# Plan for this lecture

1. Introduction on multinationals and FDI

2. Drivers of FDI

3. How do foreign acquisitions impact the performance of acquired firms?

4. Are there spillovers from FDI to domestic firms?

5. Do consumers benefit from retail globalization?

6. What can governments do to attract FDI?

Background

Impressive growth of FDI flows in developed and developing countries
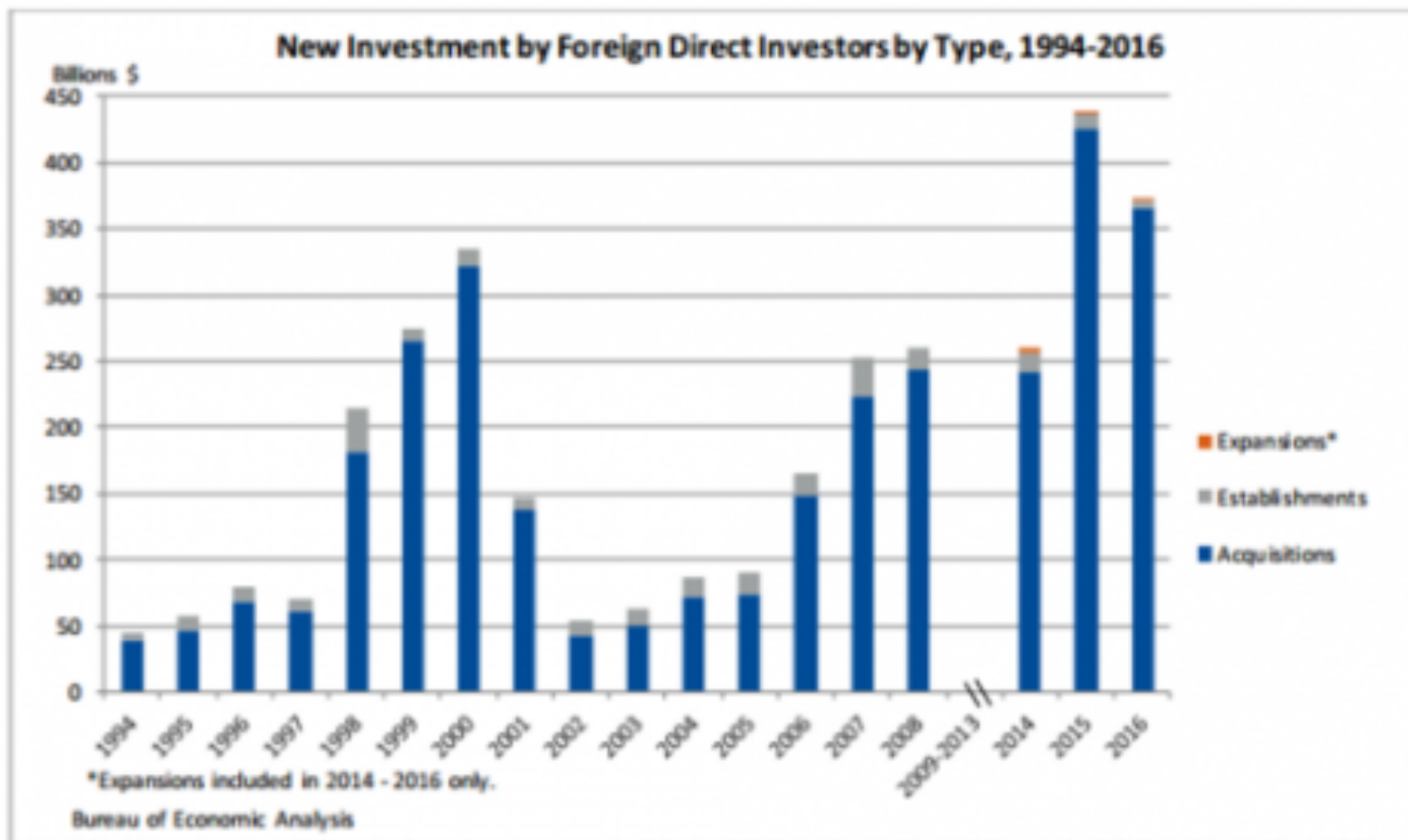
FIGURE 1. Foreign Direct Investment as a % of Gross Capital Formation
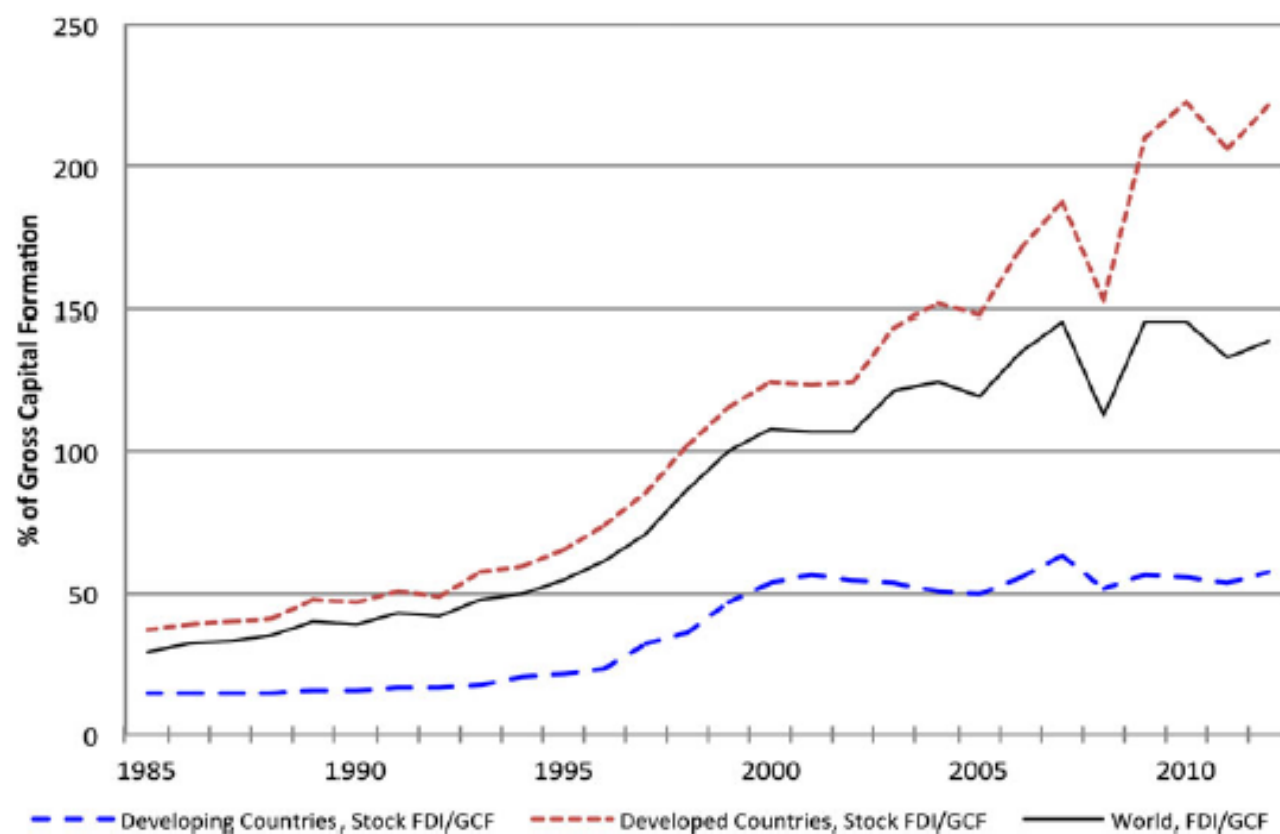
Source: UNCTAD.

Background

Cross-border acquisitions are the dominant form of FDI

Typology of FDI

- Three types of FDI:
    1. **Horizontal**: Exporting vs. replication of the production process in a foreign market.
    2. **Vertical**: Fragmentation of production in the presence of factor price differences across countries.
    3. **Complex**: Assembly and components production can generate interdependence between horizontal and vertical FDI, as well as third-market effects.

- MNEs decide on location and the extent of control:
    1. domestic integration;
    2. domestic outsourcing;
    3. foreign integration (FDI);
    4. foreign outsourcing.

- Recent work: organizational and contractual theories of the multinational firms, emphasizing within-industry heterogeneity.

