

Import Competition, Heterogeneous Preferences of Managers and Productivity

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Motivation

- **Does (import) competition spur or discourage innovation, productivity and growth?**
 - ▶ New interest due to recent surge in China's exports
 - ▶ Mixed empirical evidence
 - ▶ Unclear mechanism

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 - ▶ Mixed empirical evidence
 - ▶ Unclear mechanism
- **This paper**
 - ▶ Heterogeneous effects depending on preferences of manager
 - ▶ Empirical application of this idea: Family vs. professional managers
 - ★ Family managers with specific utility function
 - ★ Important economic phenomenon

Overview of results — empirics

- **Rich firm level data from Spain**

- ▶ Data on family management and productivity/innovation outcomes
- ▶ Identification of import competition from EU level tariffs

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- **Effect of increased import competition**

- ▶ Response only from *family managed* firms
- ▶ *Positive* productivity effects at the *left tail* of distribution
- ▶ *Negative* productivity effects at the *right tail* of distribution

Overview of results — theory

- **Model with heterogeneous preferences of managers**

- ▶ Maximizing firm profits vs. private benefits/costs
- ▶ Increased import competition
 - ★ Increases threat of bankruptcy: manager with larger preference for private benefits increase effort
 - ★ Reduces profitability: manager with larger disutility of effort reduce effort

Overview of results — theory

● **Model with heterogeneous preferences of managers**

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● **Additional evidence consistent with theory**

- ▶ Predictions about sales, profitability, exit rates
- ▶ Cross-sectional predictions about differences in TFP distribution
- ▶ Evidence strongest for most affected subsample in theory
- ▶ Type of innovation consistent with managerial effort

Literature

● Competition and productivity

- ▶ Mixed empirical evidence:
 - ★ Positive [Gorodnichenko et al., 2010, Bloom et al., 2016, Coelli et al., 2016, Pavcnik, 2002, Trefler, 2004, Tybout, 2004, Iacovone, 2012]
 - ★ No/small [Hashmi, 2013, De Loecker, 2011]
 - ★ Negative [Autor et al., 2016, Hombert and Matray, 2015, Gong and Xu, 2015]
 - ★ Mixed [Gilbert, 2006, Arora et al., 2015]
- ▶ *We provide empirical evidence and theoretical mechanism and on heterogeneous effects*

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● Wider literature on trade liberalization and productivity

- ▶ Export opportunities and productivity [De Loecker, 2007, Lileeva and Trefler, 2010, Bustos, 2011]
- ▶ Productivity effects via reallocation across plants [Pavcnik, 2002]
- ▶ *We focus on import competition, within firm responses*

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● Family firms

- ▶ Motives of family managers [Bertrand et al., 2008, Mullins and Schoar, 2016, Bandiera et al., 2014a,b, Holtz-Eakin et al., 1993]
- ▶ Performance of family firms
 - ★ Lower [Pérez-González, 2006, Villalonga and Amit, 2006, Bennedsen et al., 2007, Morck et al., 2000, Bloom and van Reenen, 2007, Bloom et al., 2012]
 - ★ Higher [Anderson and Reeb, 2003, Demsetz and Lehn, 1985, James, 1999]
- ▶ *We highlight how economic forces (increased competition) can alleviate low productivity problem*

Outline

- 1 Data description
- 2 Empirical results
- 3 Theory
- 4 Additional empirical evidence
- 5 Conclusions

Spanish firm level data

- **Spanish survey of manufacturing firms (ESEE)**
 - ▶ Panel covering 1993-2007
 - ▶ Around 1,800 firms per year (≥ 10 employees)
- **Exit vs non-response tractable**
 - ▶ Caveat: mergers included in exits

Spanish firm level data

Family management

- ▶ Number of owners and working family members who hold managing positions in the company on December 31
- ▶ Owner does not need to hold the majority
- ▶ Owner is not necessarily founder
- ▶ Family firm dummy: $nr \geq 1$

PERSONAL OCUPADO EN LA EMPRESA, AL 31 DE DICIEMBRE DE 2006,
SEGÚN LAS MODALIDADES QUE SE INDICAN (En instalaciones fabriles y
en establecimientos no industriales)

	No tiene	Tiene	Número
1. Propietarios y ayudas familiares	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
1.1. En puestos de Dirección o Gerencia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
1.2. En otros puestos	<input type="checkbox"/>	<input type="checkbox"/>	2
2. Otro personal			
2.1. Asalariado fijo (contrato indefinido)	<input type="checkbox"/>	<input type="checkbox"/>	3
2.1.1. A tiempo completo	<input type="checkbox"/>	<input type="checkbox"/>	4
2.1.2. A tiempo parcial	<input type="checkbox"/>	<input type="checkbox"/>	1
2.2. Asalariado eventual (contrato temporal)	<input type="checkbox"/>	<input type="checkbox"/>	6
9. TOTAL DEL PERSONAL DE LA EMPRESA AL 31/12/2006 (Suma de 1.1+1.2+2.1.1+2.1.2+2.2)	ma>		9

Spanish firm level data

● Family ownership (after 2006)

- ▶ Indicates whether “a family group participates actively in the control and/or management of the company”
- ▶ Includes independent firms (firms with a single owner who is an individual)

INDIQUE SI UN GRUPO FAMILIAR
PARTICIPA ACTIVAMENTE EN EL
CONTROL Y/O GESTIÓN DE LA
EMPRESA

A. No

☐ 6

A12

B. Sí

☐ 1

- ▶ Available only after 2006: We use maximum of 2006 to 2010 (assuming family ownership is persistent) as value for each firm

Spanish firm level data

- **TFP estimation**

- ▶ Intermediate inputs to control for unobservables (Levinsohn-Petrin)
- ▶ Productivity vs markup changes: Firm specific deflators for input and output prices

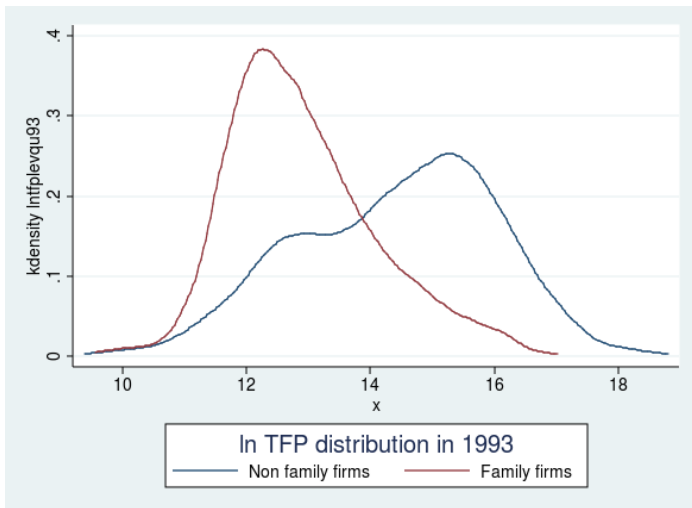
- **Other outcomes**

- ▶ R&D, patents, product and process innovation (organizational innovations vs new machinery)
- ▶ Importing, exporting, adapting imported technologies

