

# Multinational Behavior and Anti- Sweatshop Activism

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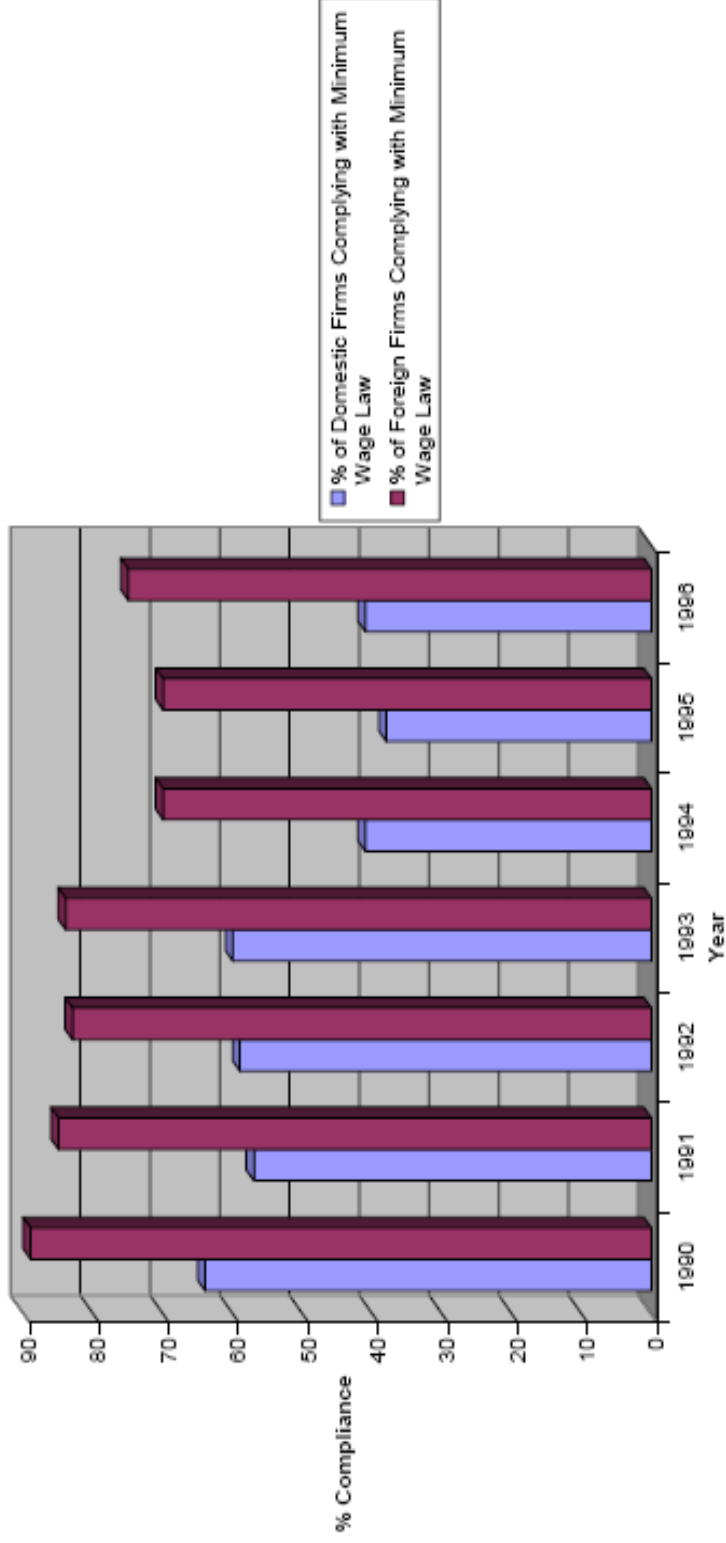
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# Motivation

- Does external pressure on a country affect labor market outcomes?
- Two types of pressure:
  - US government: threats to withdraw GSP status lead to minimum wage increases
  - NGOs: anti-sweatshop movements
- Testing for intended (and unintended) consequences

