

Internet Appendix to
“Capital and Labor Reallocation within Firms”

XAVIER GIROUD and HOLGER M. MUELLER*

Index

Table IA.I:	Plant Closures
Table IA.II:	Financing Constraints versus Plant-Level Productivity
Table IA.III:	Financing Constraints versus Dispersion in Plant-Level Productivity
Table IA.IV:	Financing Constraints versus Productivity of the Treated Plant
Table IA.V:	Correlation Matrix
Table IA.VI:	Which Other Plants Are Primarily Affected? Plant-Level Investment and Employment
Table IA.VII:	Which Other Plants Are Primarily Affected? Plant-Level Productivity

*Citation format: Giroud, Xavier, and Holger M. Mueller, Internet Appendix to “Capital and Labor Reallocation within Firms,” *Journal of Finance*, DOI 10.1111/jofi.12254. Please note: Wiley-Blackwell is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing material) should be directed to the authors of the article.

Table IA.I
Plant Closures

This table presents variants of the regressions in Table II where the dependent variable is a dummy variable indicating whether the plant is closed down in the following year (“plant death” in the LBD). All other variables are described in Table II. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. (The 2005 LBD indicates whether an establishment “dies” in 2006. Therefore, we do not lose any plant-year observations.) Standard errors are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	Plant Closure	
	KZ Index	WW Index
	(1)	(2)
Treated × FC	-0.004 (0.004)	-0.003 (0.006)
Treated × Non-FC	-0.005 (0.004)	-0.005 (0.004)
Other × FC	-0.001 (0.003)	0.000 (0.005)
Other × Non-FC	0.000 (0.006)	-0.000 (0.002)
Control Variables	Yes	Yes
Plant Fixed Effects	Yes	Yes
MSA × Year Fixed Effects	Yes	Yes
Observations	291,358	291,358
R ²	0.37	0.37

Table IA.II
Financing Constraints versus Plant-Level Productivity

This table presents variants of the regressions in Table V where *Low (High)* is a dummy variable indicating whether plant-level productivity lies below (above) the median across all plants in the year prior to the treatment. Plant-level productivity is either TFP (columns (1) and (3)) or ROC (columns (2) and (4)). TFP and ROC are described in Table III. All other variables are described in Table II. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. Standard errors are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	Investment		Employment	
	Plant-Level	Plant-Level	Plant-Level	Plant-Level
	TFP	ROC	TFP	ROC
	(1)	(2)	(3)	(4)
Treated × Low	0.010*** (0.002)	0.010*** (0.002)	0.024*** (0.005)	0.024*** (0.005)
Treated × High	0.010*** (0.002)	0.010*** (0.002)	0.026*** (0.005)	0.026*** (0.005)
Other × Low	-0.001 (0.001)	-0.001 (0.001)	-0.003 (0.004)	-0.003 (0.004)
Other × High	-0.001 (0.001)	-0.001 (0.002)	-0.002 (0.004)	-0.002 (0.004)
Control Variables	Yes	Yes	Yes	Yes
Plant Fixed Effects	Yes	Yes	Yes	Yes
MSA × Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	291,358	291,358	291,358	291,358
R ²	0.32	0.32	0.92	0.92

Table IA.III
Financing Constraints versus Dispersion in Plant-Level Productivity

This table presents variants of the regressions in Table V where *Low* (*High*) is a dummy variable indicating whether the plant belongs to a firm whose dispersion in plant-level productivity—that is, the standard deviation (σ) of plant-level productivity across all of the firm's plants—lies below (above) the median across all firms in the year prior to the treatment. Plant-level productivity is either TFP (columns (1) and (3)) or ROC (columns (2) and (4)). TFP and ROC are described in Table III. All other variables are described in Table II. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. Standard errors are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	Investment		Employment	
	σ (TFP)	σ (ROC)	σ (TFP)	σ (ROC)
	(1)	(2)	(3)	(4)
Treated \times Low	0.010*** (0.002)	0.010*** (0.002)	0.025*** (0.006)	0.025*** (0.006)
Treated \times High	0.010*** (0.002)	0.010*** (0.002)	0.026*** (0.005)	0.026*** (0.005)
Other \times Low	-0.001 (0.002)	-0.001 (0.002)	-0.003 (0.004)	-0.002 (0.004)
Other \times High	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.004)	-0.002 (0.004)
Control Variables	Yes	Yes	Yes	Yes
Plant Fixed Effects	Yes	Yes	Yes	Yes
MSA \times Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	291,358	291,358	291,358	291,358
R ²	0.32	0.32	0.92	0.92