Number and attributes of MNE affiliates

Table 1. Affiliates Relative to Local Firms

	Finland	France	Ireland	Holland	Poland	Sweden
Enterprises	1.6	2.0	13.4	3.4	16.0	2.8
Employment	17.2	26.2	48.0	25.1	28.1	32.4
Sales	16.2	31.8	81.1	41.1	45.2	39.9
R&D Expenditure	13.1	27.4	77.3	35.8	20.9	52.0
Exports	17.5	39.5	92.3	60.0	69.1	45.8

Source: OECD (2007).

Affiliate sales

Table 2. Destination of Affiliate Sales by Industry

	Host Country	Other Foreign	United States
Total Manufacturing	55	34	11
Textile and Apparel	45	35	19
Metals and Minerals	60	32	8
Chemicals and Plastics	58	36	6
Machinery	49	36	15
Computers and Electronics	40	43	16
Electronic Equipment	47	40	13
Transport Equipment	47	35	19
Other	66	26	8

Source: 2009 Benchmark Survey of U.S. Direct Investment Abroad, BEA.

Exports versus FDI with heterogeneous firms

- Helpman, Melitz and Yeaple (2004) incorporate intraindustry heterogeneity into a model with multinational firms.
- Firms produce with a technology that features:
  1. A fixed cost of entry of f_E units of labor.
  2. A fixed overhead cost of f_D units of labor if the firm produces a positive amount.
  3. A fixed cost of exporting of f_X units of labor per foreign market.
  4. A fixed cost of FDI of f_I units of labor per foreign market.
  5. A marginal cost that varies across firms and is denoted by a. Firms face ex-ante uncertainty about their productivity; a is drawn after entry from a distribution $G(a)$.
- After observing this productivity level, the firm decides whether to exit the market, or stay and produce. If it chooses to produce, it has to choose an organizational form.
- Goods that are exported are subjected to iceberg costs $\tau^{ij} > 1$.

Firm behavior

- We can express
  - operating profits from serving the domestic market in j as

$$\pi_D^j = a^{1-\varepsilon} B^j - f_D,$$

  - from exporting to country i as

$$\pi_X^{ij} = \left(\tau^{ij} a\right)^{1-\varepsilon} B^i - f_X,$$

  - from servicing country i through FDI as

$$\pi_I^{ij} = a^{1-\varepsilon} B^i - f_I.$$

- Provided that $f_I > \left(\tau^{ij}\right)^{\varepsilon-1} f_X > f_D$, the following sorting (consistent with evidence) emerges:
  - the least productive firms exit upon observing their productivity;
  - firms with somewhat higher productivity serve only the domestic market;
  - firms with still higher productivity export;
  - the most productive firms engage in FDI.

Sorting into exporting or FDI

Profit levels are depicted in the figure for the case in which $B^i = B^j$.
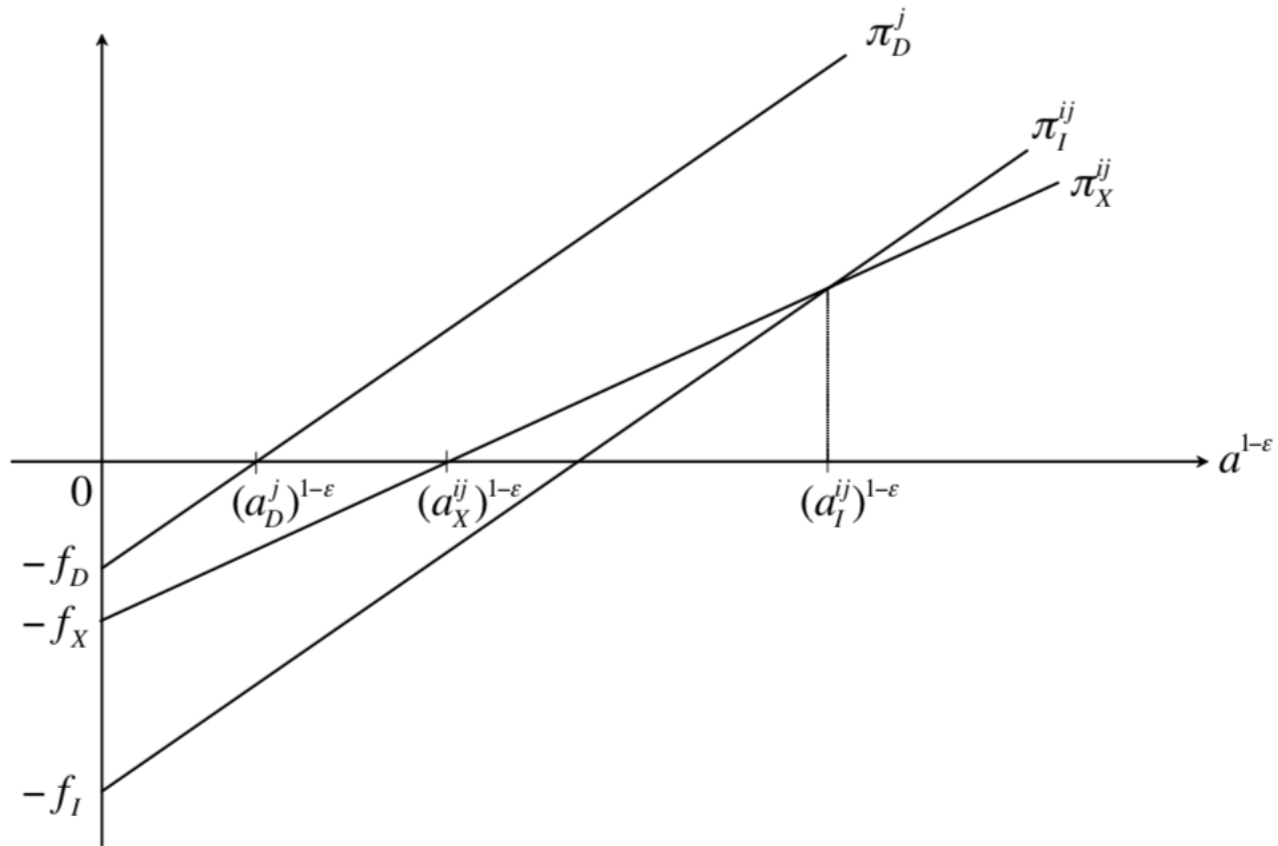
Productivity advantage of MNEs and exporters

TABLE 1—PRODUCTIVITY ADVANTAGE OF MULTINATIONALS AND EXPORTERS

Multinational	0.537
	(14.432)
Nonmultinational exporter	0.388
	(9.535)
Coefficient difference	0.150
	(3.694)
Number of firms	3,202

Notes: T-statistics are in parentheses (calculated on the basis of White standard errors). Coefficients for capital intensity controls and industry effects are suppressed.

Effects of foreign acquisitions on firm performance

Arnorld and Javorcik (2009 JIE): Do foreign acquisitions have a causal effect on the performance of acquired firms?

Data and methods

- Plant-level panel data for Indonesian Manufacturing, 1983-2001
- All registered manufacturing plants with >20 workers
- Several indicators of firm performance
- Look at both effects of foreign acquisitions and foreign privatizations
- DD-PSM to account for selection

Arnorld and Javorcik (2009 JIE): Context

Institutional context in Indonesia since 1980s

- Trade liberalization

- Industry deregulation

- Between 1990-1996 Indonesia was 5th largest recipient of FDI (among developing countries)

Descriptive statistics reveal that foreign plants are characterized by higher:

- TFP and labor productivity

- Wages

- Investment

- Output and employment

Arnorld and Javorcik (2009 JIE): Methods

But are these relationships causal?

Selection: perhaps foreign investors just acquire better performing firms

Empirical strategy: Propensity Score Matching + Difference-in-Differences

Step 1: Estimate Probit model of selection into acquisition

All explanatory variables are lagged one year and thus pertain to pre-acquisition period. Yields predicted probability of becoming target

Step 2: Match plants using one-to-one nearest neighbour matching

Impose also that treatment and control observations come from

the same sector and year

Step 3: Use Differences-in-Differences on the matched sample to examine causal effects of foreign acquisitions

Arnorld and Javorcik (2009 JIE): Results

Table 2
Probit results. Predicting foreign acquisitions.