# “Let’s hear it for third world sweatshops” (Kristoff)

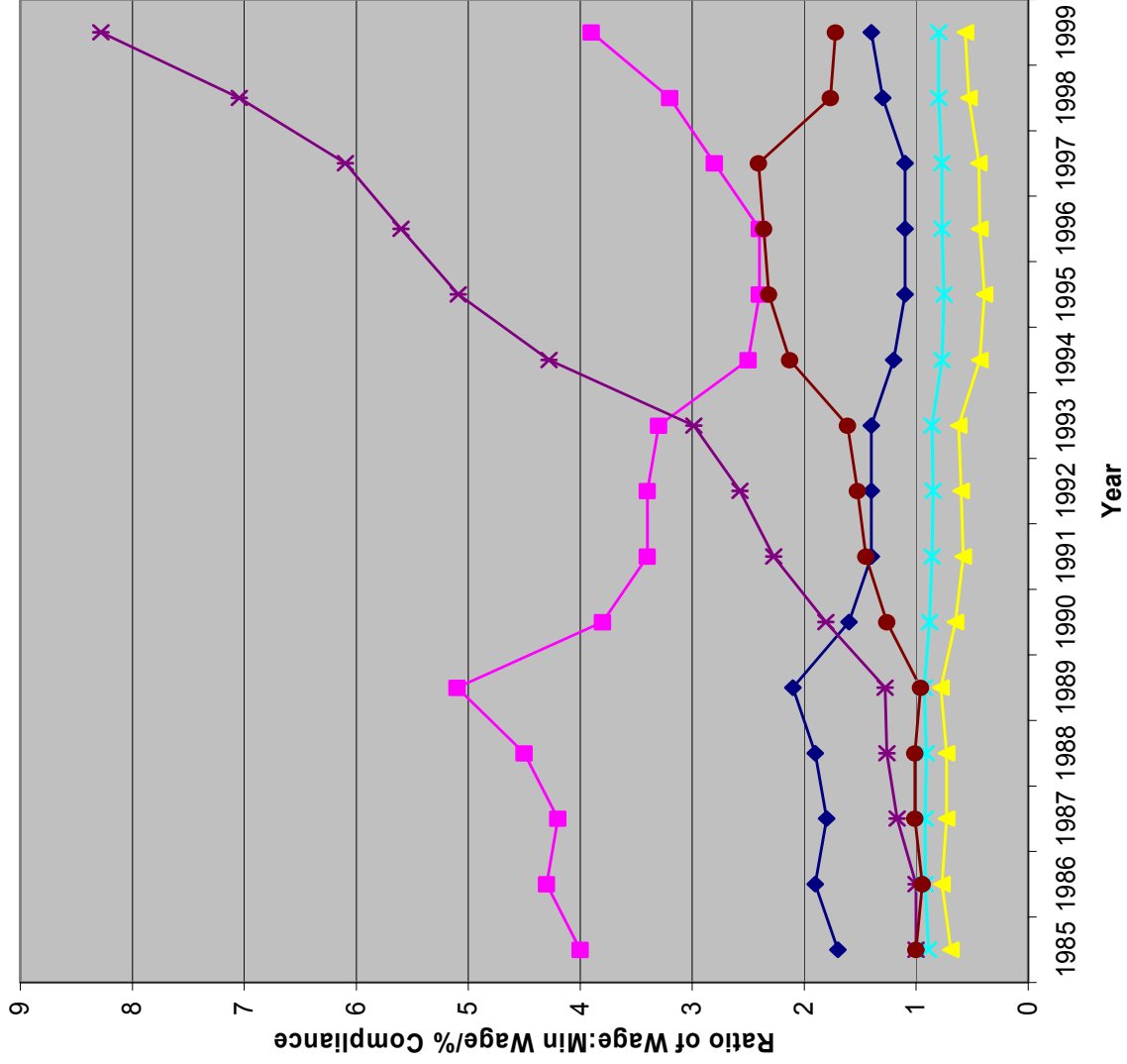
Figure 5: Firm Compliance with Minimum Wage Laws for Production Workers Based on Domestic or Foreign Ownership in Indonesia 1990-1996



