.012***	4.191
	(0.003)	(0.269)	(0.003)	(7.274)
$Interest\ Rate_{fi}$ (%)	0.016	0.010	0.001**	0.907
	(0.041)	(0.039)	(0.001)	(0.718)
$Tax\ Rate_{fi}$ (%)	-0.060	0.065	-0.001	-0.980
	(0.065)	(0.054)	(0.001)	(1.204)
$Entertainment\ Expense\ Rate_{fi}$ (%)	-0.062	11.754	-0.356**	82.968
	(0.111)	(8.927)	(0.148)	(364.819)
$Land\ Discount\ Rate_{fi}$ (%)	-0.0005	-0.007	0.001*	0.628
	(0.001)	(0.014)	(0.0005)	(3.497)
$\tilde{\tau}_{fi}^{K}$	-0.00004	0.004***	-0.00002	0.083
	(0.00003)	(0.001)	(0.00002)	(0.088)
$\tilde{\tau}_{fi}^{Y}$	0.0002*	0.004	-0.0001	-0.069
	(0.0001)	(0.008)	(0.0001)	(0.099)
SOE_{fi}	0.009	0.355	-0.021**	-2.724
	(0.007)	(0.531)	(0.008)	(10.333)
N	13,131	13,909	13,909	350
adj.R^2	0.886	0.989	0.168	0.848
Other Firm Controls	Yes	Yes	Yes	Yes
pdt(i) Controls	Yes	No	No	No
Industry FE	Yes	No	No	No
HS6×Desti×InvestiYear	No	Yes	Yes	Yes
HS2×Desti×InvestiYear	Yes	No	No	No

Notes: "Other Firm Controls" include "log(Export Price)", "size", and "foreign", representing exporting price, firm size, and foreign ownership, respectively. Robust standard errors clustered at the firm level are reported in parentheses below the coefficients. Asterisks denote significance levels * < 0.1, ** < 0.05, *** < 0.01.

Implied Output Misallocation Measure

Back

Dep.Var.	$AD/CVD\ Duty_{fpi}$			
	(1)	(2)	(3)	(4)
$\widehat{\tau}_{fi}^{Y,subsidy}$	0.847***	0.382***	0.405***	0.417***
	(0.303)	(0.122)	(0.137)	(0.138)
$\log(Price_{fpt}^{ave})$		-0.065	-0.060	-0.049
		(0.064)	(0.072)	(0.074)
SOE_{fi}			1.423***	1.636***
			(0.492)	(0.525)
N	34,067	30,826	27,128	27,128
adj. R^2	0.959	0.986	0.983	0.983
Other Firm Controls	No	No	No	Yes
HS6×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels * < 0.1, ** < 0.05, *** < 0.01. Independent variable is $\widehat{\tau}_{fi}^{Y,subsidy}$, which is the predicted value from regressing τ_{fi}^{Y} on *Subsidy Rate*$_{fi}$.

Implied Capital Misallocation Measure

Back

Dep.Var.	AD/CVD Duty$_{fpi}$			
	(1)	(2)	(3)	(4)
$\widehat{\tau}_{fi}^{K,subsidy}$	1.031***	0.466***	0.493***	0.508***
	(0.369)	(0.148)	(0.167)	(0.169)
log $price_{fpi}$		-0.065	-0.060	-0.049
		(0.064)	(0.072)	(0.074)
SOE_{fi}			1.423***	1.636***
			(0.492)	(0.525)
N	34,067	30,826	27,128	27,128
adj. R^2	0.959	0.986	0.983	0.983
Other Firm Controls	No	No	No	Yes
HS6×Desti×InvestiYear FE	Yes	Yes	Yes	Yes

Notes: Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$. Independent variable is $\widehat{\tau}_{K}^{subsidy}{}_{fi}$, which is the predicted value from regressing τ_{fi}^{K} on *Subsidy Rate*$_{fi}$, where τ_{fi}^{K} is is computed as the implied capital misallocation in **?**.

