

Financial constraints and productivity: evidence from euro area companies

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Research questions

- **Do financial constraints affect firm productivity?**
- **Do they have a different impact across countries and sectors ?**
 - **How can we measure financial constraints?**
 - **How can we relate them to productivity?**

Motivation

- Financial factors have been found important in influencing firms' real activities and promoting aggregate growth
- *However few studies analyse link between financial factors and productivity at firm level*
- Two different approaches :
 - **Indirect:** generate a measure of firm-productivity and relate it to financial variables (Nucci et al, 2005 (IT); Nunes et al., 2007 (PT); Gatti and Love, 2008 (BU))
 - **Direct:** financial variables are included in the production function (Moreno-Badia and Slootmaekers, 2009 (EE); Chen and Guariglia, 2011 (CN))

Our contributions to the literature

- **We develop a measure of financial constraints based on a-priori classification at firm-level**
- **We use the classification to calculate the expected probability of being financially constrained using additional firm characteristics**
- **We follow the direct approach to include the measure of financial constraints in a production function as an additional observable state variable**
- **We estimate firm-level production functions for different sectors across several euro area countries**
- **We find that financial constraints do lower productivity**

Data

- **Amadeus balance sheet + profit & loss account data for 8 EA countries**
- **Period: 1993-2011**
- **Non-financial corporations present for at least 3 consecutive years**
- **Around 5 million firm-year obs for approx. 1 million companies**

Sample characteristics

COUNTRY		Belgium	Germany	Spain	Finland	France	Italy	The Netherlands	Portugal	Total
# of Observation		125799	98915	2175980	197712	1540697	1052450	33048	317968	5542569
# of Firms		14419	27117	339066	36554	285884	221414	5935	92249	1022638
Size (head counts)	Mean	114	1078	32	67	62	57	1051	28	191
	Median	35	89	9	8	8	14	144	7	10
Size (ln of real total assets)		8.83	9.52	6.36	6.46	6.49	7.82	10.08	5.93	6.78
# SMEs (< 250 employees)		13731	22485	337184	36001	282908	218989	4740	91702	1007740
% SMEs		0.95	0.83	0.99	0.98	0.99	0.99	0.80	0.99	0.99
# SMEs (EC definition)		12348	18026	176356	15393	124856	134949	3974	37718	523620
%SMEs		0.86	0.66	0.52	0.42	0.44	0.61	0.67	0.41	0.51
Age		25	28	13	17	17	19	34	16	16

Source: Amadeus, authors' calculations.

How can we measure financial constraints?

- **Financial constraints are empirically not observable.**
 - **There is no item on the balance sheet that tells us if, and the extent to which, a firm is financially constrained.**
- **There are some specificities associated with a good measure of financial constraints:**
 - Financial constraints are**
 - ❖ **firm-specific**
 - ❖ **time-varying**
 - ❖ **with different degrees of constraint**
- **As a result, each firm, for a given period of time, may move along a spectrum of constraints.**
- **Optimally, the perfect measure of financial constraints should be objective, firm specific, continuous and time varying.**