Family firms are smaller and less productive

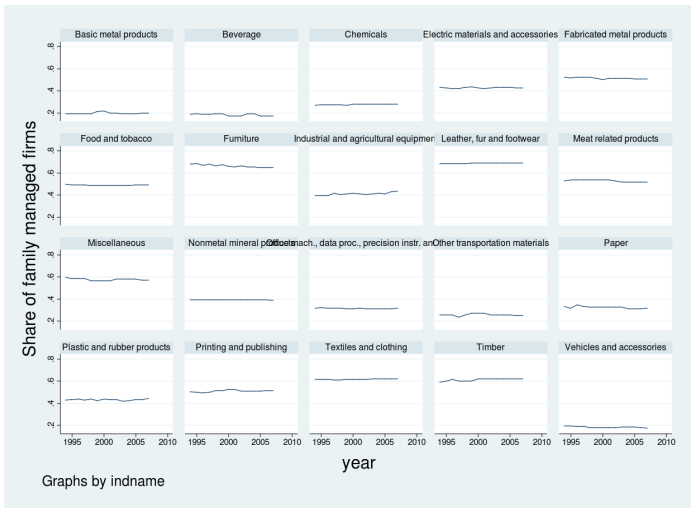
	Family firms	Non-family firms	Difference
N (firm-year)	10,092 (41%)	14,651 (59%)	
Sales, million EUR	10.05 (0.30)	100.80 (3.24)	90.75***
Employment	70.21 (1.43)	388.08 (8.03)	317.87***
ln(TFP)	13.35 (0.01)	14.75 (0.01)	1.40***
R&D expenditure, thousand EUR	96.79 (7.06)	1,424.68 (97.86)	1,327.89***

Distribution of family and non-family firms

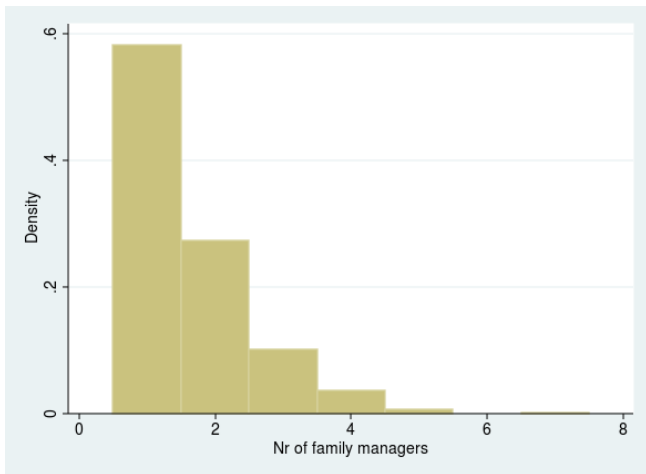


Distribution of family firms across industries

- Differences across industries persistent over time
- Uncorrelated with tariff changes

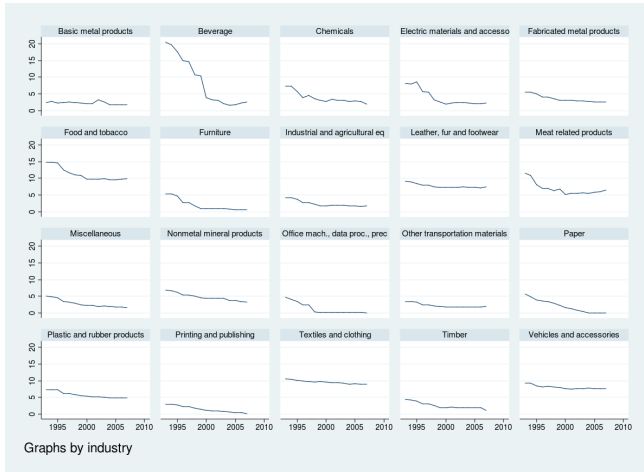


Most family firms have one family manager, none more than seven



Import tariffs fell differentially across industries

- EU level import tariffs, weighted across all countries in the world using Spain's import shares in 1993



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Heterogeneous effects for family and non-family firms

- Estimate separately for family and non family firms

$$\Delta TFP_{ist} = \beta_1 \Delta IMP_{st} + \beta_2 (\Delta IMP_{st} \cdot TFP93_i) \\ + \text{yearFE} + \text{firmFE} + \eta_{it}$$

- i : firm; s : industry; t : year
 - ▶ TFP_{ist} is ln Levinsohn-Petrin productivity corrected for changes in input and output prices
 - ▶ IMP_{st} is strength of import competition, measured by negative of industry level import tariffs (20 NACECLIO industries)
 - ▶ Firm FEs in first differences absorb firm-specific time trends
 - ▶ Family firms: have at least 1 owner or relative in managing position in 1993
 - ▶ Standard errors clustered by industry

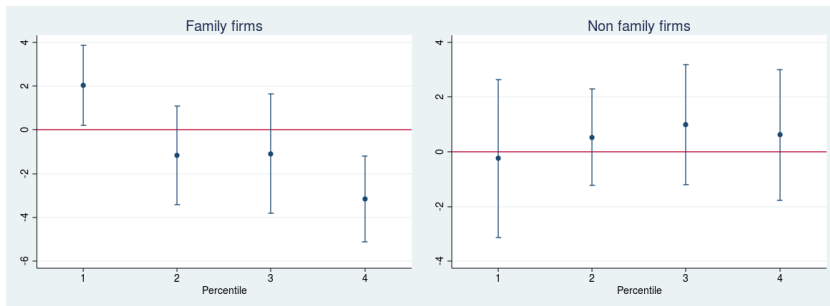
Estimation Results

Dep var: ΔTFP_{ist}	(1)	(2)	(3)
Sample:	All	All	All
ΔIMP_{st}	0.306 (0.460)	3.096 (2.727)	
$\Delta IMP_{st} \cdot TFP93_i$		-0.193 (0.172)	-0.062 (0.185)
Observations	13,878	13,878	13,878
Number of firmid	1,424	1,424	1,424
Firm FE	yes	yes	yes
Year FE	yes	yes	
Ind*Year FE			yes