Subsidies Decrease Export Prices

Back

- Sample: destination country $\times$ never investigated HS 6-digit product $\times$ year $\times$ firm; panel data

$$\log(\textit{Export Price})_{fpdt} = \beta_1 \textit{Subsidy Rate}_{ft} + \beta_2 SOE_{ft} + \gamma \mathbf{X}_{ft} + \delta_{pdt} + \delta_f + \delta_{it} + \varepsilon_{fpdt}$$

- $\log(\textit{Export Price})_{fpdt}$: log price of firm f's product p exported to country d in year t
- $\textit{Subsidy Rate}_{ft}$: subsidy income to output ratio for firm f, averaged over three years prior to year t

Subsidies Decrease Export Prices

Back

Dep.Var.	$\log(Price_{fpdt})$		
	(1)	(2)	(3)
$Subsidy\ Rate_{ft}$ (%)	-0.002	-0.003*	-0.003*
	(0.001)	(0.001)	(0.001)
SOE_{ft}		0.007	0.011
		(0.034)	(0.035)
N	1,656,908	1,456,142	1,456,142
adj. R^2	0.493	0.492	0.492
Other Firm Controls	No	No	Yes
HS2×Desti×Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes

Notes: The sample is constructed by matching Chinese Customs Database (CCD) with Annual Tax Survey (STA) for 2009-2016 for firms that did not face AD/CVD investigations. "Other Firm Controls" include firm size, measured by the log of total assets averaged over the preceding three years, and an indicator for whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parentheses below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

Subsidies Do Not Significantly Affect AD/CVD Investigation Probability

Back

- Sample: destination country $\times$ investigated 6-digit HS product $\times$ investigation year $\times$ firm, paired with a control group

- Control group consists of firms exporting never investigated 6-digit products in same 4-digit category to same destination in investigation year

$$Investigation_{pg} = \beta_1 \, Subsidy \;\; Rate_{fg} + \beta_2 \log price_{fpg} + \beta_3 \, SOE_{fg} + \gamma \, \mathbf{X_{fg}} + \delta_g + \delta_{pd(g)} + \delta_{pt(g)} + \varepsilon_{pg}$$

- $Investigation_{pg}$: whether product p faces AD/CVD investigation $i(g)$ in group g

- δ_g: group fixed effect

Subsidies Do Not Significantly Affect AD/CVD Investigation Probability

Back

Dep.Var.	$Investigation_{pg}$				
	(1)	(2)	(3)	(4)	(5)
$Subsidy\ Rate_{fg}$ (%)	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$\log(Price_{fpg})$		-0.001***	-0.001***	-0.001***	-0.001***
		(0.0002)	(0.0002)	(0.0002)	(0.0003)
SOE_{fg}			0.004***	0.001	0.001
			(0.001)	(0.001)	(0.001)
N	68,859	61,197	52,790	52,790	40,065
adj. R^2	0.981	0.984	0.984	0.984	0.983
Other Firm Controls	No	No	No	Yes	Yes
pdt Controls	No	No	No	No	Yes
Group FE	Yes	Yes	Yes	Yes	Yes
HS6×InvestiYear FE	Yes	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned; "pdt Controls" refer to importing country demand, weighted average of unit value, and HHI, using import data for each product-destination from BACI. Robust standard errors clustered at the firm level are reported in parentheses below the coefficients. Asterisks denote significance levels * < 0.1, ** < 0.05, *** < 0.01.

Summary: Subsidies Do Not Significantly Affect AD/CVD Investigation Probability

Back

- Consistent with WTO AD/CVD rules, the likelihood of an investigation is not significantly affected by subsidies
- Lower prices are the primary driver of investigations
- Investigations are initiated based on complaints from domestic firms, which must show evidence of injury from import competition
- At this initial stage, the government lacks information about exporter subsidies

Overall Effects of Subsidies on AD/CVD Duties (All Investigations)

Back

$$Duty_{fpi} = \beta_1 \, Subsidy \;\; Rate_{fi} + \beta_2 \log price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \lambda \, \mathbf{Z}_{pd(g)t(g)} + \varepsilon_{fpi}$$

- Cross-investigation sample: destination (investigating) country $\times$ HS 6-digit product under investigation $\times$ firm