TFP_{t-1}	0.060** (0.030)	Capital per worker $_{t-1}$	0.126*** (0.020)
ΔTFP_{t-1}	−0.009 (0.047)	Capital per worker $_{t-1}$*Age	-0.001 (0.001)
Employment $_{t-1}$	1.009*** (0.129)	Capital per worker $_{t-1}$ * Exporter $_{t-1}$	-0.061** (0.028)
Employment $^2_{t-1}$	−0.073*** (0.012)	Exporter $_{t-1}$	0.326*** (0.122)
Skilled labor share $_{t-1}$	0.493*** (0.120)	Public ownership $_{t-1}$	−0.259*** (0.096)
Average wage $_{t-1}$	0.133*** (0.032)	Investment $_{t-1}$	-0.010** (0.005)
Imported input share $_{t-1}$	0.312*** (0.057)	Loan-financed investment$_{t-1}$/output $_{t-1}$	0.00003 (0.00008)
Age $_t$	−0.036*** (0.006)	Time trend	0.010 (0.009)
Age ^2_t	.0004*** (0.000)	Crisis	0.144** (0.062)
No. of obs.	107,183		
Chi^2	859.97		
Prob > chi^2	0.00		
Pseudo R^2	0.17		

The table reports probit coefficients followed by standard errors in parentheses.
*, **, *** indicate statistical significance at the 10, 5 and 1% levels, respectively. The model includes an intercept which is not reported. All explanatory variables, other than dummies or those expressed as shares, enter in the log form.

Arnorld and Javorcik (2009 JIE)

Table A
Balancing tests.

	Regression approach		t-test on the matched sample			
	F-stat	p-value	Treated group mean	Control group mean	t-test	p-value
In TFP index lag	0.11	0.735	0.864	0.867	0.043	0.966
Change in ln TFP index lag	2.41	0.121	0.116	0.132	0.452	0.651
In Employment lag	1.23	0.267	5.632	5.630	-0.016	0.987
In Capital per worked lag	0.23	0.630	4.462	4.382	-0.593	0.553
% imported materials lag	6.94	0.008	0.277	0.258	-0.641	0.522
In Investment lag	0.19	0.665	3.903	4.309	1.095	0.274
Share white collar workers lag	0.01	0.923	0.232	0.242	0.653	0.514
Public ownership dummy lag	0.05	0.830	0.040	0.061	1.124	0.262
Age lag	0.00	0.952	10.283	10.599	0.326	0.744
Exporter lag	0.67	0.415	0.273	0.300	0.725	0.469
Loan amount/Output lag	0.00	0.947	2.306	0.516	-1.751	0.080
In Average wage Lag	0.13	0.723	8.077	8.025	-0.743	0.458
No. of obs.	107183		297	297		

	T^2	F-stat	p-value	No. of obs.		
Hotelling test	9.542	0.780	0.671	594		

Arnorld and Javorcik (2009 JIE): Results

Table 3
Matching results for productivity.

ln(TFP)	Pre-acquisition Year	Acquisition Year[a]	One year later[b]	Two years later[c]
Treatment group	0.864	1.079	1.142	1.215
Control group	0.867	0.976	1.022	1.083
ATT		0.106***	0.122***	0.135***
		(0.034)	(0.045)	(0.051)
No. of matched pairs		297	297	297
	ln(Labor productivity)			
Treatment group	4.28	4.50	4.60	4.62
Control group	4.20	4.14	4.06	4.05
ATT		0.280***	0.459***	0.489***
		(0.072)	(0.074)	(0.088)
No. of matched pairs		392	392	392

The first two lines present the outcomes observed in the given time period. Average treatment effect on the treated (ATT), bootstrapped standard errors in parentheses. *, **, *** indicate statistical significance at the 10, 5 and 1% levels, respectively.

Arnorld and Javorcik (2009 JIE): Summary

Using DD-PSM the paper provides evidence that foreign acquisitions lead to:

- higher productivity
- investment
- employment
- wages
- Import and export share

Effects become visible in the acquisition year and continue in subsequent periods

Effects also found among foreign privatizations

Effects of foreign acquisitions on innovation

Guadalupe, Kuzmina and Thomas (2012 AER): Do foreign acquisitions have a causal effect on the innovation activity of acquired firms?

Data and methods

- Firm-level panel data for Spanish Manufacturing, 1990-2006
- Representative of the population of Spanish manufacturing firms
- Includes approximately 2800 firms (all firms >200 employees; stratified sample of smaller firms)
- Several indicators of innovation activity
- Look at causal effects of foreign acquisitions
- DD-PSW to account for selection

Guadalupe, Kuzmina and Thomas (2012 AER): Results
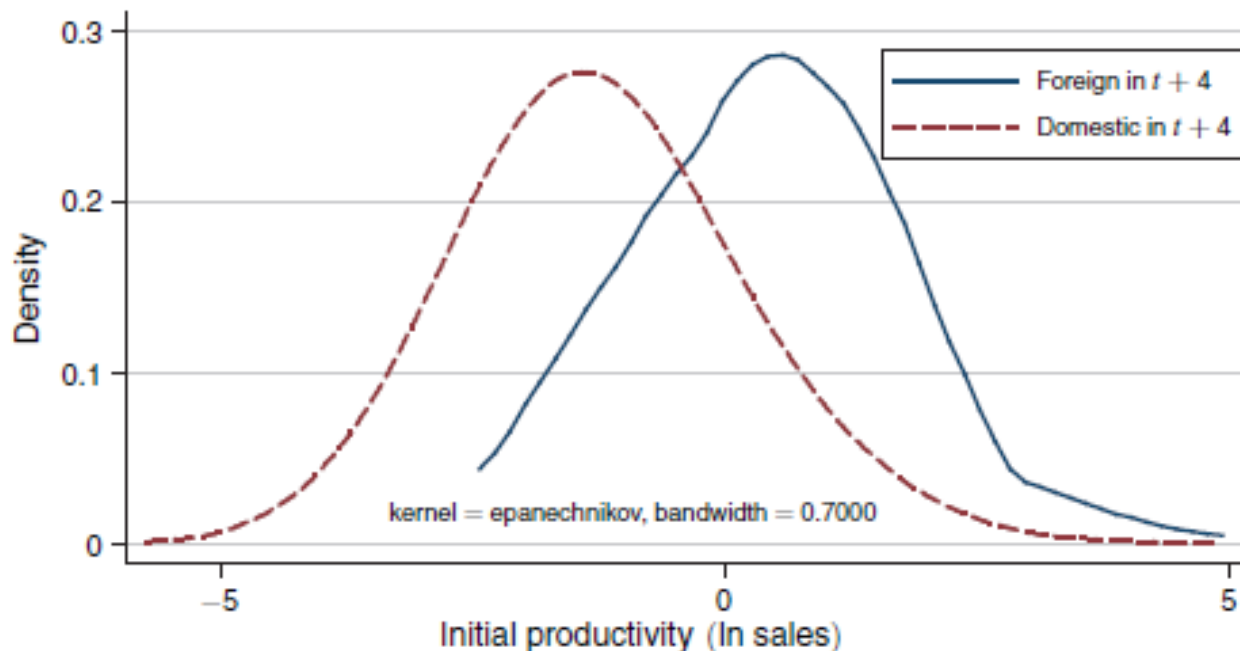
Clear evidence of positive selection

FIGURE 2. DISTRIBUTION OF INITIAL PRODUCTIVITY FOR ACQUIRED AND NONACQUIRED FIRMS

Notes: The dashed line shows the empirical probability density function (pdf) of initial productivity (measured by ln sales demeaned by industry over the sample period) of firms that are domestic at time *t* and will stay domestic at time *t* + 4. The bold line shows the empirical pdf of initial productivity of firms that are domestic at time *t* but will become foreign owned by time *t* + 4.