Estimation Results: Separate Regressions

Dep var: ΔTFP_{ist}	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Family firms	Family firms	Family firms	Non-family firms	Non-family firms	Non-family firms
ΔIMP_{st}	0.152 (0.341)	11.492*** (3.913)		0.351 (0.730)	-0.366 (4.955)	
$\Delta IMP_{st} \cdot TFP93_i$		-0.831*** (0.280)	-0.731** (0.328)		0.048 (0.293)	0.112 (0.318)
Observations	6,078	6,078	6,078	7,800	7,800	7,800
Number of firmid	612	612	612	812	812	812
Firm FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes		yes	yes	
Ind*Year FE			yes			yes

Separate Regressions - nonparametric



Separate Regressions - nonparametric

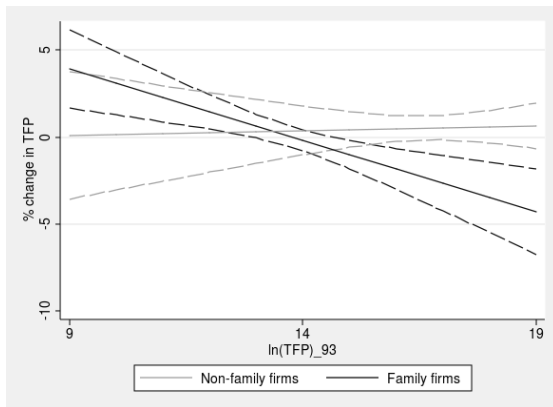
Dep var: ΔTFP_{ist} Sample:	(1) Family firms	(2) Family firms	(3) Family firms	(4) Family firms	(5) Non-family firms	(6) Non-family firms	(7) Non-family firms	(8) Non-family firms
ΔIMP_{st}	1.330** (0.679)	1.752** (0.846)	2.035** (0.931)	2.073** (0.857)	0.045 (1.298)	0.305 (1.334)	-0.242 (1.473)	0.687 (1.338)
$\Delta IMP_{st} \cdot Perc2$	-1.728** (0.740)	-0.908 (0.995)	-1.165 (1.142)	-0.458 (1.334)	0.488 (0.998)	0.128 (0.781)	0.531 (0.897)	-1.771** (0.871)
$\Delta IMP_{st} \cdot Perc3$		-2.597*** (0.964)	-1.083 (1.392)	-0.277 (1.223)		0.001 (1.041)	0.986 (1.121)	0.569 (1.031)
$\Delta IMP_{st} \cdot Perc4$			-3.152*** (0.995)	-2.416 (1.585)			0.621 (1.218)	-0.401 (0.843)
$\Delta IMP_{st} \cdot Perc5$				-3.509*** (0.984)				-0.383 (1.228)
Observations	6,078	6,078	6,078	6,078	7,800	7,800	7,800	7,800
Number of firmid	612	612	612	612	812	812	812	812
Nr of percentiles	2	3	4	5	2	3	4	5
Firm FE	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes

Triple differences regression

$$\begin{aligned}\Delta TFP_{ist} = & \beta_1 \Delta IMP_{st} + \beta_2 (\Delta IMP_{st} \cdot TFP93_i) \\ & + \beta_3 (\Delta IMP_{st} \cdot FAM93_i) + \beta_4 (\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i) \\ & + \text{yearFE} + \text{firmFE} + \eta_{ist}\end{aligned}$$

- i : firm; s : industry; t : year
 - ▶ TFP_{ist} is Levinsohn-Petrin productivity corrected for changes in input and output prices
 - ▶ IMP_{st} is strength of import competition, measured by **negative** of industry level import tariffs (20 NACECLIO industries)
 - ▶ $FAM93_i$ is family managed firm dummy in 1993
 - ▶ Standard errors clustered by industry

Empirical Results: Main Finding



Change in import tariffs	% change in TFP	
	from	to
1 pp	+3.8%	-4.9%
Avg annual change (1/3 pp)	+1.1%	-1.5%
Large annual change (95th perc)	+6.8%	-8.8%

Alternative tariff and productivity measures

	(1)	(2)	(3)	(4)	(5)	(6)
Dep var: ΔTFP_{ist}	Baseline	Alt. tariff measures		Alt. TFP measures		
Method:	Lev Pet Q	Lev Pet Q	Lev Pet Q	Lev Pet R	FE	Lab prod
ΔIMP_{st}	-0.385 (4.808)	1.026 (4.273)	-3.629 (2.749)	-1.167 (3.878)	1.186 (7.140)	-13.968 (15.689)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	-0.045 (0.257)	0.229 (0.169)	0.201 (0.432)	-0.023 (0.551)	1.540 (1.510)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	10.707*** (3.683)	9.488** (4.415)	9.995*** (3.147)	10.765* (5.627)	39.833* (22.069)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	-0.807*** (0.233)	-0.673** (0.302)	-1.305*** (0.420)	-1.000** (0.440)	-3.957* (2.147)
Observations	13,878	13,878	13,878	13,896	14,120	14,377
Number of firmid	1,424	1,424	1,424	1,427	1,446	1,487
Firm FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Ind*Year FE						
Tariffs	1993 weights	t-1 weights	only China tariffs	1993 weights	1993 weights	1993 weights

Ruling out alternative explanations

- **Import competition, or something else?**

- ▶ Not access to imported inputs
 - ★ Changes in input tariffs
 - ★ Changes in importing behavior
- ▶ Not export opportunities
 - ★ Changes in export tariffs
 - ★ Changes in exporting behavior

- **Is this due to family management, or something else?**

- ▶ Not driven by other variables correlated with family firm status
- ▶ Not driven by family ownership or family members in non-management positions
- ▶ Not driven by switch to professional managers
- ▶ No selection effect