# Country Case Study: Indonesia

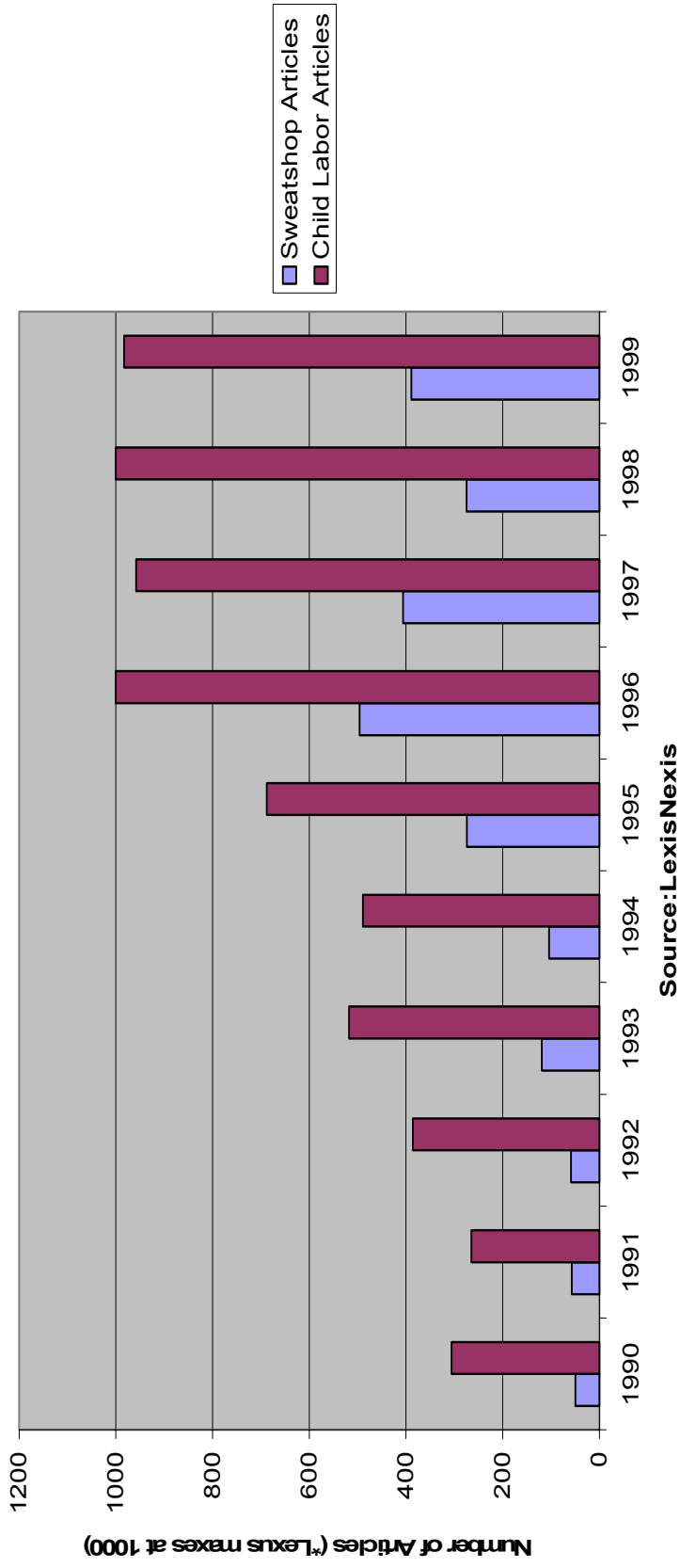
- Why does Indonesia make a good case study?
- Eight hundred percent increase in nominal minimum wage and more than doubling of real minimum wage
- From essentially no anti-sweatshop campaigns in late 1990s to significant focus on companies like Nike