Guadalupe, Kuzmina and Thomas (2012 AER): Results

TABLE 3—FOREIGN OWNERSHIP AND INNOVATION

	Process innovation				
	(1a)	(2a)	(3a)	(4a)	(5a)
Panel A					
Lag foreign	0.574***	0.419**	0.388*	0.411**	0.611**
	(0.190)	(0.180)	(0.223)	(0.172)	(0.244)
Foreign				0.0459	
				(0.109)	
Forward foreign				0.0663	
				(0.149)	
Observations	20,722	20,671	14,656	12,767	17,578
R^2	0.499	0.527	0.529	0.534	0.532
p-value of test lag foreign = forward foreign				0.0476	

	Product innovation				
	(1b)	(2b)	(3b)	(4b)	(5b)
Panel B					
Lag foreign	0.387*	0.293	0.0718	0.219	0.227
	(0.205)	(0.202)	(0.234)	(0.181)	(0.281)
Foreign				−0.0914	
				(0.113)	
Forward foreign				−0.0416	
				(0.162)	
Observations	20,722	20,671	14,656	12,767	17,578
R^2	0.368	0.410	0.406	0.412	0.399
p-value of test lag foreign = forward foreign				0.150	

	Assimilation of foreign technologies				
	(1c)	(2c)	(3c)	(4c)	(5c)
Panel C					
Lag foreign	0.144*	0.111	0.0565	−0.0318	0.123
	(0.0736)	(0.0705)	(0.0882)	(0.108)	(0.0817)
Foreign				0.151	
				(0.110)	
Forward foreign				0.108	
				(0.0750)	
Observations	5,434	5,434	4,100	2,886	4,348
R^2	0.160	0.200	0.213	0.226	0.188
p-value of test lag foreign = forward foreign				0.258	

Firm FEs	Yes	Yes	Yes	Yes	Yes
Industry trends		Yes	Yes	Yes	
Selection controls			Yes	Yes	
Propensity score weighting					Yes

Notes: Foreign is an indicator variable that equals one if the firm has at least 50 percent foreign ownership. The dependent variables are our measures of innovation (see Section II for further details). Selection controls include lagged In firm sales, lagged In labor productivity, lagged sales growth, lagged export status, lagged average wage, lagged In capital per employee, lagged In capital. All columns include year fixed effects. Standard errors are clustered by firm.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Guadalupe, Kuzmina and Thomas (2012 AER): Results

TABLE 6—ACCESS TO EXPORT CHANNEL, PRODUCT INNOVATION, AND ASSIMILATION OF FOREIGN TECHNOLOGIES: EVIDENCE FROM PANEL DATA AND PROPENSITY SCORE WEIGHTING

	Product innovation						
	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)	(7a)
Panel A							
Export via foreign parent	0.503**	0.477*	0.775***	0.463**	0.655***	0.655***	0.690***
	(0.242)	(0.250)	(0.275)	(0.227)	(0.242)	(0.249)	(0.242)
Export	0.0297	0.0506	0.0391			−0.0744	−0.0422
	(0.105)	(0.0982)	(0.112)			(0.126)	(0.117)
Lag foreign	−0.181	−0.239	−0.179		−0.206	−0.309	−0.248
	(0.290)	(0.253)	(0.451)		(0.384)	(0.319)	(0.295)
Export × lag foreign	0.250	0.179	−0.153			0.106	−0.116
	(0.398)	(0.378)	(0.514)			(0.334)	(0.314)
Observations	5,422	5,422	4,096	4,913	4,839	4,839	4,839
R^2	0.346	0.390	0.418	0.377	0.380	0.380	0.430

	Assimilation of foreign technologies						
	(1b)	(2b)	(3b)	(4b)	(5b)	(6b)	(7b)
Panel B							
Export via foreign parent	0.259***	0.241**	0.277**	0.187**	0.197*	0.204*	0.187**
	(0.0993)	(0.0970)	(0.115)	(0.0936)	(0.102)	(0.104)	(0.0938)
Export	0.0103	0.00820	0.0319			−0.00653	−0.00705
	(0.0219)	(0.0217)	(0.0243)			(0.0304)	(0.0284)
Lag foreign	0.0769	0.0655	0.132		0.0477	0.221**	0.217
	(0.0600)	(0.0595)	(0.103)		(0.0890)	(0.110)	(0.137)
Export × lag foreign	0.00849	−0.0108	−0.159			−0.182	−0.217
	(0.0906)	(0.0890)	(0.118)			(0.127)	(0.151)
Observations	5,410	5,410	4,096	4,913	4,839	4,839	4,839
R^2	0.167	0.207	0.221	0.227	0.226	0.226	0.271
Firm FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry trends		Yes	Yes				Yes
Selection controls			Yes				
Propensity score weighting				Yes	Yes	Yes	Yes

Notes: Export is an indicator variable that equals one if the firm exports any goods. Export via foreign parent is an indicator variable that equals one if the firm declares that it exports through a foreign parent. Foreign is an indicator variable that equals one if the firm has at least 50 percent foreign ownership. The dependent variables are our measures of innovation (see Section II for further details). Selection controls include lagged ln firm sales, lagged ln labor productivity, lagged sales growth, lagged export status, lagged average wage, lagged log capital per employee, lagged log capital. All columns include year fixed effects. Standard errors are clustered by firm.
    ***Significant at the 1 percent level.
    **Significant at the 5 percent level.
    *Significant at the 10 percent level.

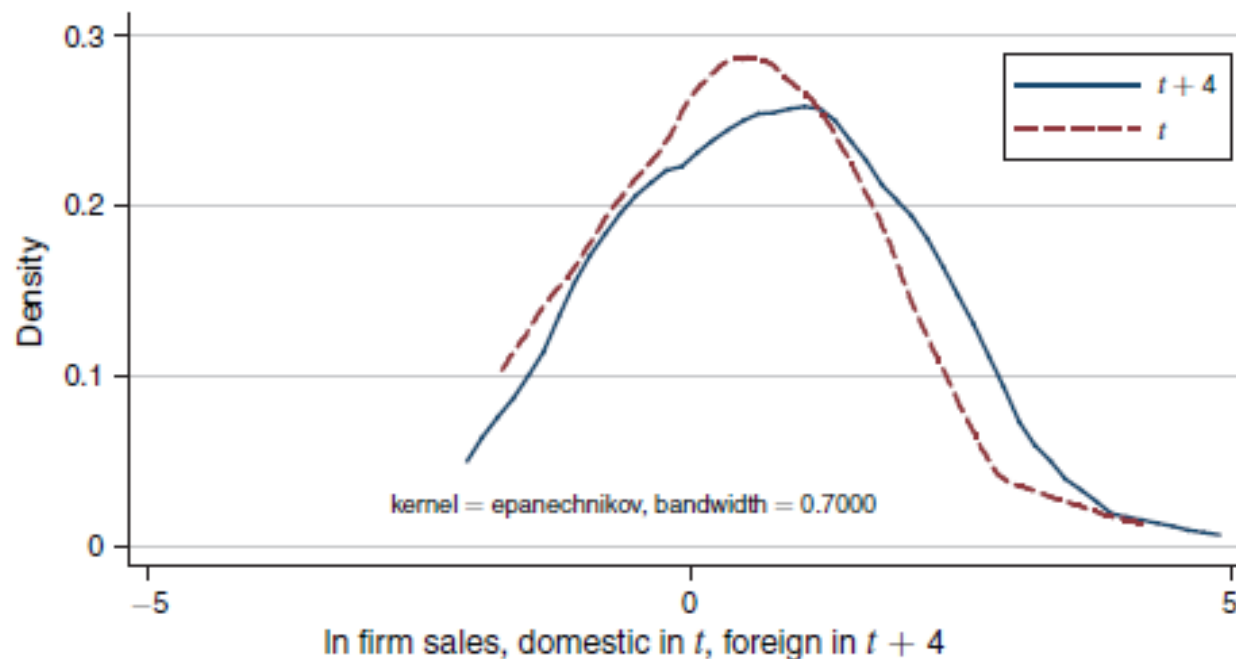# Guadalupe, Kuzmina and Thomas (2012 AER): Results

FIGURE 4. DISTRIBUTION OF PRODUCTIVITY FOR ACQUIRED FIRMS, BEFORE AND AFTER THE FOREIGN ACQUISITION

Notes: The dashed line shows the empirical probability density function (pdf) of initial productivity (measured by log sales demeaned by industry) of firms that are domestic at time t but will become foreign owned by time $t + 4$. The bold line shows the empirical pdf of productivity of these firms at time $t + 4$ (i.e., after acquisition).