Detecting financial constraints: a classification

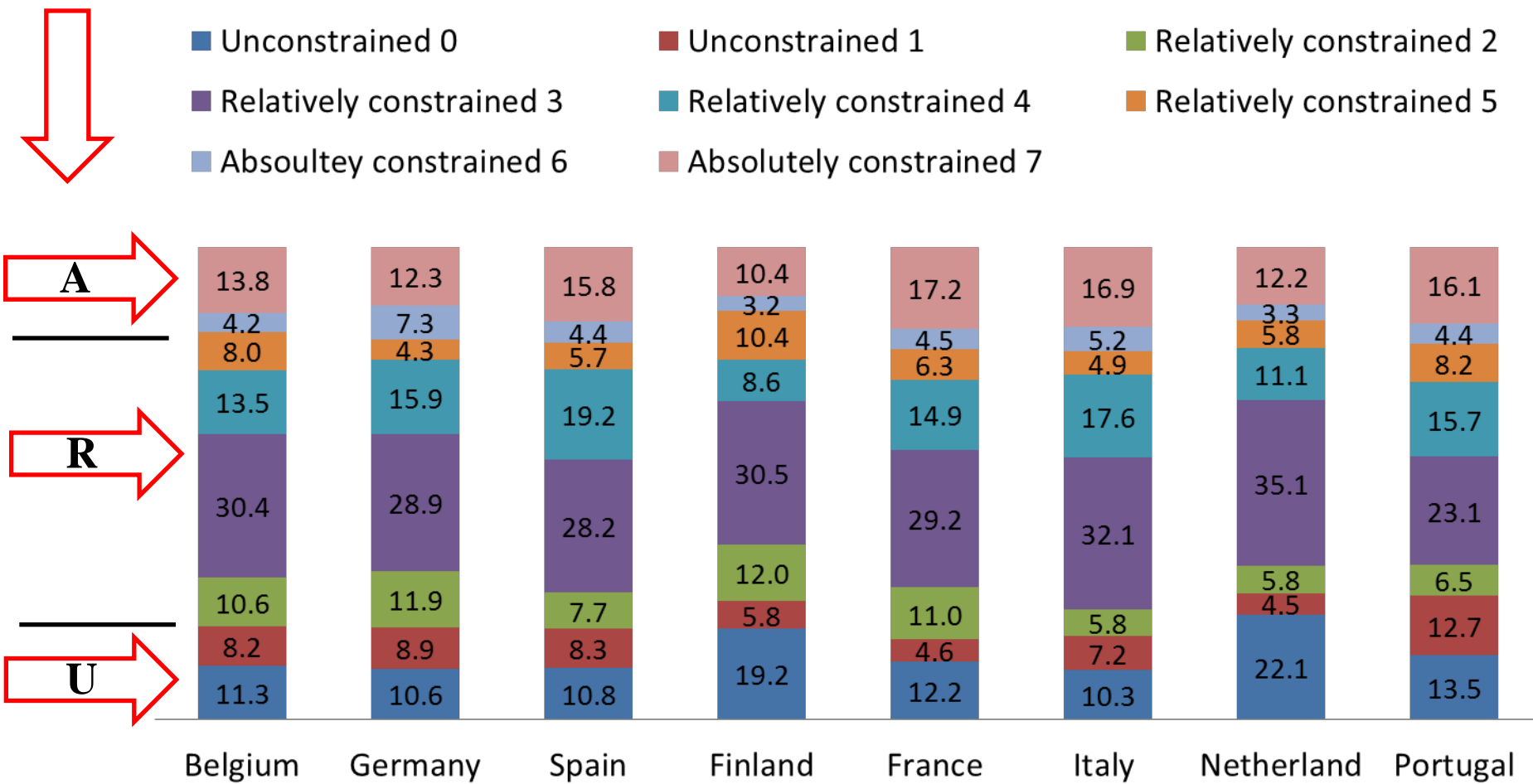
Financing conditions	(% total)	Total Investment	Financing gap	Changes in total debt	Issuance of new shares	Interest payments
Absolutely constrained						
7	16.1	≥ 0	≥ 0	≤ 0	≤ 0	-
6	4.6	< 0	-	≤ 0	-	-
Relatively constrained						
5	6.0	≥ 0	< 0	< 0	-	-
4	16.9	≥ 0	≥ 0	> 0	-	$\geq \text{MIR}_{c,t}$
3	29.1	≥ 0	≥ 0	≤ 0	> 0	-
2	8.5	< 0	-	> 0	-	-
Unconstrained						
1	7.2	≥ 0	< 0	≥ 0	-	-
0	11.6	≥ 0	≥ 0	> 0	-	$\leq \text{MIR}_{c,t}$

Source: Pal and Ferrando (2010)

Financial constraints at country level (narrow indicator)

Broad indicator

- Unconstrained 0
- Relatively constrained 3
- Absoultey constrained 6
- Unconstrained 1
- Relatively constrained 4
- Absolutely constrained 7
- Relatively constrained 2
- Relatively constrained 5



Definitions: Index of financial constraints

- **Ordered probit analysis to calculate the conditional probability of firms to be in one of the categories .**

$$y_{i,t}^* = \mathbf{x}'_{it} \boldsymbol{\beta} + \mathbf{u}_{it} \quad (1)$$

$$y_{it} = j \quad \text{if} \quad \alpha_{j-1} < y_{it}^* \leq \alpha_j, \quad j=0, 2 \text{ (or 7)}$$

$$\Pr (y_{it} = j) = \Pr (\alpha_{j-1} < y_{it}^* \leq \alpha_j) =$$

$$\Pr (\alpha_{j-1} - \mathbf{x}_{i,t} \boldsymbol{\beta} < \mathbf{u}_{i,t} \leq \alpha_j - \mathbf{x}_{i,t} \boldsymbol{\beta})$$

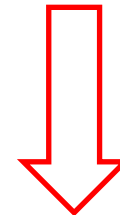
- **Where \mathbf{x}_{it} is financial leverage, interest payment burden, cash holding, size dummy, age and interacting terms between cash and size and cash and age, time, sectoral and country dummies.**

Which firms are more financially constrained?