**Figure 1: Average Wages with Respect to the Minimum Wage & Minimum Wage Compliance  
In Indonesia 1990-1999**

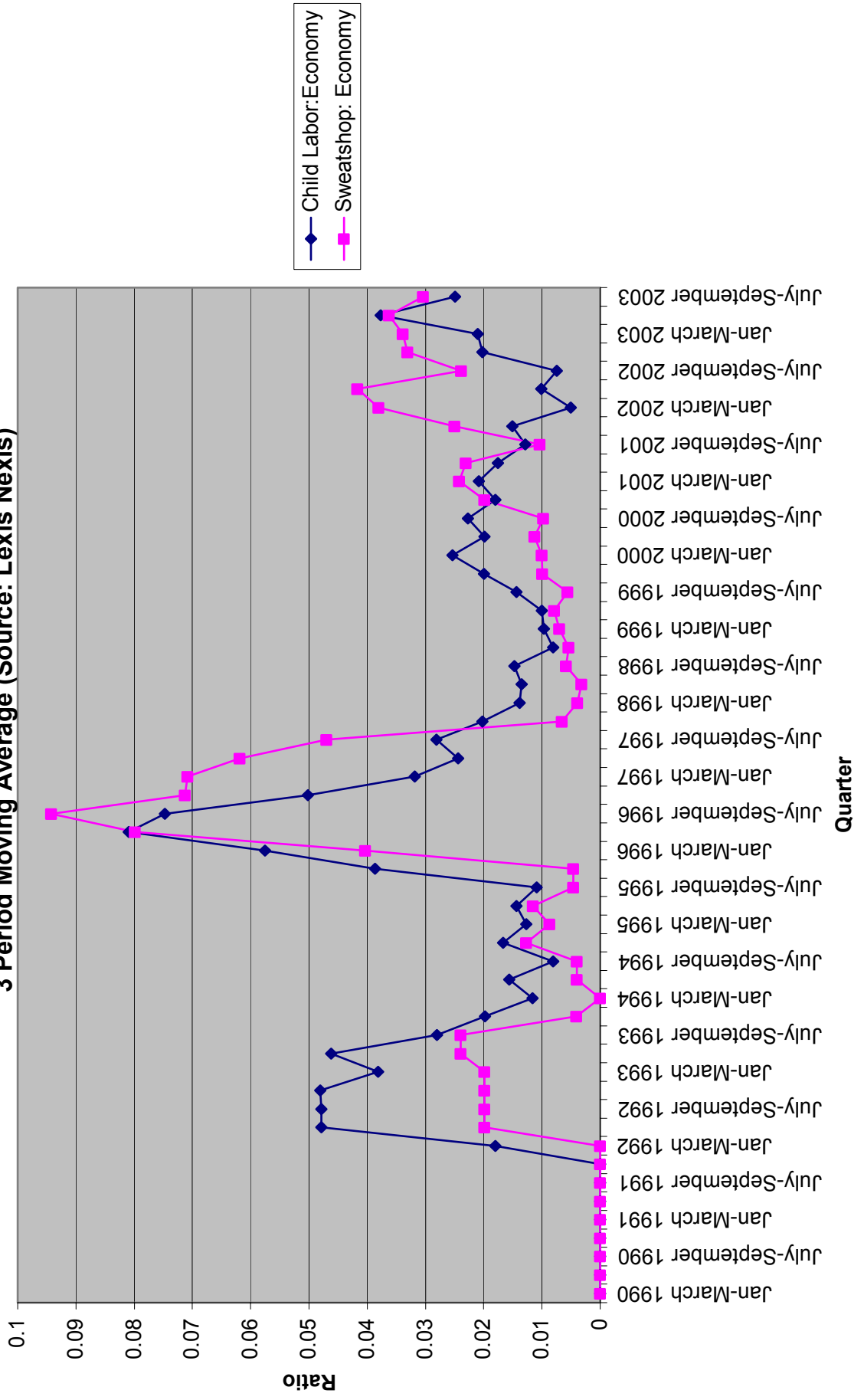


# Documenting the rise of Anti-sweatshop Activism in the 1990s

Figure 3: Articles about "sweatshops" and "child labor" in Major Newspapers 1990-1999



**Figure 4B: Percentage of Articles on Sweatshop or Child Labor in Indonesia, relative to all Economics Articles on Indonesia, New York Times  
3 Period Moving Average (Source: Lexis Nexis)**



# Research Questions

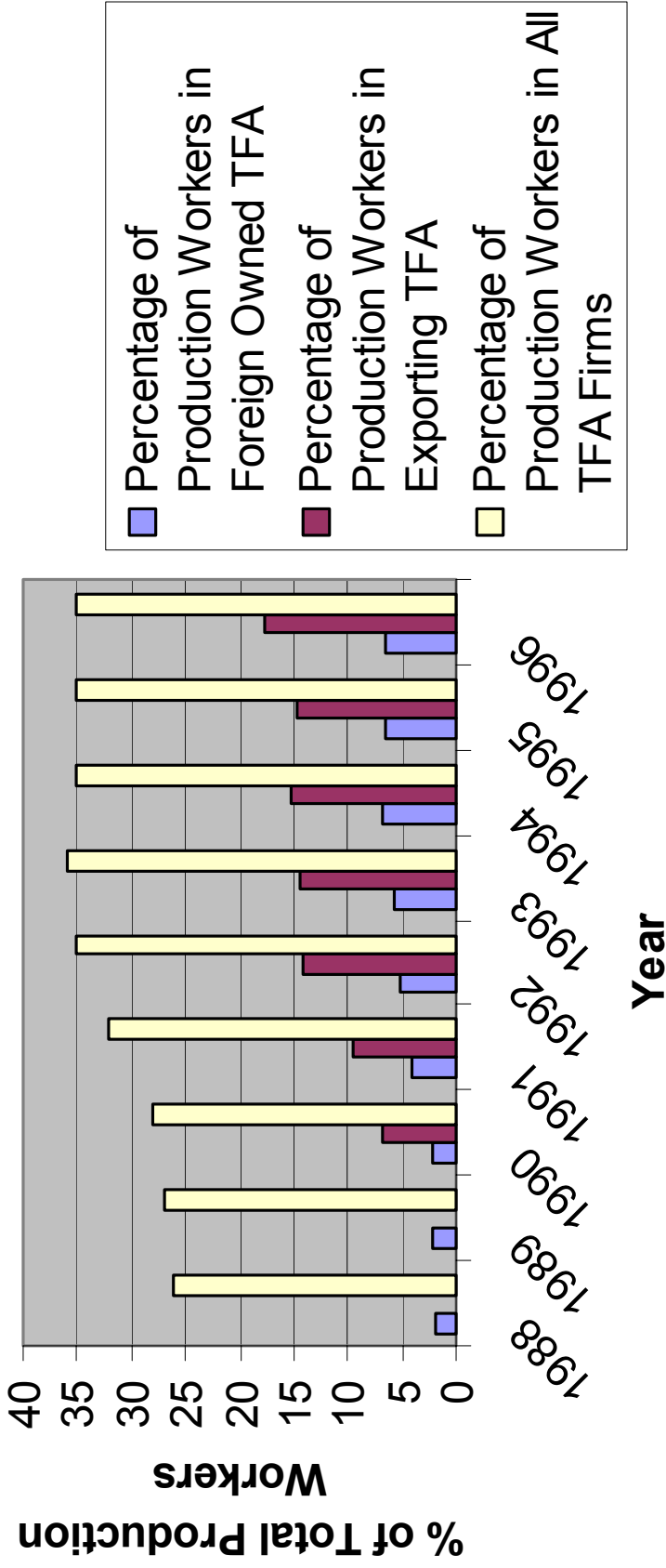
- Did increasing activism lead to higher wages?
- Did upward pressure on wages result in lower employment ?
- Other outcomes: profitability, investment, technical change, entry, and exit