Guadalupe, Kuzmina and Thomas (2012 AER): Results
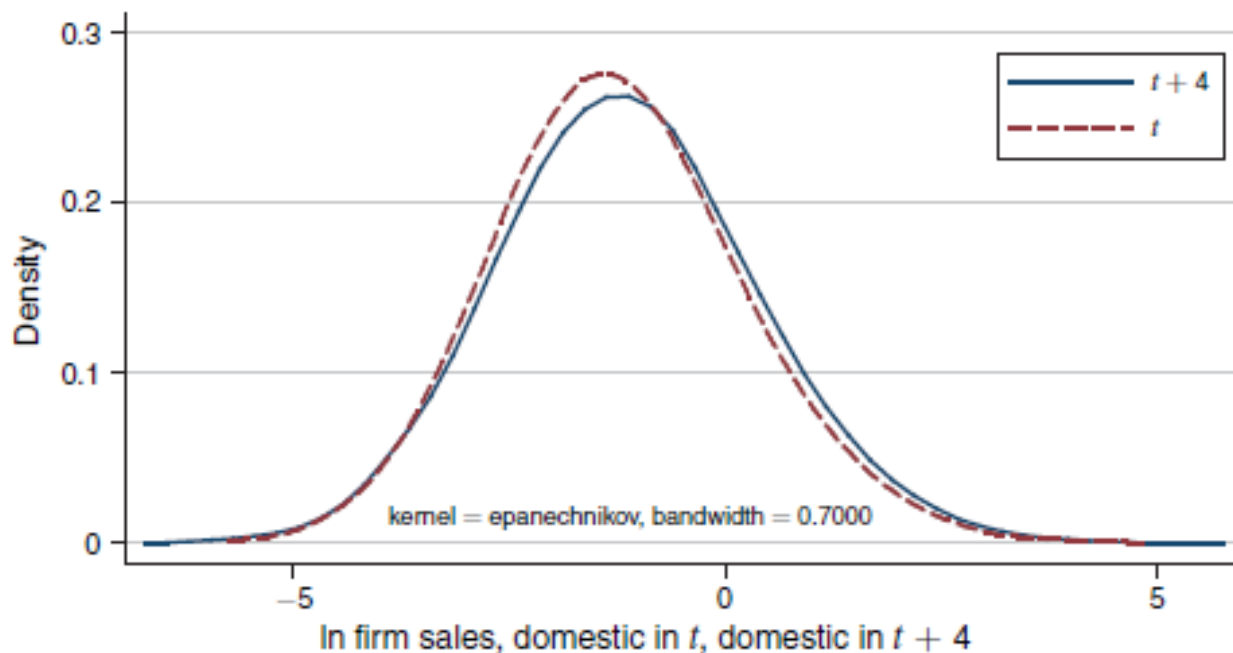

FIGURE 5. DISTRIBUTION OF PRODUCTIVITY FOR NONACQUIRED FIRMS, CHANGE OVER FOUR YEARS

Notes: The dashed line shows the empirical probability density function (pdf) of initial productivity (measured by log sales demeaned by industry) of firms that are domestic at time t and are still domestic at time $t + 4$. The bold line shows the empirical pdf of productivity of these firms at time $t + 4$.

Guadalupe, Kuzmina and Thomas (2012 AER): Results

TABLE 8—FOREIGN OWNERSHIP AND FIRM PRODUCTIVITY

	ln sales					
	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)
Panel A						
Lag foreign	2.042***	0.165***	0.120**	0.112*	0.0700*	0.182***
	(0.161)	(0.0621)	(0.0599)	(0.0582)	(0.0421)	(0.0540)
Foreign					0.0629	
					(0.0404)	
Forward foreign					−0.0104	
					(0.0646)	
Observations	20,671	20,671	20,671	16,867	14,760	17,578
R^2	0.169	0.100	0.147	0.275	0.284	0.130
p-value of test lag foreign = forward foreign					0.211	

	ln labor productivity					
	(1b)	(2b)	(3b)	(4b)	(5b)	(6b)
Panel B						
Lag foreign	0.367***	0.126***	0.109**	0.0877	0.109**	0.114**
	(0.0496)	(0.0466)	(0.0449)	(0.0538)	(0.0425)	(0.0487)
Foreign					0.0571	
					(0.0390)	
Forward foreign					−0.0218	
					(0.0425)	
Observations	20,359	20,359	20,359	16,639	14,567	17,338
R^2	0.185	0.014	0.031	0.029	0.035	0.016
p-value of test lag foreign = forward foreign					0.0119	

Firm FEs		Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes					
Industry trends			Yes	Yes	Yes	
Selection controls				Yes	Yes	
Propensity score weighting						Yes

Notes: Foreign is an indicator variable that equals one if the firm has at least 50 percent foreign ownership. ln sales is the natural logarithm of the firm's real sales. ln labor productivity is the natural logarithm of real value added per worker. Selection controls include lagged export status, lagged average wage, lagged log capital per employee, lagged log capital. All columns include year fixed effects. Standard errors are clustered by firm.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Guadalupe, Kuzmina and Thomas (2012 AER): Summary

Evidence that foreign firms "cherry pick" the best firms within industries

Using DD-PSM to account for selection, the paper provides evidence that foreign acquisitions lead to:

- higher process innovation
- simultaneous introduction of new machines and organizational practices

Acquired firms that export through their parent firm also report:

- higher product innovation
- higher assimilation of new technologies

Effects of foreign ownership on IT and management practices

Bloom, Sadun and Van Reenen (2012 AER): "Americans Do IT Better: US Multinationals and the Productivity Miracle"

Main Research Questions:

1. Did establishments taken over by US multinationals (but not by non-US multinationals) increased the productivity of their IT?

2. What was the role of people management practices?

Data

- Establishment level data from UK census, 1995-2003
- Firm-level data from seven European countries, 1999-2006
- CEP Management survey, 2006

Bloom, Sadun and Van Reenen (2012 AER): Results
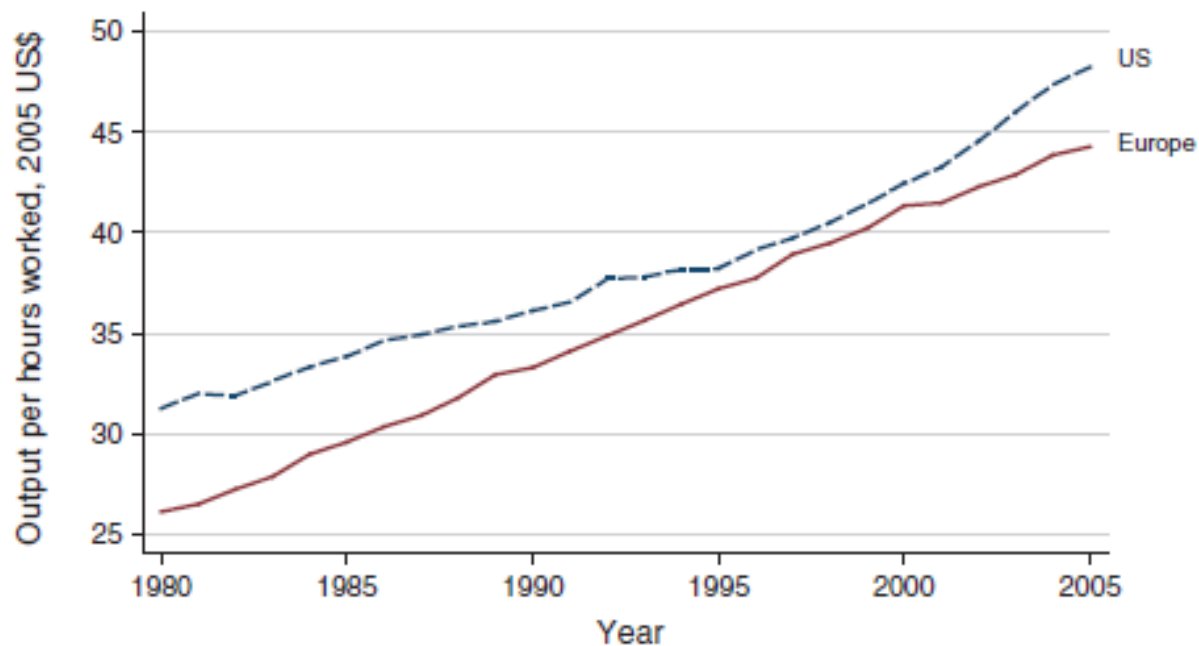
FIGURE 1. OUTPUT PER HOUR IN EUROPE AND THE UNITED STATES, 1980–2005

Notes: Productivity measured by GDP per hour in 2005 US$ PPPs. The countries included in the "EU15" group are: Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Italy, Ireland, Luxembourg, Portugal, Spain, Sweden, and Netherlands. Labor productivity measured as GDP per hour worked in 2005 US$.

Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database.