Controlling for input and export tariffs

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}
ΔIMP_{st}	0.943 (4.702)		-0.621 (4.773)		0.945 (4.732)	
$\Delta IMP_{st} \cdot TFP93_i$	-0.035 (0.284)	0.055 (0.282)	0.069 (0.286)	0.181 (0.287)	-0.034 (0.286)	0.045 (0.286)
$\Delta IMP_{st} \cdot FAM93_i$	12.498*** (4.474)	11.948*** (3.738)	11.123** (4.506)	10.357*** (3.883)	11.168** (4.584)	10.578*** (3.862)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.948*** (0.288)	-0.899*** (0.234)	-0.835*** (0.287)	-0.769*** (0.243)	-0.857*** (0.297)	-0.804*** (0.245)
$\Delta INTAR_{st}$	10.010*** (2.499)				9.588*** (3.640)	
$\Delta INTAR_{st} \cdot TFP93_i$	-0.557*** (0.198)	-0.589** (0.245)			-0.539** (0.271)	-0.623** (0.315)
$\Delta INTAR_{st} \cdot FAM93_i$	4.291 (4.616)	4.285 (4.773)			0.355 (3.906)	0.243 (4.275)
$\Delta INTAR_{st} \cdot TFP93_i \cdot FAM93_i$	-0.380 (0.319)	-0.382 (0.330)			-0.111 (0.274)	-0.103 (0.305)
$\Delta EXPTAR_{st}$			-0.769 (0.821)		-0.164 (0.847)	
$\Delta EXPTAR_{st} \cdot TFP93_i$			0.048 (0.056)	0.028 (0.056)	0.010 (0.059)	-0.009 (0.060)
$\Delta EXPTAR_{st} \cdot FAM93_i$			-1.101** (0.528)	-1.199** (0.575)	-1.122** (0.553)	-1.216** (0.583)
$\Delta EXPTAR_{st} \cdot TFP93_i \cdot FAM93_i$			0.078** (0.039)	0.087** (0.043)	0.075* (0.040)	0.084* (0.043)
Observations	13,878	13,878	13,878	13,878	13,878	13,878
Year FE	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Ind*Year FE		YES		YES		YES

No differential change in exporting or importing

	(1)	(2)	(3) imported tech dummy	(4)
	ΔTFP_{ist}	$\Delta \ln(\text{imp})_{it}$		$\Delta \ln(\text{exp})_{it}$
ΔIMP_{st}	-0.385 (4.808)	-32.488 (36.509)	1.141 (2.954)	-29.223 (20.574)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	2.008 (2.312)	-0.073 (0.233)	1.991 (1.336)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	49.017 (39.278)	-6.397 (7.594)	47.134 (47.329)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	-2.992 (2.716)	0.450 (0.597)	-3.033 (3.268)
Observations	13,878	8,427	14,088	8,613
Number of firmid	1,424	959	1,440	966
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Horse race: Not driven by other firm characteristics

- $RDINT$ =R&D expenditure/sales, $PROF$ =profits/sales

	(1)	(2)	(3)	(4)	(5)
	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}	ΔTFP_{ist}
ΔIMP_{st}	-0.385 (4.808)	-2.319 (15.822)	1.722 (5.460)	5.215 (4.601)	-9.371 (13.878)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	0.833 (2.115)	-0.097 (0.334)	-0.311 (0.293)	1.917 (1.870)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	12.002*** (3.987)	11.265** (4.681)	11.728*** (4.187)	13.417*** (3.702)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	-0.900*** (0.240)	-0.842*** (0.298)	-0.879*** (0.274)	-0.999*** (0.230)
$\Delta IMP_{st} \cdot LN(SALES)93_i$		-0.537 (0.960)			-0.164 (0.946)
$\Delta IMP_{st} \cdot TFP93_i \cdot LN(SALES)93_i$		-0.003 (0.057)			-0.064 (0.050)
$\Delta IMP_{st} \cdot RDINT93_i$			-499.109 (309.787)		-584.067* (309.116)
$\Delta IMP_{st} \cdot TFP93_i \cdot RDINT93_i$			33.854 (20.932)		39.334* (21.096)
$\Delta IMP_{st} \cdot PROF93_i$				-62.709*** (18.615)	-67.774*** (17.883)
$\Delta IMP_{st} \cdot TFP93_i \cdot PROF93_i$				4.092*** (1.199)	4.437*** (1.139)
Observations	13,878	13,878	13,878	13,878	13,878
Number of firmid	1,424	1,424	1,424	1,424	1,424
Firm FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes

Matching and inverse propensity reweighing

- Based on: initial TFP, sales, employment, export status, presence of foreign plants

Dep var: ΔTFP_{ist}	(1)	(2)	(3)	(4)
	Nearest neighbor	Nearest neighbor	Inv. prop. reweighing	Inv. prop. reweighing
ΔIMP_{st}	0.378 (5.120)		-0.749 (5.900)	
$\Delta IMP_{st} \cdot TFP93_i$	-0.032 (0.335)	0.348 (0.368)	0.058 (0.377)	0.344 (0.406)
$\Delta IMP_{st} \cdot FAM93_i$	10.283* (5.314)	11.998** (4.817)	11.515** (4.493)	11.731*** (4.553)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.765** (0.380)	-0.898*** (0.338)	-0.854*** (0.283)	-0.874*** (0.287)
Observations	11,572	11,572	13,846	13,846
Number of firmid	1,187	1,187	1,421	1,421
Firm FE	yes	yes	yes	yes
Year FE	yes		yes	
Ind*Year FE		yes		yes

Family management matters, not family ownership

- Sample: Only family owned firms (either family managed or professionally managed), available after 2006
- Assume family ownership is stable across all years
- Omitted category: Family owned, but professionally managed

	(1)	(2)	(3)	(4)	(5)	(6)
Dep var: ΔTFP_{ist}	Baseline	Alt. tariff measures		Alt. TFP measures		
Method:	Lev Pet Q	Lev Pet Q	Lev Pet Q	Lev Pet R	FE	Lab prod
ΔIMP_{st}	-13.583 (13.878)	-12.432 (12.644)	-18.981** (7.796)	-12.785 (8.309)	-21.186 (15.203)	-31.914 (25.517)
$\Delta IMP_{st} \cdot TFP93_i$	0.800 (0.931)	0.750 (0.851)	1.227** (0.539)	1.439 (1.019)	1.621 (1.233)	3.118 (2.414)
$\Delta IMP_{st} \cdot FAM93_i$	26.054* (14.323)	24.694** (12.159)	19.091* (10.791)	21.212*** (6.822)	37.433** (14.980)	56.656* (29.223)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-1.707* (0.972)	-1.654** (0.826)	-1.306* (0.760)	-2.492*** (0.846)	-3.004** (1.231)	-5.624** (2.807)
Observations	4,286	4,286	4,286	4,286	4,324	4,479
Number of firmid	314	314	314	314	315	329
Firm FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Tariffs	1993	t-1	only China	1993	1993	1993
	weights	weights	tariffs	weights	weights	weights