# Identification Strategy

- **Since most activism has focused on textiles/footwear/apparel (TFA), we examine wage changes for these sectors for 1990-1996, based on TFA status in 1990.**
- **Compare changes in wages in districts with Nike/Reebok and Adidas subcontractors versus other districts**

# Importance of Textiles, Footwear and Apparel (TFA) in Indonesia

Share of Total Production Workers Employed in Foreign and Exporting TFA in Indonesia



# Econometric Framework: Difference in Difference Estimates

We estimate in region  $r$ , plant  $i$ , at time  $t$ :

$$W_{i96} - W_{i90} = \alpha_1 \text{MINWAGECh}_{rit} + \alpha_2 \text{DFI}_{i,1990} + \alpha_3 \text{EXP}_{i,1990} + \alpha_4 \text{TREATMENT}_{i,1990} +$$

$$\alpha_5 (\text{DFI} * \text{TREATMENT})_{i,1990} +$$

$$\alpha_6 (\text{EXP} * \text{TREATMENT})_{i,1990} +$$

$$\alpha_7 Z_{it} + \omega_r + e_{it}$$

$W$  = production wages/number of workers

$\text{MINWCH}$  =  $\text{minwage}_{r,1996} - \text{minwage}_{r,1990}$

= 0 if wage in 1990 great than 1996 minwage

$Z$  = worker and/or plant controls

$\omega_r$  = Region controls

# Recall Definition of Treatment:

- Plant is in the Textiles, Footwear, and Apparel Sector (TFA) OR
- Plant is located in one of the (4-digit level) districts with subcontractors for Nike, Reebok, and Apparel.

(Note: Plants in these districts account for half of all TFA plants)

# Data

- Indonesian manufacturing census
- Base specification 1990-1996 (also tried 1988-1996, 1990-1999)
- Minimum wages from Indonesian government, varies across districts (less aggregated than regions.)
- DFI, EXP, TFA defined based on beginning of sample period. Dummy variable set equal to 1 if  $DFI > 0$ ,  $EXP > 0$ .
- $w$  calculated as regional wage of non-complying plants
- Worker controls (1995-97), plant controls
- Focus on unskilled workers

# Results: Table 1A (Means and Differences in Differences in Thousands of 1996 Rupiahs)

	Domestic (a)	Always Foreign (b)	Always Exporting (c)	(2) – (1)	(3) – (1)	(2) – (3)
	(1)	(2)	(3)	(4)	(5)	(6)
<b>1. Mean Wage in 1990, All Available Observations</b>	1123.3 (11.1)	3270.3 (157.3)	1831.8 (85.0)	2146.9 (62.7)	708.5 (47.7)	1438.4 (164.2)
<b>2. Mean Wage in 1996, All Available Observations</b>	1532.5 (12.3)	3495.1 (113.3)	2115.0 (48.0)	1962.7 (54.3)	582.5 (36.5)	1380.1 (104.9)
<b>3. Change in Mean Wage, 1990-1996</b>	409.2 (17.1)	224.9 (203.0)	283.2 (96.2)	-184 (62.7)	-126 (47.7)	-58 (164.3)
<b>4. Change in Mean Wage, Balanced Sample (d)</b>	370.2 (22.8)	776.1 (273.3)	302.9 (111.5)	405.9 (81.1)	-67.3 (54.3)	473.2 (194.1)
<b>5. Mean Change in Log Wage, 1990-1996, All Observations</b>	.36 (.01)	.11 (.05)	.18 (.03)	-.25 (.04)	-.18 (.03)	-.07 (.05)

# Table 1B: DID for Textiles, Apparel, and Footwear (Thousands of 1996 Rupiahs)

	Textiles, Apparel, and Footwear Establishments			Other Establishments			Difference		
	Domestic (a)	Always Foreign (b)	Always Exporting (c)	Domestic (a)	Always Foreign	Always Exporting (c)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>1. Mean Wage in 1990, All Observations</b>	1078.2 (15.5)	1775.1 (112.1)	1462.4 (122.8)	1134.2 (13.2)	3560.8 (182.1)	1934.6 (102.7)	56.0 (27.9)	-1805.6 (419.1)	-472.2 (205.2)
<b>2. Mean Wage in 1996, All Observations</b>	1441.2 (19.6)	2268.8 (79.2)	2079.2 (100.0)	1552.4 (14.4)	3798.6 (137.8)	2125.2 (54.6)	-111.1 (32.1)	-1529.7 (280.0)	-46.0 (115.6)
<b>3. Change in Mean Wage, 1990-1996</b>	363.0 (25.7)	513.7 (151.2)	616.8 (187.1)	418.1 (20.2)	237.8 (241.1)	190.6 (111.2)	-54.9 (36.7)	275.9 (497.6)	426.2 (188.5)
<b>4. Change in Mean Wage, Balanced Sample (d)</b>	349.4 (33.4)	740.1 (196.3)	474.2 (170.0)	374.7 (26.6)	814.9 (318.8)	259.4 (135.2)	-25.3 (47.4)	-74.8 (497.6)	214.8 (188.5)
<b>5. Mean Change in Log Wage, 1990-1996 All Observations</b>	.30 (.03)	.29 (.09)	.40 (.05)	.37 (.01)	.08 (.05)	.13 (.04)	-.07 (.02)	.21 (.11)	.27 (.07)
<b>6. Mean Change in Log Wage, Balanced Sample</b>	.30 (.03)	.36 (.10)	.35 (.06)	.28 (.02)	.22 (.07)	.16 (.05)	.02 (.02)	.14 (.10)	.19 (.10)