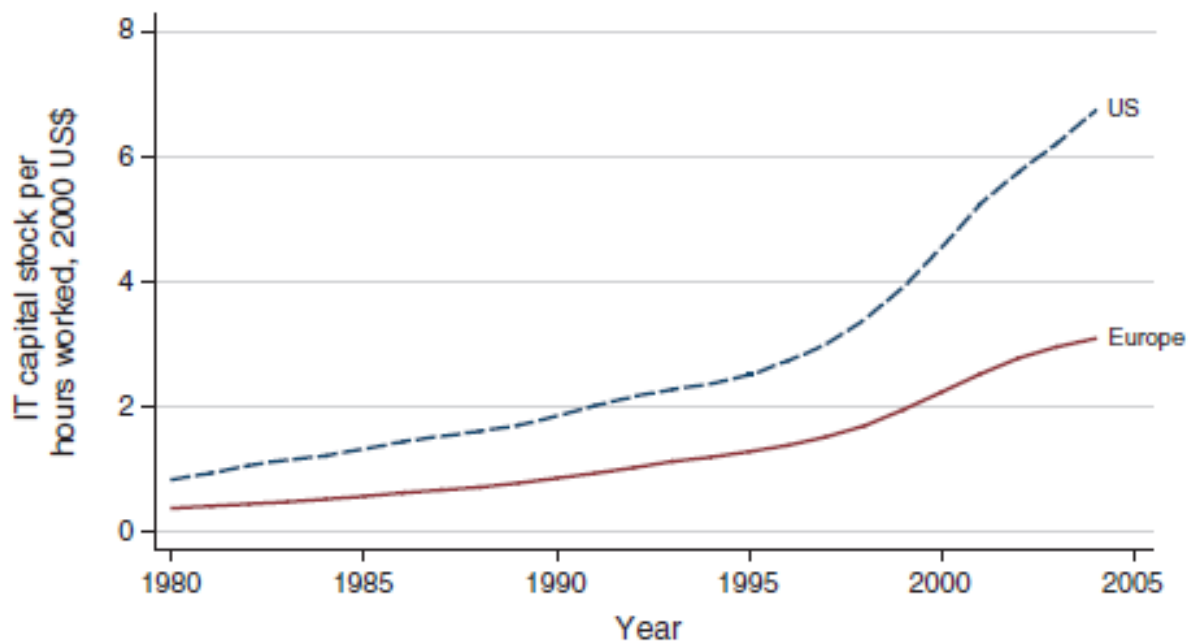# Bloom, Sadun and Van Reenen (2012 AER): Results

FIGURE 2. IT CAPITAL PER HOUR IN EUROPE AND THE UNITED STATES, 1980–2005

Notes: IT capital stock (in unit dollars) per hour worked. IT capital stock measured using perpetual inventory method and common assumptions on hedonics and depreciation. 2005 US$ PPPs. The countries included in the "EU15" group are: Austria, Belgium, Denmark, Finland, France, Germany, UK, Greece, Italy, Ireland, Luxembourg, Portugal, Spain, Sweden, and the Netherlands. Labor productivity per hour worked in 2005 US$ using PPPs.

Bloom, Sadun and Van Reenen (2012 AER): Results

TABLE 1—UK DESCRIPTIVE STATISTICS BROKEN DOWN BY MULTINATIONAL STATUS
(normalized to 100 for the 3-digit SIC and year average)

	Employment	Value added per employee	Gross output per employee	Non-IT capital per employee	Materials per employee	IT capital per employee
US multinationals						
Mean	162.26	127.96	123.63	129.61	123.81	152.13
Standard deviation	297.58	163.17	104.81	133.91	123.35	234.41
Observations	569	569	569	569	569	569
Other multinationals						
Mean	148.58	113.71	115.22	120.65	116.02	119.58
Standard deviation	246.35	107.87	86.50	126.83	107.63	180.34
Observations	2,119	2,119	2,119	2,119	2,119	2,119
UK domestic						
Mean	68.78	89.86	89.69	86.33	89.29	83.95
Standard deviation	137.72	104.50	102.09	127.16	129.37	188.30
Observations	4,433	4,433	4,433	4,433	4,433	4,433

Note: These are 2001 values from our sample of 7,121 establishments in the UK data (ABI matched with IT data from QICE, BSCI, and FAR).

Bloom, Sadun and Van Reenen (2012 AER): Results

TABLE 2—ESTIMATES OF THE UK PRODUCTION FUNCTION ALLOWING THE IT COEFFICIENT TO DIFFER BY OWNERSHIP STATUS

Dependent variable:	ln(Q/L) (1)	ln(Q/L) (2)	ln(Q/L) (3)	ln(Q/L) (4)	ln(Q/L) (5)	ln(Q/L) (6)	ln(Q/L) (7)	ln(Q/L) (8)
Sectors	All sectors	All sectors	All sectors	IT using intensive sectors	Other sectors	All sectors	IT using intensive sectors	Other sectors
Fixed effects	NO	NO	NO	NO	NO	YES	YES	YES
USA × ln(C/L) / USA ownership × IT capital per employee			0.0202*** (0.0072)	0.0380*** (0.0128)	0.0120 (0.0084)	0.0093 (0.0085)	0.0368*** (0.0144)	−0.0060 (0.0098)
MNE × ln(C/L) / Non-US multinational × IT capital per employee			0.0036 (0.0045)	−0.0011 (0.0062)	0.0062 (0.0060)	0.0010 (0.0042)	−0.0003 (0.0064)	0.0008 (0.0053)
ln(C/L) / IT capital per employee		0.0457*** (0.0024)	0.0428*** (0.0029)	0.0373*** (0.0038)	0.0457*** (0.0039)	0.0152*** (0.0030)	0.0123** (0.0051)	0.0157*** (0.0036)
ln(M/L) / Materials per employee	0.5575*** (0.0084)	0.5474*** (0.0083)	0.5477*** (0.0083)	0.6216*** (0.0142)	0.5067*** (0.0104)	0.4031*** (0.0178)	0.5018*** (0.0279)	0.3606*** (0.0210)
ln(K/L) / Non-IT capital per employee	0.1388*** (0.0071)	0.1268*** (0.0068)	0.1268*** (0.0068)	0.1106*** (0.0093)	0.1459*** (0.0092)	0.0900*** (0.0159)	0.1056*** (0.0228)	0.0666*** (0.0209)
ln(L) / Labor	−0.0052* (0.0027)	−0.0112*** (0.0027)	−0.0111*** (0.0027)	−0.0094** (0.0037)	−0.0121*** (0.0036)	−0.1986*** (0.0217)	−0.1279*** (0.0319)	−0.2466*** (0.0279)
USA / USA ownership	0.0711*** (0.0140)	0.0641*** (0.0135)	0.0733*** (0.0144)	0.0440** (0.0213)	0.0892*** (0.0189)	0.0214 (0.0224)	0.0451 (0.0366)	−0.0070 (0.0242)
MNE / Non-US multinational	0.0392*** (0.0079)	0.0339*** (0.0078)	0.0372*** (0.0093)	0.0149 (0.0134)	0.0441*** (0.0124)	0.0081 (0.0103)	0.0173 (0.0172)	−0.0008 (0.0126)
Observations	21,746	21,746	21,746	7,784	13,962	21,746	7,784	13,962
Test USA × ln(C/L) = MNE × ln(C/L), p-value			0.0320	0.0035	0.5272	0.3622	0.0094	0.5210
Test USA = MNE, p-value	0.0206	0.0232	0.0113	0.1755	0.0151	0.5545	0.4301	0.8145

Notes: The dependent variable in all columns is the log of gross output per employee. The time period is 1995–2003. The estimation method in all columns is OLS. Columns 6 to 8 include establishment-level fixed effects. Standard errors in brackets under coefficients in all columns are clustered by establishment (i.e., robust to heteroskedasticity and autocorrelation of unknown form). All columns include a full set of three-digit industry dummies interacted with a full set of time dummies and as additional controls: dummies for establishment age (interacted with a manu-facturing dummy), region, multiestablishment group (interacted with ownership type), and a dummy for IT survey. See online Table A1 for definition of IT using intensive sectors. "Test USA × ln(C/L) = MNE × ln(C/L)" is a test of whether the coefficient on USA × ln(C/L) is significantly different from the coefficient on MNE × ln(C/L), etc.