Not driven by non-managing family members

- *FAMNONMGR93* is dummy if the firm has family members in non-managing positions in 1993

	(1)	(2)
	ΔTFP_{ist}	ΔTFP_{ist}
ΔIMP_{st}	-0.385 (4.808)	-0.214 (4.570)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	0.043 (0.272)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	12.305*** (4.704)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	-0.916*** (0.296)
$\Delta IMP_{st} \cdot FAMNONMGR93_i$		-2.533 (5.651)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAMNONMGR93_i$		0.170 (0.409)
Observations	13,878	13,878
Number of firmid	1,424	1,424
Firm FE	yes	yes
Year FE	yes	yes

Not driven by selection effect, or switching to professional management

	(1)	(2)	(3)
	ΔTFP_{ist}	$\Delta Exit$	ΔTFP_{ist}
ΔIMP_{st}	-0.385 (4.808)	0.105 (0.369)	-0.487 (4.902)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	-0.010 (0.027)	0.056 (0.292)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	-0.158 (0.356)	16.268** (7.035)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	0.014 (0.026)	-1.243** (0.522)
Observations	13,878	13,295	10,915
Number of firmid	1,424	1,356	1,131
Firm FE	yes	yes	yes
Year FE	yes	yes	yes
Sample			excl fam firm switchers

- ▶ Exit rate

- ▶ Change in family management

Other innovation outcomes

- **How do family managers increase productivity?**
 - ▶ Process innovation: New organizational methods, NOT new machinery
 - ★ Consistent with managerial effort
 - ▶ Not: product innovation, R&D, patenting
 - ▶ Not by firing (e.g., other family members)

Mechanism: Effort-related changes, not changes in (physical) machines

	(1)	(2)	(3)	(4)
		<i>Process innovation</i>		<i>Product innovation</i>
	ΔTFP_{ist}	New machinery dummy	New organizational methods dummy	Change product innovation dummy
ΔIMP_{st}	-0.385 (4.808)	-0.489 (8.314)	3.009 (4.369)	2.513 (4.875)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	-0.030 (0.588)	-0.217 (0.320)	-0.148 (0.323)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	-10.417 (10.994)	16.109** (7.374)	-3.965 (11.899)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	0.714 (0.802)	-1.233** (0.580)	0.316 (0.942)
Observations	13,878	13,596	13,596	13,946
Number of firmid	1,424	1,446	1,446	1,439
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Mechanism: R&D and patents

	(1)	(2)	(3)	(4)
	ΔTFP_{ist}	Change in R&D Dummy	Change in log R&D expenses	Change in patenting dummy
ΔIMP_{st}	-0.385 (4.808)	-3.100 (3.606)	94.809*** (34.357)	9.958 (6.358)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	0.183 (0.261)	-5.795*** (2.237)	-0.692 (0.422)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	7.995 (6.729)	-123.798*** (46.733)	-6.624 (11.874)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	-0.569 (0.469)	7.953** (3.115)	0.443 (0.863)
Observations	13,878	13,972	4,725	14,088
Number of firmid	1,424	1,436	600	1,438
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

Mechanism: No differential change in employment

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔTFP_{ist}	$\Delta \ln(emp)_{it}$	$\Delta \ln(fulltime)_{it}$	$\Delta \ln(parttime)_{it}$	$\Delta \ln(temporary)_{it}$	$\Delta famempl_{it}$
ΔIMP_{st}	-0.385 (4.808)	2.974 (7.129)	5.706 (8.019)	35.624 (32.290)	10.942 (13.382)	-17.840 (14.047)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	-0.281 (0.497)	-0.457 (0.555)	-2.242 (2.295)	-0.803 (0.868)	1.052 (0.882)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	-0.252 (7.464)	8.931 (7.533)	-6.293 (38.895)	-7.437 (33.678)	-3.401 (39.549)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	0.046 (0.525)	-0.518 (0.533)	0.313 (2.930)	0.255 (2.313)	0.763 (2.917)
Observations	13,878	14,154	14,035	2,734	10,062	14,149
Number of firmid	1,424	1,442	1,431	491	1,264	1,441
Firm FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes

Outline

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Setup

- Partial equilibrium heterogeneous firm model with endogenous productivity changes and ***heterogeneous preferences of managers***

Setup

- Partial equilibrium heterogeneous firm model with endogenous productivity changes and ***heterogeneous preferences of managers***
- Literature on utility functions of managers:
 - ▶ Family managers have own personal objectives [Bertrand et al., 2008, Mullins and Schoar, 2016, Bandiera et al., 2014a], e.g.
 - ★ status
 - ★ using firm resources for personal purposes
 - ★ finding it harder to find job outside family firm
 - ⇒ **more weight on private benefits**
 - ▶ Family managers have larger preference for leisure, probably due to wealth effect [Bandiera et al., 2014b, Holtz-Eakin et al., 1993]
⇒ **more weight on disutility of effort**

Firm profits

$$\pi(\beta) = \eta\phi\beta - (f - a\beta - \frac{1}{2}\beta^2)$$

- Variable (or operating) profits $\eta\phi\beta$
 - ▶ η is market competitiveness parameter
 - ▶ ϕ is random productivity draw at the beginning of period
 - ▶ β is managerial effort
- Fixed cost $f - a\beta - \frac{1}{2}\beta^2$
 - ▶ Managerial effort reduces fixed cost by a
 - ▶ Decreasing returns to effort $\frac{1}{2}\beta^2$
 - ▶ Note: Can apply decreasing returns to effort to variable profits and/or fixed cost

Manager's objective function

$$U = \begin{cases} \alpha_M \pi(\beta) + d_M(\bar{U} - \beta) & \text{if firm exists} \\ 0 & \text{if firm exits} \end{cases}$$

- Weight on firm profits α_M
 - ▶ Importance, includes profit share
- Weight on private benefits and costs d_M
 - ▶ Private benefit \bar{U} if the firm exists, incl. monetary (e.g. salary) and non-monetary benefits (leisure, switching cost of finding another job [Schmidt, 1997], emotional attachment, using firm resources for private purposes [Bandiera et al., 2014a], status)
 - ▶ Private effort cost β