**Table 2: Long Differences (Dependent Variable is Log Change in Wages)**

	(2) With Plant and Worker Controls	(4) With TFPG growth added	(5) Adding Techno-logy Spending to (4)	(6) Adding output growth to other controls	(8) Dependent Variable is wages plus non-wage Benefit, All Controls	(9) All textiles, apparel and footwear firms with at least 100 employees
<b>TREATMENT (c)</b>	<b>0.011</b>	<b>0.027</b>	<b>0.030</b>	<b>0.031</b>	<b>-.010</b>	<b>0.012</b>
<b>TREATMENT*Foreign</b>	<b>(0.20)</b>	<b>(0.88)</b>	<b>(0.98)</b>	<b>(0.97)</b>	<b>(-.20)</b>	<b>(0.15)</b>
	<b>0.216</b>	<b>0.189</b>	<b>0.210</b>	<b>0.196</b>	<b>.180</b>	<b>0.212</b>
	<b>(3.32)**</b>	<b>(3.22)**</b>	<b>(3.39)**</b>	<b>(3.06)**</b>	<b>(3.73)**</b>	<b>(2.08)*</b>
<b>TREATMENT*Export</b>	<b>0.079</b>	<b>0.068</b>	<b>0.074</b>	<b>0.077</b>	<b>.074</b>	<b>0.064</b>
	<b>(1.04)</b>	<b>(0.87)</b>	<b>(0.99)</b>	<b>(1.11)</b>	<b>(.84)</b>	<b>(0.73)</b>
<b>Minimum</b>	<b>0.504</b>	<b>0.658</b>	<b>0.672</b>	<b>0.670</b>	<b>.670</b>	<b>0.670</b>
<b>Wage (d)</b>	<b>(10.11)**</b>	<b>(7.45)**</b>	<b>(7.60)**</b>	<b>(7.54)**</b>	<b>(7.47)**</b>	<b>(8.67)**</b>
<b>Obs</b>	<b>6165</b>	<b>5920</b>	<b>5920</b>	<b>5920</b>	<b>5099</b>	<b>535</b>
<b>R-squared</b>	<b>0.20</b>	<b>0.22</b>	<b>0.23</b>	<b>0.23</b>	<b>.25</b>	<b>0.27</b>

# Robustness Tests

- **Impact on skilled workers (column 10, previous Table). If demand shock, should affect skilled workers too.**
- **Same specification for other sectors (are the results restricted to TFA?)**
- **Randomize treatment districts**
- **Nonlinear matching techniques**

	<i>Tests of Robustness: Switching from Textiles, Footwear, and Apparel to Other Industrial Sectors or Districts</i>			<i>Tests of Robustness: Estimating Average Treatment Effect Using Matching Estimators for Treatment</i>				
	(1) Chemical Products as Treatment	(2) Wood Products as Treatment	(3) Fabricated Metals as Treatment	(4) Randomizing Districts with Treatment	(5) All Plants	(6) All Plants	(7) Textiles Apparel, and Footwear Only	(8) Textiles Apparel, and Footwear Only
<b>TREATMENT</b>	<b>0.002</b>	<b>-0.009</b>	<b>-0.263</b>	<b>0.007</b>	<b>0.274</b>	--	<b>0.201</b>	--
<b>*Foreign</b>	<b>(0.02)</b>	<b>(0.03)</b>	<b>(3.19)**</b>	<b>(0.10)</b>	<b>(2.23)**</b>		<b>(1.8)</b>	
<b>TREATMENT*</b>	<b>-0.206</b>	<b>-0.460</b>	<b>-0.411</b>	<b>-0.063</b>	--	<b>0.219</b>		<b>0.190</b>
<b>Exporting</b>	<b>(3.19)**</b>	<b>(4.07)**</b>	<b>(7.70)**</b>	<b>(0.84)</b>		<b>(2.11)**</b>	--	<b>(2.11)**</b>
<b>Change in</b>	<b>0.677</b>	<b>0.675</b>	<b>0.674</b>	<b>0.675</b>	--	--	--	--
<b>Minimum Wage</b>	<b>(7.68)**</b>	<b>(7.75)**</b>	<b>(7.68)**</b>	<b>(7.70)**</b>				
<b>Observations</b>	<b>5920</b>	<b>5920</b>	<b>5920</b>	<b>5920</b>				
<b>R-squared</b>	<b>0.23</b>	<b>0.23</b>	<b>0.23</b>	<b>0.23</b>				