*** Significant at the 1 percent level.
** Significant at the 5 percent level.
* Significant at the 10 percent level.

Bloom, Sadun and Van Reenen (2012 AER): Results

TABLE 5—UK PRODUCTION FUNCTIONS BEFORE AND AFTER TAKEOVERS

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	Before takeover	Before takeover	After takeover	After takeover	After takeover	After takeover (drop UK domestic acquirers)
Dependent variable: ln (output per employee)	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$
USA $\times \ln(C/L)$ USA takeover $\times$ IT capital per employee		−0.0672 (0.0749)		0.0541** (0.0273)		
MNE $\times \ln(C/L)$ Non-US multinational takeover $\times$ IT capital per employee		−0.0432 (0.0463)		0.0073 (0.0150)		
USA USA takeover	−0.0661 (0.0663)	−0.1055 (0.0863)	0.0353 (0.0402)	0.0619 (0.0461)		
MNE Non-US multinational takeover	0.0321 (0.0565)	−0.0009 (0.0710)	0.0117 (0.0298)	0.0205 (0.0342)		
USA $\times \ln(C/L)$ one year after takeover					0.0192 (0.0378)	0.0191 (0.0562)
USA $\times \ln(C/L)$ two and three years after takeover					0.0661** (0.0294)	0.1303** (0.0573)
MNE $\times \ln(C/L)$ one year after takeover					−0.0091 (0.0197)	
MNE $\times \ln(C/L)$ two and three years after takeover					0.0115 (0.0162)	
USA one year after takeover					0.0019 (0.0542)	0.0014 (0.0716)
USA two and three years after takeover					0.0934* (0.0485)	0.0942 (0.0856)
MNE one year after takeover					−0.0178 (0.0411)	
MNE two and three years after takeover					0.0327 (0.0361)	

Bloom, Sadun and Van Reenen (2012 AER): Results

Panel A. People-management z-scores, all firms by country of location

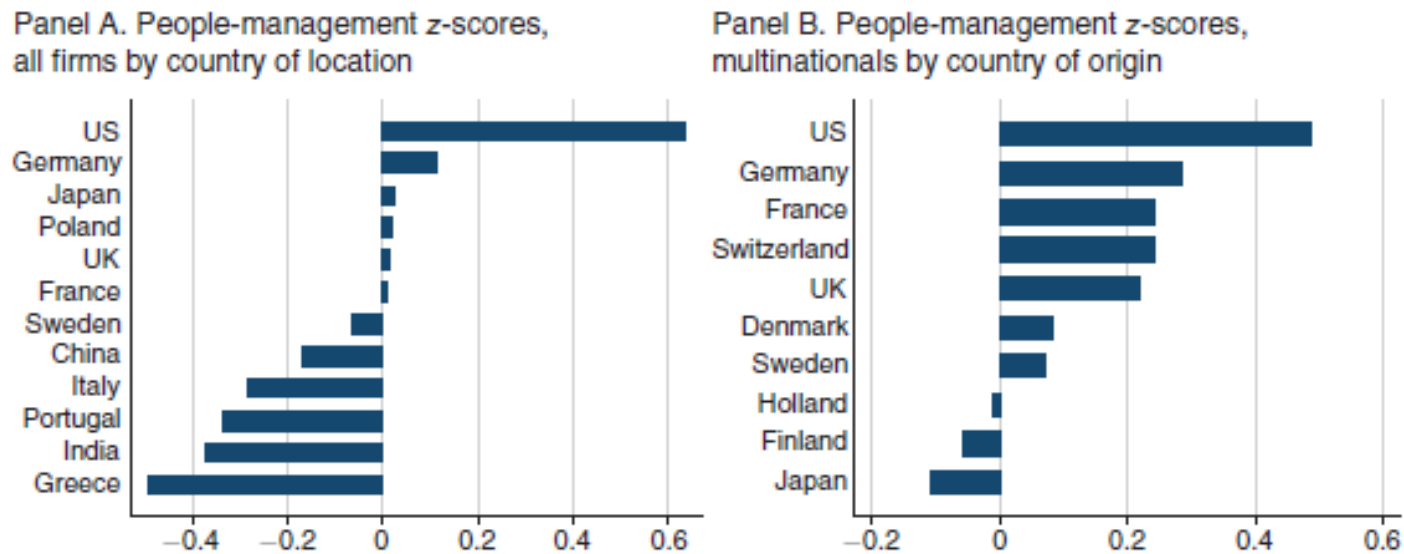Panel B. People-management z-scores, multinationals by country of origin

FIGURE 3

Notes: In Figure 3, panels A and B, the "People-management z-score" is the average z-score score for the 4 management practices on people management, covering "Managing human capital," "Rewarding high performance," "Removing poor performers," and "Promoting high performers." This is normalized to have a firm-level mean of zero standard deviation of 1. The sample in panel A is all 4,050 firms sorted according to country of location. The sample in panel B is the subset of 618 multinational subsidiaries located in France, Germany, Italy, Poland, Portugal, Sweden, and the United Kingdom, sorted accorded to country of origin and plotted only for origin countries with at least 25 firms in the sample.

Bloom, Sadun and Van Reenen (2012 AER): Results

TABLE 6—EUROPEAN FIRM-LEVEL PANEL DATA WITH DIRECT MEASURES OF MANAGEMENT

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(Q/L)$	$\ln(C/L)$	$\ln(C/L)$
Fixed effects	NO	NO	NO	NO	YES	YES	NO	NO
USA × ln(C/L)		0.1790**		0.0784	0.0518	0.0192		
USA ownership × computers per employee		(0.0733)		(0.0720)	(0.0713)	(0.0785)		
MNE × ln(C/L)		−0.0263		−0.0235	0.0218	0.0235		
Non-US multinational × computers per employee		(0.0586)		(0.0553)	(0.0547)	(0.0550)		
People management			0.0271	0.0271				0.1268***
			(0.0219)	(0.0219)				(0.0353)
People management × ln(C/L)			0.1451***	0.1404***	0.1284*	0.0994*		
People management × computers per employee			(0.0331)	(0.0344)	(0.0773)	(0.0581)		
ln(K/L)	0.2401***	0.1838***	0.1782***	0.1791***	0.2347**	0.2316***		
Non IT capital per employee	(0.0163)	(0.0284)	(0.0276)	(0.0276)	(0.0926)	(0.0882)		
ln(L)	−0.0182	0.0421	0.0421	0.0409	−0.2182	−0.2347		
Labor	(0.0162)	(0.0360)	(0.0344)	(0.0349)	(0.2600)	(0.2497)		
ln(C/L)		0.1256***	0.1430***	0.1463***	−0.0493	−0.2282		
Computers per employee		(0.031)	(0.0284)	(0.0303)	(0.0596)	(0.1738)		
USA	0.2548***	0.0779	0.1111**	0.0837*			0.2601***	0.2150***
USA ownership	(0.0438)	(0.0481)	(0.0446)	(0.046)			(0.0742)	(0.0732)
MNE	0.1909***	0.1597***	0.1604***	0.1618***			0.0492	0.0367
Non-US multinational	(0.0304)	(0.0363)	(0.0355)	(0.0357)			(0.0596)	(0.0591)
ln(degree)		0.0433**	0.0375**	0.0370**			0.0585**	0.0359
Percentage employees with a college degree		(0.0183)	(0.0184)	(0.0184)			(0.0293)	(0.0296)
ln(degree) × ln(C/L)						0.0700		
Percentage employees with a college degree × computers per employee						(0.0484)		
Observations	9,463	2,555	2,555	2,555	2,555	2,555	2,555	2,555
Test USA × ln(C/L) = MNE × ln(C/L), p-value		0.0189		0.2419	0.6360	0.9565		
Test USA = MNE, p-value	0.1789	0.1206	0.3094	0.1264			0.0095	0.0253

Notes: The dependent variable in columns 1 to 6 is the log of sales per employee, and in columns 7 and 8 is the log of computers per employee. The time period is 1999–2006, containing data from France, Germany, Italy, Poland, Portugal, Sweden, and the UK. The estimation method in all columns is OLS. Columns 5 and 6 include firm-level fixed effects. Standard errors in brackets under coefficients in all columns are clustered by firm (i.e., robust to heteroskedasticity and autocorrelation of unknown form). All columns include a full set of three-digit industry dummies, country dummies interacted with a full set of time dummies, and a public listing indicator. Columns 2 to 8 are weighted by the survey coverage rate in the Harte-Hanks data, plus include a fifth-order Taylor expansion for the coverage ratio to control for any potential survey bias. "Test USA × ln(C/L) = MNE × ln(C/L)" is a test of whether the coefficient on USA × ln(C/L) is significantly different from the coefficient on MNE × ln(C/L), etc. 720 firms in all columns except column 1 where there are 1,828 firms.

*** Significant at the 1 percent level.
** Significant at the 5 percent level.
* Significant at the 10 percent level.

Bloom, Sadun and Van Reenen (2012 AER): Summary

Why did Europe not follow the American IT-led productivity acceleration after 1995?