Table IA.IV
Financing Constraints versus Productivity of the Treated Plant

This table presents variants of the regressions in Table V where *Low (High)* is a dummy variable indicating whether the treated plant's productivity lies below (above) the median across all plants in the year prior to the treatment. Plant-level productivity is either TFP (columns (1) and (3)) or ROC (columns (2) and (4)). TFP and ROC are described in Table III. All other variables are described in Table II. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. Standard errors are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	Investment		Employment	
	Treated Plant TFP (1)	Treated Plant ROC (2)	Treated Plant TFP (3)	Treated Plant ROC (4)
Treated × Low	0.010*** (0.002)	0.010*** (0.002)	0.024*** (0.005)	0.024*** (0.005)
Treated × High	0.010*** (0.002)	0.010*** (0.002)	0.026*** (0.005)	0.026*** (0.005)
Other × Low	-0.001 (0.001)	-0.000 (0.001)	-0.003 (0.004)	-0.003 (0.004)
Other × High	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.003)	-0.002 (0.003)
Control Variables	Yes	Yes	Yes	Yes
Plant Fixed Effects	Yes	Yes	Yes	Yes
MSA × Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	291,358	291,358	291,358	291,358
R ²	0.32	0.32	0.92	0.92

Table IA.V
Correlation Matrix

This table reports the average correlation between two plant attributes across all “other” plants among all financially constrained firms in the year prior to the treatment. In Panel A, financing constraints are measured using the KZ index of Kaplan and Zingales (1997). In Panel B, financing constraints are measured using the WW index of Whited and Wu (2006). TFP and ROC are described in Table III. Peripheral plants operate in (three- or four-digit SIC) industries that account for less than 25% of the firm’s total value of shipments. Geographical distance is the great-circle distance between the plant’s ZIP code and the ZIP code of headquarters. Travel time is the total travel time based on the fastest route and means of transportation between the plant’s ZIP code and the ZIP code of headquarters. *Same Industry* is a dummy variable indicating whether the plant operates in the same (three- or four-digit SIC) industry as the treated plant. *Acquired Plant* is a dummy variable indicating whether the plant was acquired by the firm during the sample period. *p*-values are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Panel A: KZ Index									
	TFP	ROC	Peripheral Plant (3-digit SIC)	Peripheral Plant (4-digit SIC)	Travel Time	Geographical Distance	Same Industry (3-digit SIC)	Same Industry (4-digit SIC)	Acquired Plant
TFP	1.000								
ROC	0.578*** (0.002)	1.000							
Peripheral Plant (3-digit SIC)	-0.052 (0.824)	-0.039 (0.874)	1.000						
Peripheral Plant (4-digit SIC)	-0.057 (0.823)	-0.037 (0.887)	0.822*** (0.000)	1.000					
Travel Time	-0.015 (0.955)	-0.033 (0.904)	0.073 (0.770)	0.093 (0.741)	1.000				
Geographical Distance	-0.010 (0.972)	-0.014 (0.959)	0.066 (0.795)	0.093 (0.745)	0.857*** (0.000)	1.000			
Same Industry (3-digit SIC)	0.004 (0.989)	0.033 (0.900)	-0.191 (0.625)	-0.146 (0.703)	-0.067 (0.864)	-0.079 (0.840)	1.000		
Same Industry (4-digit SIC)	-0.003 (0.992)	0.029 (0.910)	-0.175 (0.618)	-0.180 (0.633)	-0.032 (0.934)	-0.053 (0.890)	0.870*** (0.000)	1.000	
Acquired Plant	0.011 (0.966)	0.054 (0.826)	0.003 (0.992)	0.009 (0.976)	-0.032 (0.938)	-0.031 (0.939)	0.179 (0.634)	0.146 (0.700)	1.000