Overall Effects of Subsidies on AD/CVD Duties (All Investigations)

Back

Dep.Var.	$Duty_{fpi}$ (%)			
	(1)	(2)	(3)	(4)
$Subsidy\ Rate_{fi}$ (%)	0.881***	0.211**	0.218**	0.224**
	(0.336)	(0.087)	(0.096)	(0.098)
$\log(Price_{fpi})$		-0.033	-0.031	-0.025
		(0.043)	(0.046)	(0.048)
SOE_{fi}			0.481*	0.564*
			(0.288)	(0.338)
N	47,015	43,205	39,671	39,671
adj. R^2	0.974	0.994	0.993	0.993
Other Firm Controls	No	No	No	Yes
HS2×Desti×InvestiYear	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parentheses below the coefficients. Asterisks denote significance levels * < 0.1, ** < 0.05, *** < 0.01.

Subsidies Increase AD/CVD Duties Faced by Non-subsidized Firms

- Heavily subsidized products make it easier for investigations to find evidence of those subsidies through surveys
- AD/CVD duties for all firms exporting the product are derived from surveys, which can result in higher duties for firms receiving no subsidies
- Cross-investigation sample for affirmative investigations: destination (dutying) country $\times$ tariffed HS 6-digit product $\times$ firm , focusing on non-subsidized firms

Subsidies Increase AD/CVD Duties Faced by Non-subsidized Firms

$$Duty_{fpi} = \beta_1 \, Subsidy \ Rate_{pi}^{ave} + \beta_2 \log price_{fpi} + \beta_3 \, SOE_{fi} + \gamma \, \mathbf{X}_{fi} + \delta_{p2d(i)t(i)} + \delta_{s(f)t(i)} + \varepsilon_{fpi}$$

- $Duty_{fpi}$: AD/CVD duty on product p exported by firm f that did not receive subsidies after investigation i
- $Subsidy \ Rate_{pi}^{ave}$: average subsidy rate for product p over three years prior to investigation i

Subsidies Increase AD/CVD Duties Faced by Non-subsidized Firms

Back

Dep.Var.	$Duty_{fpi}$(%)				
	(1)	(2)	(3)	(4)	(5)
$Subsidy\ Rate_{pi}^{ave}$(%)	10.281***	7.840***	6.431***	6.347***	9.856***
	(2.209)	(1.766)	(2.007)	(1.990)	(3.325)
log($Price_{fpi}$)		-0.279	-0.270	-0.282	-0.174
		(0.188)	(0.210)	(0.219)	(0.265)
SOE_{fi}			0.998	1.898	2.572
			(1.968)	(1.862)	(2.804)
N	15,571	14,284	12,026	12,026	8,473
adj. R^2	0.919	0.961	0.954	0.954	0.943
Other Firm Controls	No	No	No	Yes	Yes
pdt Controls	No	No	No	No	Yes
HS2 × Desti × InvestiYear	Yes	Yes	Yes	Yes	Yes

Notes: "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. "pdt Controls" refer to importing country demand, weighted average of unit value, and HHI, using import data for each product-destination from BACI. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

- Instrument for subsidy

$$Z_{ft}^{\text{Subsidy}} = \underbrace{\frac{Subsidy_{f,t_0}}{\sum_{j \in (s(f), r(f))} Subsidy_{j,t_0}}}_{\text{Exposure: } f\text{'s Share in Total Subsidy in Initial Year}} \times \underbrace{\left[\log \left(\sum_{j \in (s(f), r(f))} Subsidy_{j,t} \right) - \log \left(\sum_{j \in (s(f), r(f))} Subsidy_{j,t-1} \right) \right]}_{\text{Shifter: Growth of Total Subsidy}}.$$

$$\text{IV}_{fi}^{\text{Subsidy}} = \frac{1}{3} \sum_{\tau = t(i)-3}^{t(i)-1} Z_{f\tau}^{\text{Subsidy}}$$