- People management practices appear to have played a role

- In the UK, US multinationals obtain higher productivity from IT than non-US multinationals (or domestic firms) in Europe

- Results robust to examining establishments taken over by US firms

- In data set across 7 European countries, US firms had higher scores of people management (which was complementary with IT) and this accounted for the American advantage in IT use

Evidence on spillovers from FDI to domestic firms

Some evidence that FDI leads to an increase in the productivity of domestic firms

Javorcik (2004 AER):

- Firm-level data from Lithuania, 1996-2000

- Evidence of positive productivity spillovers from FDI taking place through contacts between foreign affiliates and their local suppliers in upstream sectors

- Limited evidence of intra-sectoral spillovers (in line with studies from other countries)

- Limitation: evidence relies on input-output matrices, not on data on individual suppliers

- Related papers suggest that the nationality of FDI also matters (Javorcik and Spatareanu, 2011 JDE)

Evidence that retail globalization benefits consumers

Atkin, Faber and Gonzalez-Navarro (2018 JPE):

- Deregulation and NAFTA facilitated entry of foreign retailers in Mexico
- Very rich micro data on
  (1) Store opening dates and locations
  (2) CPI microdata (monthly barcode type data)
  (3) Consumer panel microdata
  (4) Retail census microdata
  (5) Employment and occupation survey microdata
  (6) Household income and expenditure survey microdata

# Evidence that retail globalization benefits consumers
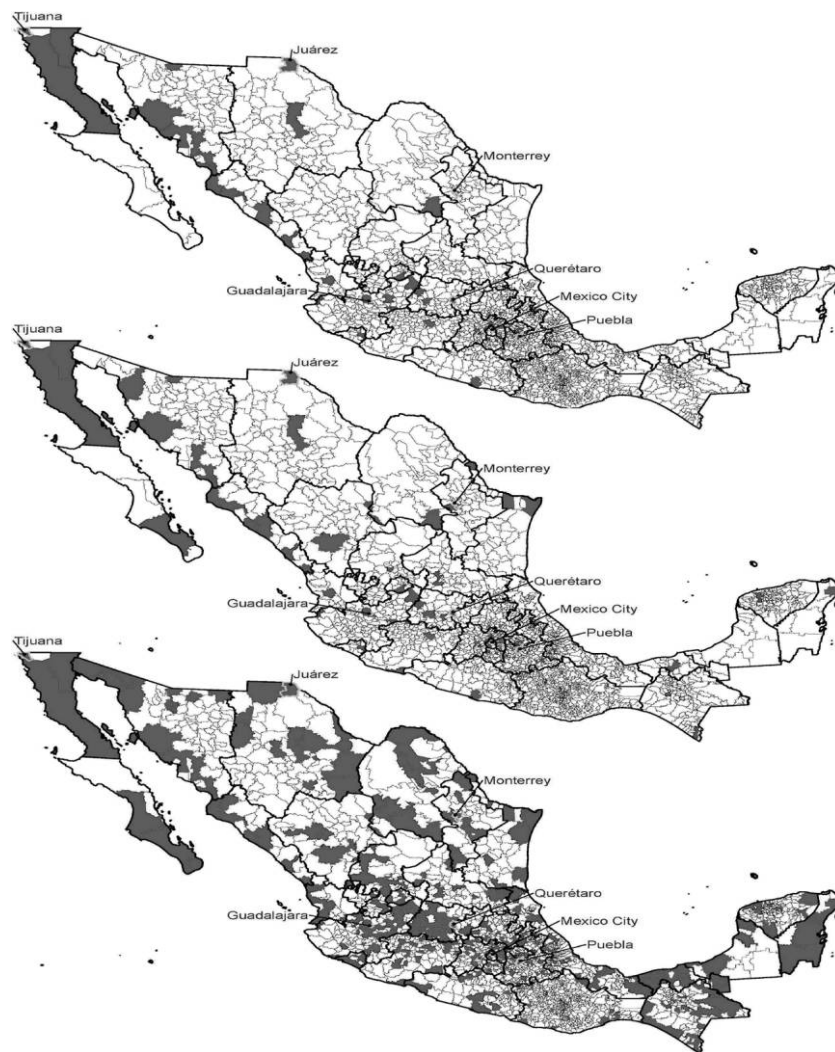
Fɪɢ. 1.—Foreign store presence at the end of 1995 (*top*), end of 2001 (*middle*), and end of 2013 (*bottom*). Municipalities in gray indicate foreign store presence at the end of 1995 (*top*, 204 stores), 2001 (*middle*, 365 stores), and 2013 (*bottom*, 1,335 stores). The data come from annual publications of the Mexican National Retail Association (ANTAD). For the period after 2006, we complement these data with annual retailer reports, press releases, and store location lists from retailer websites. See the data section for further details.

Evidence that retail globalization benefits consumers
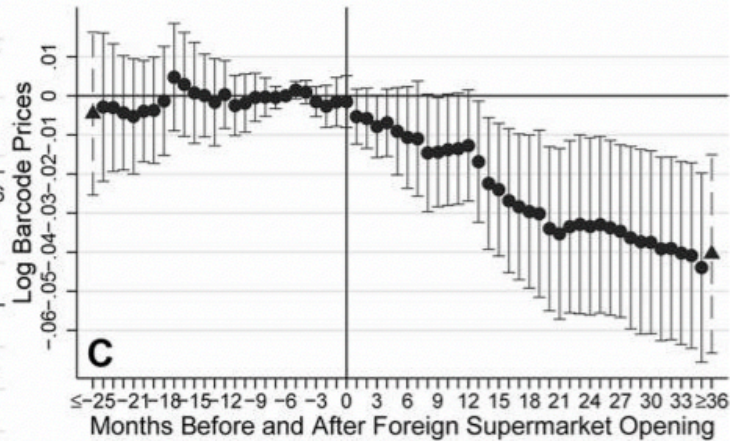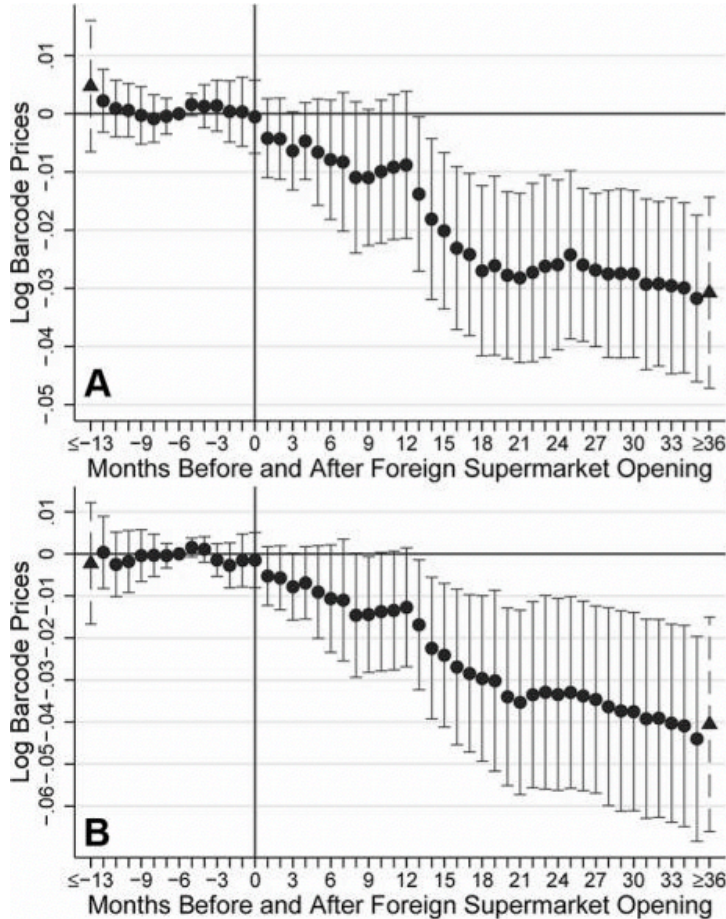
What can governments do to attract FDI

- Regulatory framework governing FDI

- Macroeconomic stability

- Broader institutional reforms (e.g. justice system)

- Tax incentives

- Investment promotion (information)

Evidence that investment promotion has been effective in developing countries (Harding and Javorcik, 2011 EJ)

Data on sector-specific investment promotion efforts in 124 countries

Summary

- Strong evidence of positive effects of foreign acquisitions on firm performance (TFP, process innovation, management)

- Some evidence of spillovers through backward linkages

- Some evidence that nationality of FDI matters

- Still limited (but convincing) evidence of positive effects of retail globalization on consumer prices

- Evidence that Investment Promotion Agencies have been (cost) effective in developing countries