# Summary of Results

- Large impact of minimum wage: more than doubling of real minimum wage led to more than 35 percent increase in real wages for unskilled workers.
- Large impact of anti-sweatshop activism on wage growth: up to 20 percent higher wage growth for textiles/apparel/footwear
- Minimum wage effects + anti-sweatshop activism imply real wage increases of 55+ percent or nominal wage increases of 110 % over 6 years

# Next Questions

- **Did large increases in wages lead to a fall in employment?**
- **Due to minimum wage increases?**
- **Due to activism targeted at textiles, apparel, and footwear?**
- **What about other consequences?**

# Employment Effects (Number of Employees)

	Ownership Status			Difference		
	Domestic (a) (1)	Always Foreign (b) (2)	Always Exporting (c) (3)		(2)-(1) (3)-(1) (2)-(3)	
1. Mean Employment in 1990, all available observations	68.71 (1.68)	360.42 (27.06)	400.48 (21.75)	292.92 (9.90)	331.77 (8.59)	-39.56 (34.93)
2. Mean Employment in 1996, all available observations	66.68 (1.57)	506.92 (28.64)	400.63 (18.22)	440.24 (9.76)	333.95 (8.21)	106.29 (32.74)
3. Change in Mean Employment, 1990-1996	-2.02 (2.32)	146.00 (21.81)	0.15 (33.83)	148.02 (9.9)	2.17 (8.6)	145.85 (34.9)
4. Change in Mean Employment, Balanced Sample (d)	12.65 (4.33)	204.30 (64.90)	193.01 (50.73)	191.7 (12.1)	180.4 (10.7)	11.3 (43.4)

	Textiles, Apparel, and Footwear Establishments			Other Establishments			Difference
	Domestic (a)	Always Foreign (b)	Always Exporting (c)	Domestic (a)	Always Foreign (b)	Always Exporting (c)	(1)-(4) (2)-(5) (3)-(6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7) (8) (9)
1. Mean Employment in 1990, All Available Observations	94.82 (5.53)	737.75 (97.87)	403.64 (45.99)	62.39 (1.60)	288.67 (24.43)	399.60 (24.71)	43.42 (4.24) 449.08 (70.26) 4.04 (52.75)
2. Mean Employment in 1996, All Available Observations	90.00 (4.74)	1126.97 (109.79)	765.97 (66.37)	61.60 (1.60)	353.50 (19.73)	297.14 (12.73)	28.40 (4.08) 773.47 (67.44) 468.82 (42.65)
3. Change in Mean Employment, 1990-1996	-4.82 (7.3)	389.22 (197.70)	362.33 (118.17)	-0.79 (2.31)	64.83 (33.99)	-102.46 (26.18)	-4.03 (4.23) 324.39 (70.5) 464.79 (52.9)
4. Change in Mean Employment, Balanced Sample (d)	14.69 (15.51)	561.99 (237.76)	432.67 (143.82)	12.17 (4.09)	119.68 (54.88)	117.98 (49.59)	2.48 (5.3) 442.3 (91.5) 314.69 (60.0)
5. Mean Yearly Changes in Balanced Sample (e)	2.79 (.78)	93.08 (18.48)	61.29 (10.49)	2.18 (0.44)	24.60 (5.75)	24.07 (4.20)	0.61 (1.02) 68.49 (15.15) 37.21 (9.54)

**Table 5: Long Differences (Dependent Variable is Log Change in Employment)**

	(2) Adding Plant and Worker Controls, Productiv ity Growth	(3) Adding Technolo gy and Output Growth to (2)	(4) All Controls Small Firms Only	(5) All Controls Large Firms Only	(6) Only Textiles Apparel, and Footwear	(7) Only Large Textiles Apparel, and Footwear
<b>TFA</b>	0.011	0.013	0.017	-0.003	0.015	-0.024
	(0.55)	(1.17)	(0.21)	(0.37)	(0.52)	(0.85)
<b>Foreign*TFA</b>	0.119	0.034	0.000	0.044	0.087	0.134
	(2.18)*	(1.16)	(0.0)	(1.59)	(2.17)*	(7.17)**
<b>Exporting*TFA</b>	0.166	0.158	0.000	0.165	0.095	0.082
	(5.07)**	(4.92)**	(0.0)	(5.40)**	(1.33)	(1.49)
<b>Change in</b>	-0.131	-0.124	-0.021	-0.118	-0.184	-0.134
<b>Minimum Wage</b>	(8.04)**	(9.39)**	(0.80)	(8.67)**	(5.31)**	(7.75)**
<b>Observations</b>	5920	5920	905	5015	1123	535
<b>R-Square</b>	0.25	0.34	0.21	0.34	0.48	0.54

# **Summarizing Employment Effects**

- **Coefficient on change in log minimum wage suggests a 1 percent increase leads to employment declines of 12 to 18 percent for large plants.**
- **No significant impact on small plants.**
- **No losses in employments due to anti-sweatshop campaigns: textiles and apparel factories gained employees.**