Instruments for Subsidy and AD/CVD Duty

Back

- Exposure equals to firm f's share in total subsidy allocated to the 4-digit industry ($s(f)$)–city ($r(f)$) to which the firm belongs
- The shift component measures the industry-city's total subsidy growth, reflecting the regional government's industrial policy priorities
- Average the shift-share instrument over the three years prior to the investigation to align its time frame with the regressors
- **Identifying assumption**: firms are differentially exposed to regional governments' overall industrial policies, and their unobserved firm characteristics driving growth are uncorrelated with these aggregate shocks

- Instrument for AD/CVD duty

$$\text{IV}^{\text{Duty}}_{f,i} = \sum_{p \in \mathcal{P}_{f,i}} \sum_{t < t(i)} \sum_{o \neq \text{CHN}} \mathcal{I}_{p,d(i),o,t}$$

- Historical number of AD/CVD investigations initiated by the same destination country targeting the same HS 6-digit product, but excluding all investigations against China

- It captures the destination country's underlying protectionist tendency toward the product, reflecting structural factors such as domestic industry interests or political pressure

AD/CVD Duties Undermine the Subsidy Effect on Firm Performance (Two Years)

Back

Dep. Var.	$\Delta \log(Revenue_{fi}) = \log(Revenue_{f,t(i)+2}) - \log(Revenue_{f,t(i)})$					
	OLS		2SLS			
	(1)	(2)	(3)	(4)	(5)	(6)
$Subsidy\ Rate_{fi}$ (%)	0.00795	0.00918	0.941*	1.144*	0.932*	1.146*
	(0.026)	(0.026)	(0.545)	(0.638)	(0.547)	(0.634)
$Duty_{fi}$ (%)		-0.000368**		-0.00402***		-0.00348***
		(0.000)		(0.001)		(0.001)
SOE_{fi}	0.0715	0.0715	-0.151	-0.231	-0.0992	-0.170
	(0.046)	(0.045)	(0.165)	(0.198)	(0.143)	(0.164)
N	3248	3248	1536	1536	1532	1532
C-D F-stat			18.9	7.6	17.3	7.7
Other Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Investigation Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	No	No	No	No	Yes	Yes

Notes: This table presents that AD/CVD duties undermine the subsidy effect on log firm revenue growth over the next two years. $\Delta \log(Revenue_{fi}) = \log(Revenue_{f,t(i)+2}) - \log(Revenue_{f,t(i)})$. "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.

AD/CVD Duties Undermine the Subsidy Effect on Firm Employment and TFP

Back

Dep. Var.	$\Delta \log(Employment_{fi})$				$\Delta \log(TFP_{fi})$			
	2SLS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Subsidy Rate$_{fi}$ (%)	0.848*	1.013*	0.968**	1.164**	0.0830*	0.111*	0.0844*	0.120*
	(0.439)	(0.530)	(0.470)	(0.565)	(0.044)	(0.062)	(0.047)	(0.068)
AD/CVD Duty$_{fi}$ (%)		-0.00378**		-0.00354**		-0.000642***		-0.000646***
		(0.002)		(0.002)		(0.0002)		(0.0001)
SOE$_{fi}$	-0.249*	-0.313*	-0.160	-0.223	-0.00598	-0.0168	0.00131	-0.00994
	(0.145)	(0.173)	(0.124)	(0.144)	(0.015)	(0.020)	(0.012)	(0.017)
N	1838	1838	1836	1836	1832	1832	1830	1830
C-D F-stat	23.6	9.4	23	9.7	23.5	9.3	23	9.7
Other Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investigation Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	No	No	Yes	Yes	No	No	Yes	Yes

Notes: This table presents that AD/CVD duties undermine the subsidy effect on log firm employment growth and TFP (**?**) over the next five years. $\Delta \log(Employment_{fi}) = \log(Employment_{f,t(i)+5}) - \log(Employment_{f,t(i)})$ and $\Delta \log(TFP_{fi}) = \log(TFP_{f,t(i)+5}) - \log(TFP_{f,t(i)})$. "Other Firm Controls" include firm size (measured with log asset averaged over three years before investigation) and whether the firm is foreign-owned. Robust standard errors clustered at the firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels $^{*} < 0.1$, $^{**} < 0.05$, $^{***} < 0.01$.