Heterogeneous preferences

- **Two manager types**

- ▶ Manager type F cares relatively more about private benefits and cost vs firm profits compared to manager type P

$$\frac{d_F}{\alpha_F} > \frac{d_P}{\alpha_P}$$

Heterogeneous preferences

- **Two manager types**

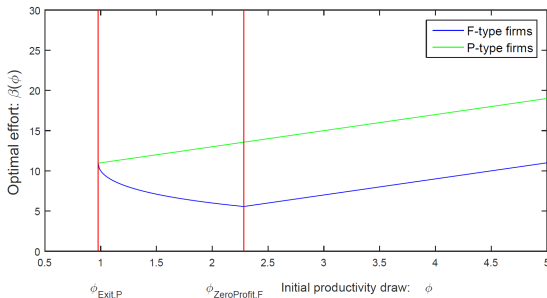
- ▶ Manager type F cares relatively more about private benefits and cost vs firm profits compared to manager type P

$$\frac{d_F}{\alpha_F} > \frac{d_P}{\alpha_P}$$

- **Simplified assumptions for exposition**

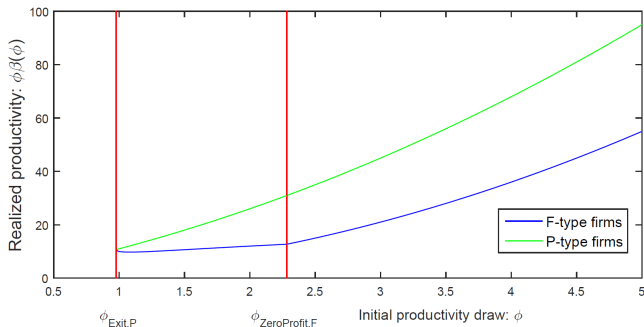
- ▶ Manager type P only cares about firm profits: $\alpha_P = 1$, $d_P = 0$
- ▶ Manager type F cares about both firm profits and private benefits and costs: $\alpha_F = 1$, $d_F > 0$

Effort Choice



- Conditional on initial productivity, F-type managers exert less effort than P-type managers
- On average, F-type managers exert less effort

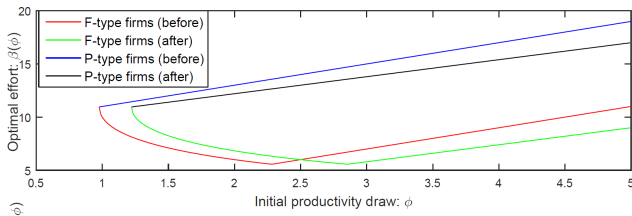
Realized Productivity (TFP)



- Conditional on initial productivity, F-type managers are less productive than non-family firms (even under same distribution of productivity draws)
- On average, F-type managers have lower realized productivity (TFP)
- TFP distribution of F-type managers has thicker left tail: more firms with extremely low productivity

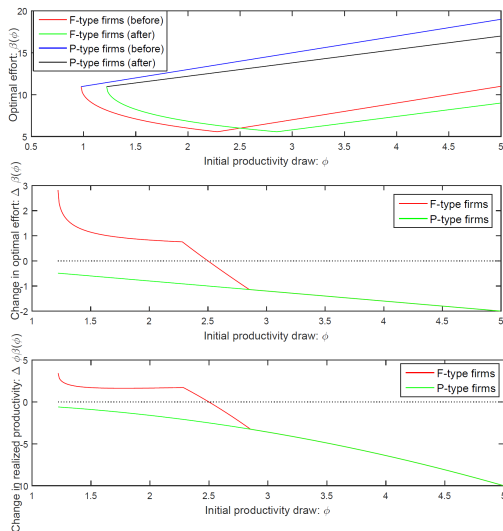
Increased Import Competition and Effort

- Market competitiveness increases $\Rightarrow \eta \downarrow$, variable profits fall



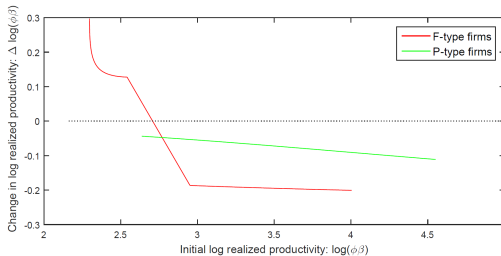
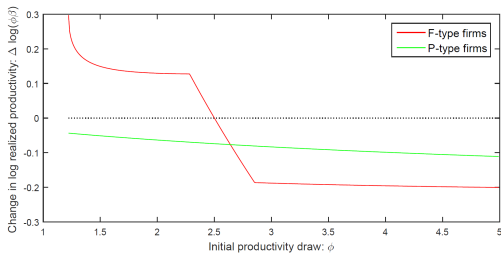
Increased Import Competition and Change in Effort

- Market competitiveness increases $\Rightarrow \eta \downarrow$, variable profits fall



Increased Import Competition and TFP

► General Case



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Further empirical evidence for suggested mechanism

- **Additional predictions from the model**

- ▶ Other outcomes: sales, profitability, exit rates
- ▶ Cross-sectional differences in TFP distribution

- **Evidence strongest for most affected subsample**

- ▶ 2nd generation family managers rather than owner-entrepreneurs

- **Type of innovation consistent with managerial effort**

- ▶ Organizational changes in process innovation

Predictions for other outcomes

- **Sales and profits**

- ▶ After an increase in import competition, the least productive surviving F-type firms have increasing sales and operating profits, and the most productive surviving F-type firms have decreasing sales and operating profits

- **Exit rate**

- ▶ After an increase in import competition, exit rates are the same for F-type firms as for P-type firms

Other outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔTFP_{ist}	$\Delta markup_{it}$	$\Delta \ln(sales)_{it}$	$\Delta \ln(empl)_{it}$	$\Delta profits_{it}$	$\Delta exit$
ΔIMP_{st}	-0.385 (4.808)	2.067 (1.510)	-2.320 (5.478)	-3.120 (3.492)	-1,119.786** (556.429)	0.105 (0.369)
$\Delta IMP_{st} \cdot TFP93_i$	0.054 (0.288)	-0.139 (0.103)	0.188 (0.328)	0.133 (0.229)	84.323** (40.733)	-0.010 (0.027)
$\Delta IMP_{st} \cdot FAM93_i$	11.679*** (4.459)	-4.531*** (1.679)	13.974** (5.477)	6.504 (5.151)	1,938.508*** (663.262)	-0.158 (0.356)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.875*** (0.283)	0.349*** (0.119)	-1.028*** (0.359)	-0.425 (0.359)	-144.098*** (48.846)	0.014 (0.026)
Observations	13,878	13,878	13,878	13,878	13,944	13,295
Number of firmid	1,424	1,424	1,424	1,424	1,433	1,356
Firm FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes

Cross-sectional model predictions

- **Difference in TFP distribution**

- ▶ Non-exiting P -type firms have higher average realized productivity and managerial effort compared with non-exiting F -type firms.
- ▶ The distribution of realized productivity of F -type firms has a thicker tail of firms with extremely low productivity (compared with the distribution of P -type firms) since there are more constrained firms among F -type firms.