# Other Outcomes

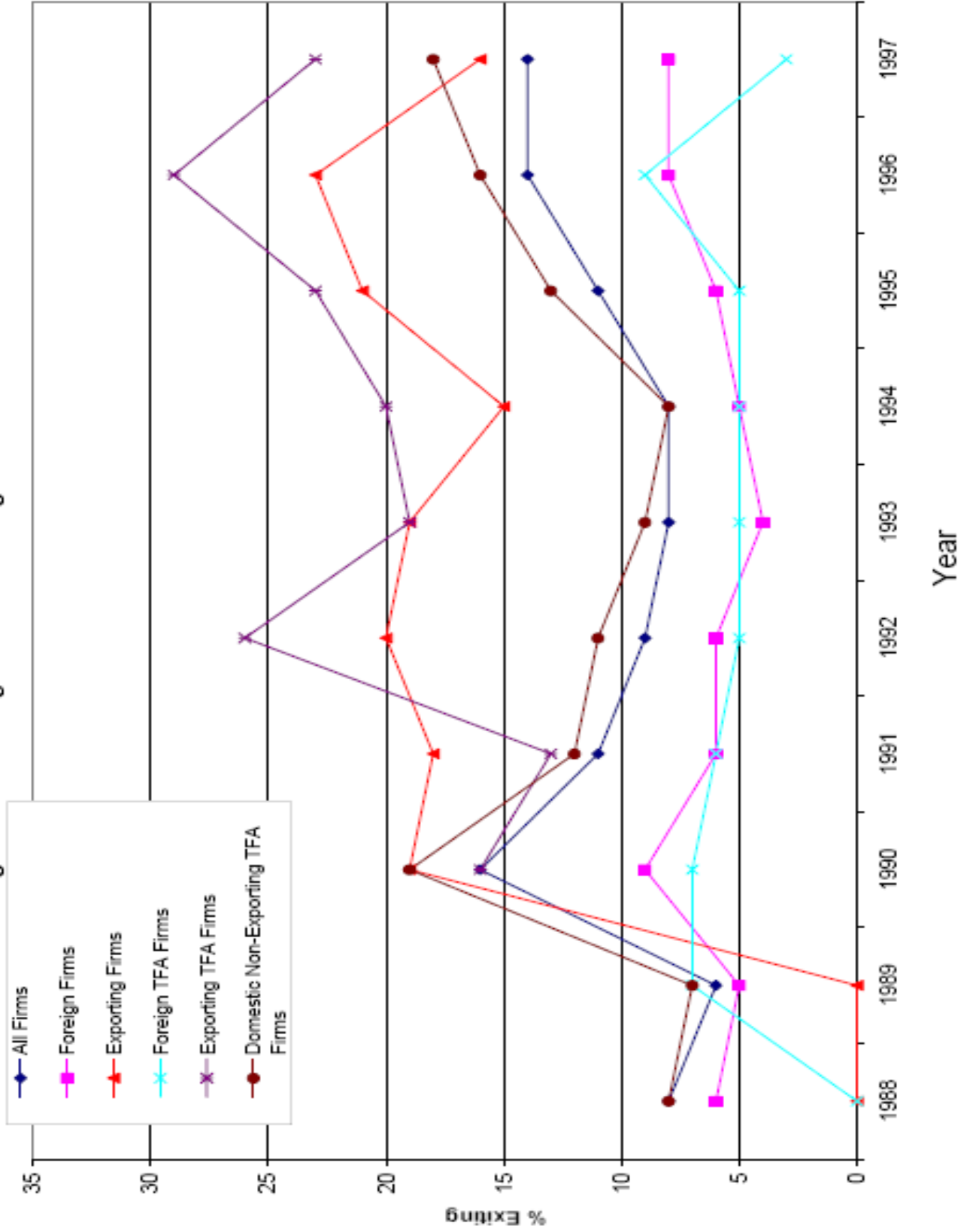
- Investment
- Total Factor Productivity Growth (TFPG)
- Profits (no profit sharing without excess profits)
- Entry
- Exit (are firms relocating to other low-wage locations?)



# Exit

- Examine whether activism or minimum wage legislation increased probability of plant exit or relocation
- No evidence of greater exit for firms with foreign ownership (ie foreign firms not “footloose”)
- Weak evidence of some exit among TFA exporters

Figure 8: Percentage of Firms Exiting in Years 1988-1999



# Concluding Comments

- Minimum wage increase associated with 35 percent increase in production worker wages: suggests US threats to eliminate GSP effective.
- Anti-sweatshop activism successful: Exporting and foreign TFA firms increased wages 20 to 25 percent faster than firms in other sectors.
- Upward pressure on wages for foreign/exporting TFA firms did NOT affect employment
- Minimum wage increases reduced employment
- Activism also associated with falling profits, investment, small effects on exit
- Was this a “win-win” student movement?