Panel B: WW Index									
	TFP	ROC	Peripheral Plant (3-digit SIC)	Peripheral Plant (4-digit SIC)	Travel Time	Geographical Distance	Same Industry (3-digit SIC)	Same Industry (4-digit SIC)	Acquired Plant
TFP	1.000								
ROC	0.550** (0.012)	1.000							
Peripheral Plant (3-digit SIC)	-0.060 (0.810)	-0.047 (0.863)	1.000						
Peripheral Plant (4-digit SIC)	-0.060 (0.821)	-0.050 (0.853)	0.850*** (0.000)	1.000					
Travel Time	-0.008 (0.978)	-0.022 (0.941)	0.101 (0.729)	0.112 (0.720)	1.000				
Geographical Distance	-0.001 (0.998)	-0.006 (0.983)	0.092 (0.755)	0.102 (0.742)	0.863*** (0.000)	1.000			
Same Industry (3-digit SIC)	0.001 (0.997)	0.032 (0.913)	-0.176 (0.636)	-0.129 (0.723)	-0.052 (0.901)	-0.052 (0.904)	1.000		
Same Industry (4-digit SIC)	0.003 (0.992)	0.029 (0.921)	-0.138 (0.677)	-0.145 (0.683)	-0.017 (0.967)	-0.027 (0.949)	0.879*** (0.000)	1.000	
Acquired Plant	-0.015 (0.956)	0.039 (0.877)	0.030 (0.924)	0.038 (0.902)	0.027 (0.950)	0.039 (0.930)	0.154 (0.705)	0.110 (0.784)	1.000

Table IA.VI
Which Other Plants Are Primarily Affected?
Plant-Level Investment and Employment

This table presents variants of the regressions in Table IX. Panel A is similar to Panel A of Table IX, except that plant-level productivity is measured using ROC. ROC is described Table III. Panel B is similar to Panel B of Table IX, except that industries are classified using four-digit SIC codes. In Panels C and D, *Other* \times *FC* and *Other* \times *Non-FC* are interacted with dummy variables (*Same* and *Different*) indicating whether the plant operates in the same or a different industry as the treated plant in the year prior to the treatment. Industries are classified using either three-digit SIC codes (Panel C) or four-digit SIC codes (Panel D). In Panel E, *Other* \times *FC* and *Other* \times *Non-FC* are interacted with dummy variables (*Acquired* and *Own*) indicating whether the plant was acquired by the firm during the sample period or has been with the firm the entire time. In Panel F, *Other* \times *FC* and *Other* \times *Non-FC* are interacted with dummy variables (*Low* and *High*) indicating whether the travel time between the plant and its headquarters lies below or above the median across all of the firm's "other" plants in the year prior to the treatment. Travel time is the total travel time based on the fastest route and means of transportation between the plant's ZIP code and the ZIP code of headquarters. All other variables are described in Table II. The coefficients on *Treated* \times *FC* and *Treated* \times *Non-FC* are not displayed for brevity. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. Standard errors are in parentheses (except for *F*-statistics, where *p*-values are in parentheses). *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Panel A: Plant Productivity (ROC)				
Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other \times FC \times Low	-0.005** (0.002)	-0.006** (0.003)	-0.011** (0.006)	-0.015** (0.008)
Other \times FC \times High	0.001 (0.002)	0.001 (0.003)	-0.002 (0.006)	0.004 (0.009)
Other \times Non-FC \times Low	0.000 (0.002)	-0.001 (0.001)	0.000 (0.005)	-0.002 (0.004)
Other \times Non-FC \times High	0.001 (0.002)	0.001 (0.002)	0.003 (0.005)	0.000 (0.004)
Other \times FC \times Low versus Other \times FC \times High				
F-statistic	3.89** (0.049)	2.91* (0.088)	3.50* (0.061)	2.70* (0.100)

Panel B: Peripheral versus Main Industries (Four-Digit SIC)

Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Main	0.000 (0.002)	-0.001 (0.003)	0.003 (0.006)	0.002 (0.008)
Other × FC × Peripheral	-0.005** (0.002)	-0.006** (0.003)	-0.012** (0.006)	-0.016* (0.009)
Other × Non-FC × Main	0.001 (0.002)	0.001 (0.002)	0.003 (0.006)	0.003 (0.005)
Other × Non-FC × Peripheral	-0.000 (0.002)	-0.001 (0.001)	0.000 (0.005)	-0.003 (0.004)
Other × FC × Main versus Other × FC × Peripheral				
F-statistic	2.96* (0.085)	3.00* (0.083)	3.93** (0.047)	3.67* (0.055)

Panel C: Same versus Different Industries (Three-Digit SIC)

Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Same	-0.003 (0.003)	-0.003 (0.004)	-0.004 (0.008)	-0.008 (0.012)
Other × FC × Different	-0.002 (0.002)	-0.003 (0.002)	-0.006 (0.005)	-0.006 (0.007)
Other × Non-FC × Same	0.001 (0.002)	-0.001 (0.002)	0.002 (0.006)	0.001 (0.005)
Other × Non-FC × Different	0.000 (0.002)	-0.000 (0.001)	0.001 (0.004)	-0.002 (0.004)

Panel D: Same versus Different Industries (Four-Digit SIC)

Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Same	-0.003 (0.003)	-0.003 (0.004)	-0.004 (0.008)	-0.008 (0.012)
Other × FC × Different	-0.002 (0.002)	-0.003 (0.002)	-0.006 (0.005)	-0.006 (0.007)
Other × Non-FC × Same	0.001 (0.002)	-0.000 (0.002)	0.002 (0.006)	0.001 (0.005)
Other × Non-FC × Different	0.000 (0.002)	-0.000 (0.001)	0.000 (0.004)	-0.003 (0.004)

Panel E: Acquired versus Own Plants

Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Own	-0.003 (0.002)	-0.003 (0.002)	-0.007 (0.005)	-0.008 (0.007)
Other × FC × Acquired	-0.002 (0.002)	-0.004 (0.005)	-0.006 (0.007)	-0.006 (0.015)
Other × Non-FC × Own	0.000 (0.001)	-0.000 (0.001)	0.000 (0.004)	-0.001 (0.004)
Other × Non-FC × Acquired	0.000 (0.003)	-0.001 (0.002)	0.001 (0.008)	0.000 (0.005)

Panel F: Proximity to Headquarters (Travel Time)

Dependent Variable:	Investment		Employment	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Low	0.001 (0.002)	0.001 (0.003)	0.000 (0.006)	0.004 (0.009)
Other × FC × High	-0.005** (0.002)	-0.006** (0.003)	-0.011** (0.006)	-0.015* (0.008)
Other × Non-FC × Low	0.000 (0.002)	0.000 (0.002)	0.002 (0.005)	0.001 (0.004)
Other × Non-FC × High	0.000 (0.002)	-0.001 (0.001)	0.001 (0.005)	-0.001 (0.004)
Other × FC × Low versus Other × FC × High				
F-statistic	3.61* (0.057)	3.40* (0.065)	3.31* (0.069)	3.07* (0.080)

Table IA.VII
Which Other Plants Are Primarily Affected?
Plant-Level Productivity

This table presents variants of the regressions in Table IX and Table IA.VI where the dependent variable is either plant-level TFP (columns (1) and (2)) or plant-level ROC (columns (3) and (4)). TFP and ROC are described in Table III. Panels A, C, and H are the counterparts of Panels A to C of Table IX. Panels B, D to G, and I are the counterparts of Panels A to F of Table IA.VI. Standard errors are clustered at the firm level. The sample period is from 1977 to 2005. Standard errors are in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Panel A: Productivity (TFP)				
Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Low	-0.001	-0.002	-0.001	-0.003
	(0.002)	(0.003)	(0.002)	(0.003)
Other × FC × High	-0.001	-0.002	-0.001	-0.002
	(0.002)	(0.003)	(0.003)	(0.004)
Other × Non-FC × Low	0.000	0.001	0.000	0.001
	(0.002)	(0.001)	(0.002)	(0.002)
Other × Non-FC × High	0.000	-0.000	-0.000	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Panel B: Productivity (ROC)				
Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Low	-0.001	-0.002	-0.001	-0.002
	(0.002)	(0.003)	(0.002)	(0.003)
Other × FC × High	-0.001	-0.002	-0.001	-0.002
	(0.002)	(0.003)	(0.003)	(0.004)
Other × Non-FC × Low	0.000	0.001	0.000	0.001
	(0.002)	(0.001)	(0.002)	(0.002)
Other × Non-FC × High	0.000	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)