- **Data matches the difference in the first 4 moments of the TFP distribution between family and professional managers:**

- ▶ Family firms have lower average, lower variance, larger skewness and larger kurtosis of TFP distribution [▶ more](#)

Effect on family firms by age

Dep var: ΔTFP_{ist}	(1)	(2)	(3)
Sample: only family firms			
Firm age in 1993, years:	All	0-13	14+
ΔIMP_{st}	11.492*** (3.913)	11.557 (9.213)	15.357*** (5.612)
$\Delta IMP_{st} \cdot TFP93_i$	-0.831*** (0.280)	-0.861 (0.725)	-1.103*** (0.377)
Observations	6,078	2,889	3,189
Number of firmid	612	301	311
Firm FE	yes	yes	yes
Year FE	yes	yes	yes

Effect on family firms by number of family managers

Dep var: ΔTFP_{ist}	(1)	(2)	(3)
Sample: only family firms			
Nr of family managers in 1993:	All firms	1	>1
ΔIMP_{st}	11.492*** (3.913)	2.503 (4.100)	22.073*** (7.011)
$\Delta IMP_{st} \cdot TFP93_i$	-0.831*** (0.280)	-0.235 (0.277)	-1.531*** (0.492)
Observations	6,078	3,340	2,738
Number of firmid	612	341	271
Firm FE	yes	yes	yes
Year FE	yes	yes	yes

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Conclusions

- **Effects of import competition are heterogeneous**

- ▶ Preferences of managers important to induce managerial effort
- ▶ Private benefits and private costs vs profit maximization
- ▶ Survival motive can lead to increased effort and productivity for unproductive firms (more likely for Europe?)
- ▶ Reduced market size can discourage innovation for highly productive firms (more likely for US?)

Thank you!

References

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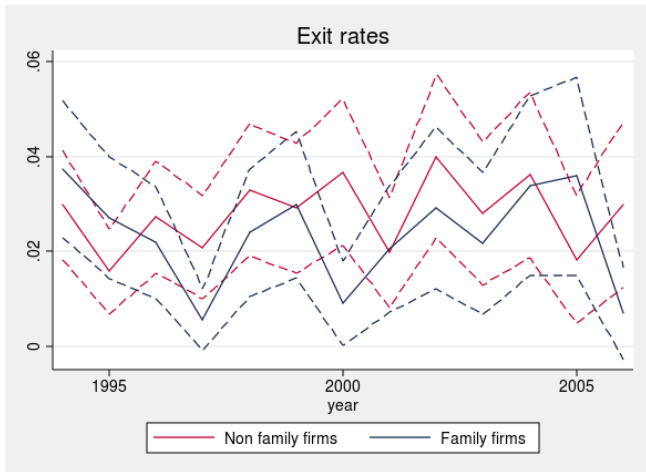
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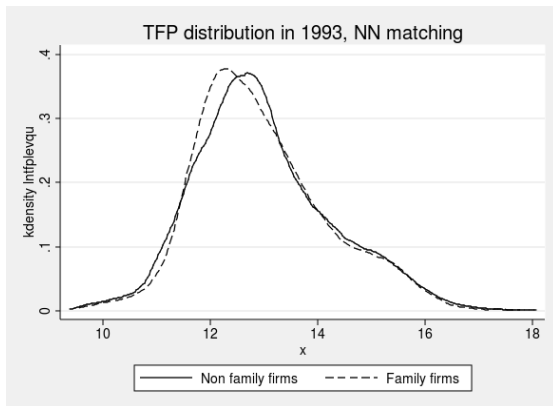
Exit rates are the same in the cross-section



► Go back

Robustness - nearest neighbor matching

- Nearest neighbor matching to match initial TFP, sales, employment, and export status
- 5 nearest neighbors



Robustness - nearest neighbor matching

- Matching based on initial TFP, sales, employment, export status, presence of foreign plants
- 5 nearest neighbors

Dep var: ΔTFP_{ist}	(1)	(2)
ΔIMP_{st}	0.378 (5.120)	
$\Delta IMP_{st} \cdot TFP93_i$	-0.032 (0.335)	0.348 (0.368)
$\Delta IMP_{st} \cdot FAM93_i$	10.283* (5.314)	11.998** (4.817)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.765** (0.380)	-0.898*** (0.338)
Observations	11,572	11,572
Number of firmid	1,187	1,187
Firm FE	yes	yes
Year FE	yes	
Ind*Year FE		yes

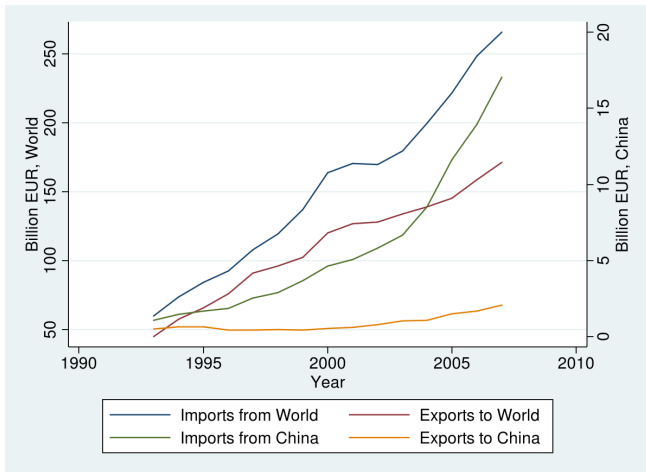
Robustness - inverse propensity score reweighting

- Matching based on initial TFP, sales, employment, export status, presence of foreign plants