Panel C: Peripheral versus Main Industries (Three-Digit SIC)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Main	0.000 (0.002)	0.000 (0.003)	0.000 (0.002)	0.000 (0.003)
Other × FC × Peripheral	-0.002 (0.003)	-0.003 (0.003)	-0.002 (0.002)	-0.004 (0.003)
Other × Non-FC × Main	-0.000 (0.002)	0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)
Other × Non-FC × Peripheral	0.000 (0.002)	0.001 (0.002)	0.000 (0.002)	0.001 (0.002)

Panel D: Peripheral versus Main Industries (Four-Digit SIC)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Main	0.000 (0.002)	0.000 (0.003)	0.000 (0.002)	0.001 (0.004)
Other × FC × Peripheral	-0.002 (0.002)	-0.003 (0.003)	-0.002 (0.003)	-0.004 (0.003)
Other × Non-FC × Main	-0.000 (0.002)	0.000 (0.002)	-0.000 (0.002)	-0.001 (0.002)
Other × Non-FC × Peripheral	0.000 (0.002)	0.001 (0.002)	0.000 (0.002)	0.001 (0.002)

Panel E: Same versus Different Industries (Three-Digit SIC)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Same	-0.001 (0.003)	-0.002 (0.004)	-0.001 (0.003)	-0.003 (0.005)
Other × FC × Different	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.002 (0.003)
Other × Non-FC × Same	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.001 (0.002)
Other × Non-FC × Different	0.000 (0.001)	0.000 (0.001)	0.000 (0.002)	-0.000 (0.001)

Panel F: Same versus Different Industries (Four-Digit SIC)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Same	-0.001 (0.003)	-0.001 (0.004)	-0.001 (0.003)	-0.002 (0.004)
Other × FC × Different	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.003 (0.003)
Other × Non-FC × Same	0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)
Other × Non-FC × Different	0.000 (0.001)	0.000 (0.001)	0.000 (0.002)	0.001 (0.001)

Panel G: Acquired versus Own Plants

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Own	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.003 (0.003)
Other × FC × Acquired	-0.001 (0.002)	-0.001 (0.005)	-0.001 (0.003)	-0.002 (0.006)
Other × Non-FC × Own	-0.000 (0.001)	0.000 (0.001)	-0.000 (0.002)	-0.000 (0.002)
Other × Non-FC × Acquired	0.000 (0.003)	0.000 (0.002)	0.001 (0.003)	0.001 (0.002)

Panel H: Proximity to Headquarters (Geographical Distance)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Low	0.000 (0.002)	-0.001 (0.003)	0.000 (0.003)	-0.001 (0.003)
Other × FC × High	-0.002 (0.002)	-0.003 (0.003)	-0.002 (0.002)	-0.003 (0.004)
Other × Non-FC × Low	0.000 (0.002)	0.000 (0.002)	-0.000 (0.002)	0.000 (0.002)
Other × Non-FC × High	0.001 (0.002)	0.000 (0.001)	0.001 (0.002)	0.001 (0.002)

Panel I: Proximity to Headquarters (Travel Time)

Dependent Variable:	TFP		ROC	
	KZ Index	WW Index	KZ Index	WW Index
	(1)	(2)	(3)	(4)
Other × FC × Low	0.000 (0.002)	-0.001 (0.003)	0.000 (0.003)	-0.002 (0.003)
Other × FC × High	-0.002 (0.002)	-0.003 (0.003)	-0.002 (0.002)	-0.003 (0.004)
Other × Non-FC × Low	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.001 (0.002)
Other × Non-FC × High	0.001 (0.002)	0.000 (0.001)	0.001 (0.002)	0.000 (0.001)

References

Kaplan, Steven N., and Luigi Zingales, 1997, Do financing constraints explain why investment is correlated with cash flow? *Quarterly Journal of Economics* 112, 169-215.

Whited, Toni M., and Guojun Wu, 2006, Financial constraints risk, *Review of Financial Studies* 19, 531-559.