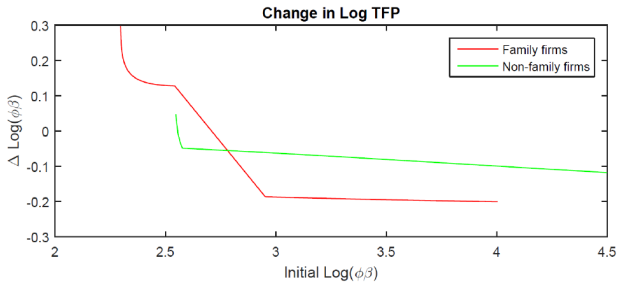
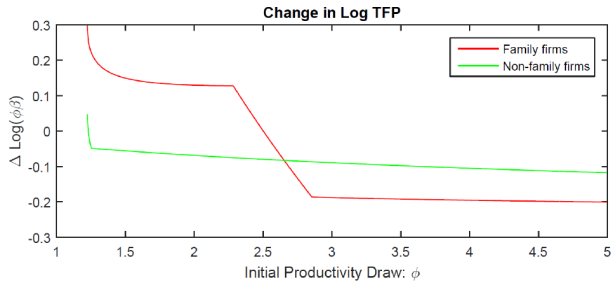
Dep var: ΔTFP_{ist}	(1)	(2)
ΔIMP_{st}	-0.749 (5.900)	
$\Delta IMP_{st} \cdot TFP93_i$	0.058 (0.377)	0.344 (0.406)
$\Delta IMP_{st} \cdot FAM93_i$	11.515** (4.493)	11.731*** (4.553)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$	-0.854*** (0.283)	-0.874*** (0.287)
Observations	13,846	13,846
Number of firmid	1,421	1,421
Firm FE	yes	yes
Year FE	yes	
Ind*Year FE		yes

► Go back

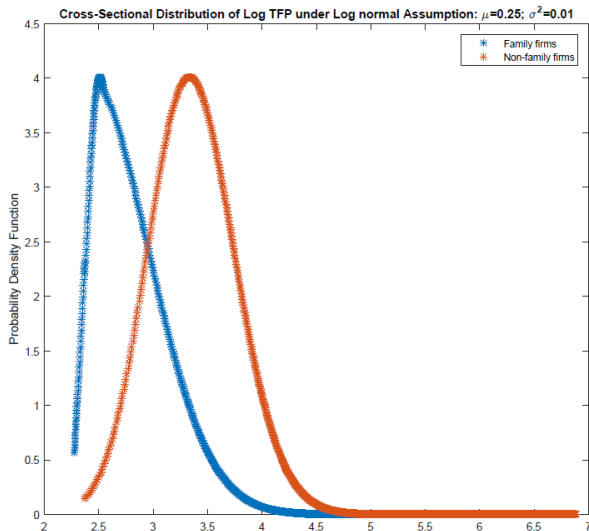
Surge in imports for Spain



General case: $\frac{d_F}{\alpha_F} > \frac{d_P}{\alpha_P}$ [▶ Go back](#)



Cross-sectional Distribution of Log TFP



Go back

No significant changes in family management

	(1) Δnr fam mgr	(2) Δnr fam mgr	(3) $\Delta Prob$ fam mgd firm	(4) $\Delta Prob$ fam mgd firm
ΔIMP_{st}	2.137 (2.361)	-44.124 (36.390)	1.358 (1.518)	-11.514 (19.010)
$\Delta IMP_{st} \cdot TFP93_i$		3.396 (2.588)		0.945 (1.315)
Observations	6,221	6,221	6,221	6,221
Number of firmid	625	625	625	625
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes

► [Go back](#)

Family firm share and changes in imports uncorrelated

Dep. var.:	(1)	(2)	(3)
Share of family managed firms			
minus change in import tariffs	-0.102 (0.078)		
change import penetration		0.002 (0.018)	
change in ln(imports)			-0.002 (0.005)
Observations	260	260	260
Number of industry	20	20	20
Industry FE	yes	yes	yes
Year FE	yes	yes	yes

Response is immediate

Dep var: ΔTFP_{ist}	(1)	(2)	(3)	(4)	(5)
ΔIMP_{st}	0.104 (0.459)	0.242 (2.458)	0.301 (0.662)	-3.494 (4.428)	
$\Delta IMP_{st} \cdot TFP93_i$		-0.008 (0.158)		0.259 (0.265)	0.295 (0.258)
$\Delta IMP_{st} \cdot FAM93_i$			-0.490 (0.721)	12.521*** (4.001)	11.899*** (3.298)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$				-0.940*** (0.247)	-0.884*** (0.194)
Lagged:					
$\Delta IMP_{s,t-1}$	-0.032 (0.369)	-4.405 (2.883)	0.243 (0.499)	-2.807 (4.625)	
$\Delta IMP_{s,t-1} \cdot TFP93_i$		0.303 (0.198)		0.206 (0.301)	0.018 (0.339)
$\Delta IMP_{s,t-1} \cdot FAM93_i$			-0.713 (0.562)	-2.838 (3.771)	-5.403 (4.248)
$\Delta IMP_{s,t-1} \cdot TFP93_i \cdot FAM93_i$				0.178 (0.244)	0.362 (0.271)
Observations	12,401	12,401	12,401	12,401	12,401
Number of firmid	1,337	1,337	1,337	1,337	1,337
Firm FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	
Ind*Year FE					yes

Model matches cross-sectional difference in Log TFP distribution

- On average, family firms have lower realized productivity (TFP)
- TFP distribution of family firms has thicker left tail: more firms with extremely low productivity

Difference between non-family and family firms (log-normal)		
Moment	Theory	Empirics
Mean	0.74	1.56
Variance	0.022	1.12
Skewness	-1.09	-0.90
Kurtosis	-1.33	-0.54

▶ back

Triple differences - no firm fixed effects

Dep var: ΔTFP_{ist}	(1)	(2)	(3)	(4)	(5)
ΔIMP_{st}	0.108 (0.606)	1.733 (3.269)	-0.067 (0.768)	-1.528 (4.870)	
$\Delta IMP_{st} \cdot TFP93_i$		-0.117 (0.196)		0.095 (0.281)	0.288 (0.265)
$\Delta IMP_{st} \cdot FAM93_i$			0.489 (0.642)	6.851** (3.474)	6.422* (3.700)
$\Delta IMP_{st} \cdot TFP93_i \cdot FAM93_i$				-0.465* (0.253)	-0.449* (0.263)
$FAM93_i$	-0.011*** (0.003)		-0.012*** (0.004)	-0.049 (0.071)	-0.047 (0.065)
$TFP93_i \cdot FAM93_i$				0.003 (0.005)	0.003 (0.005)
$TFP93_i$		0.005*** (0.001)		0.004 (0.002)	0.001 (0.002)
Observations	14,013	14,013	14,013	14,013	14,013
Firm FE	no	no	no	no	no
Year FE	yes	yes	yes	yes	
Ind*Year FE					yes