Dependent Variable FR index (t) (Broad Index)	Total Sample
Financial Leverage (t-1)	0.36274*** (0.00357)
Debt Burden (t-1)	0.39150*** (0.0018)
Cash Holding (t-1)	0.09116*** (0.01005)
Size (t-1)	-0.05997*** (0.00103)
Age (t-1)	-0.00013*** (0.00006)
Cash Holding (t-1) * Size (t-1)	0.00418*** (0.006)
Cash Holding (t-1) * Age (t-1)	-0.00108*** (0.00031)
Constant / Cut 1	0.06656*** (0.00806)
Constant / Cut 2	1.51621*** (0.00808)
Observations	3,782,531
R squared	0.0187
Prob (chi2>0)	0
Time, sectoral and country dummies	YES

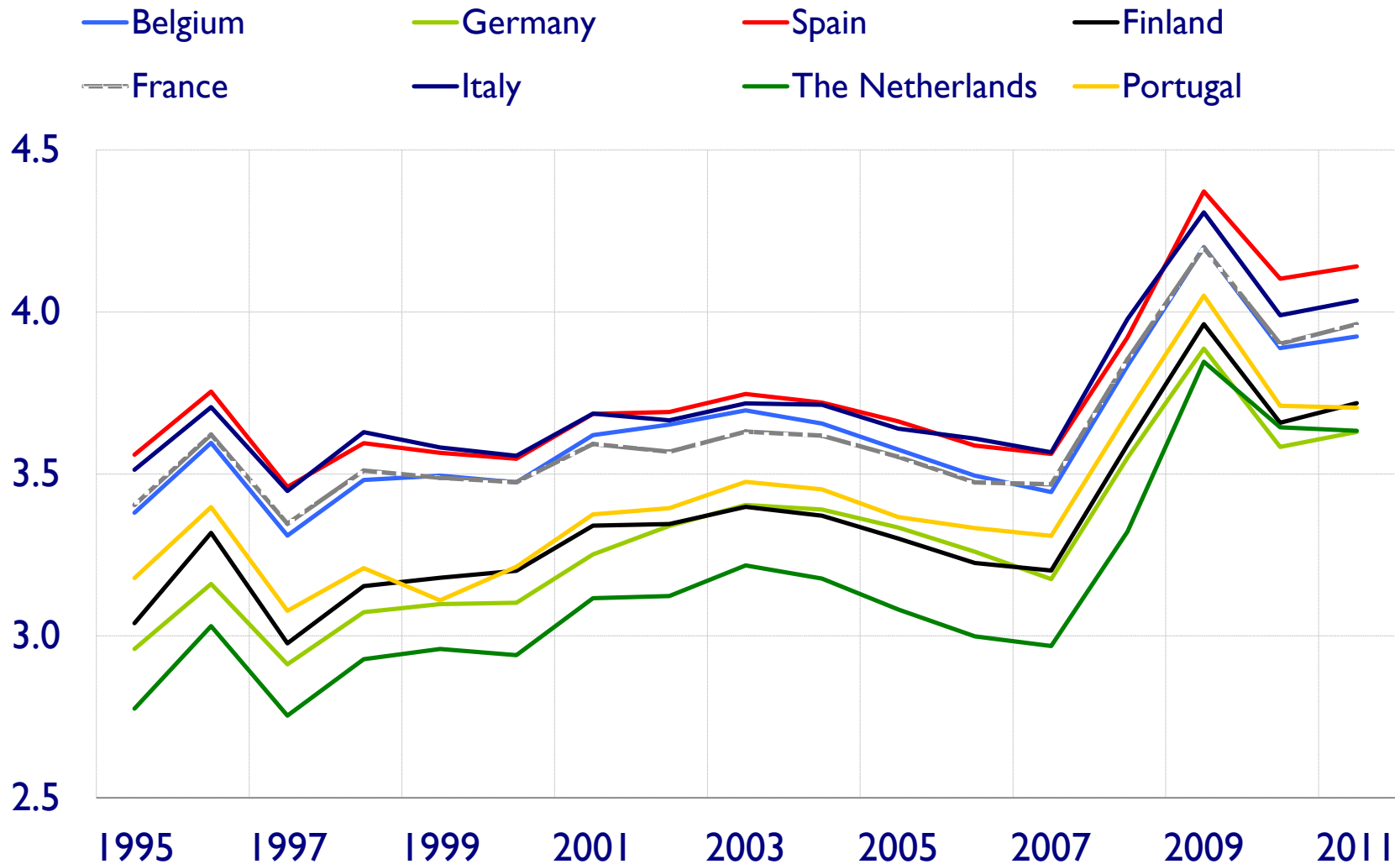
➤ **With higher expected asymmetric information and more contracting problems:**

- **More leverage**
- **Higher debt burden**
- **Higher cash holding**
- **Smaller firms**
- **Younger firms**



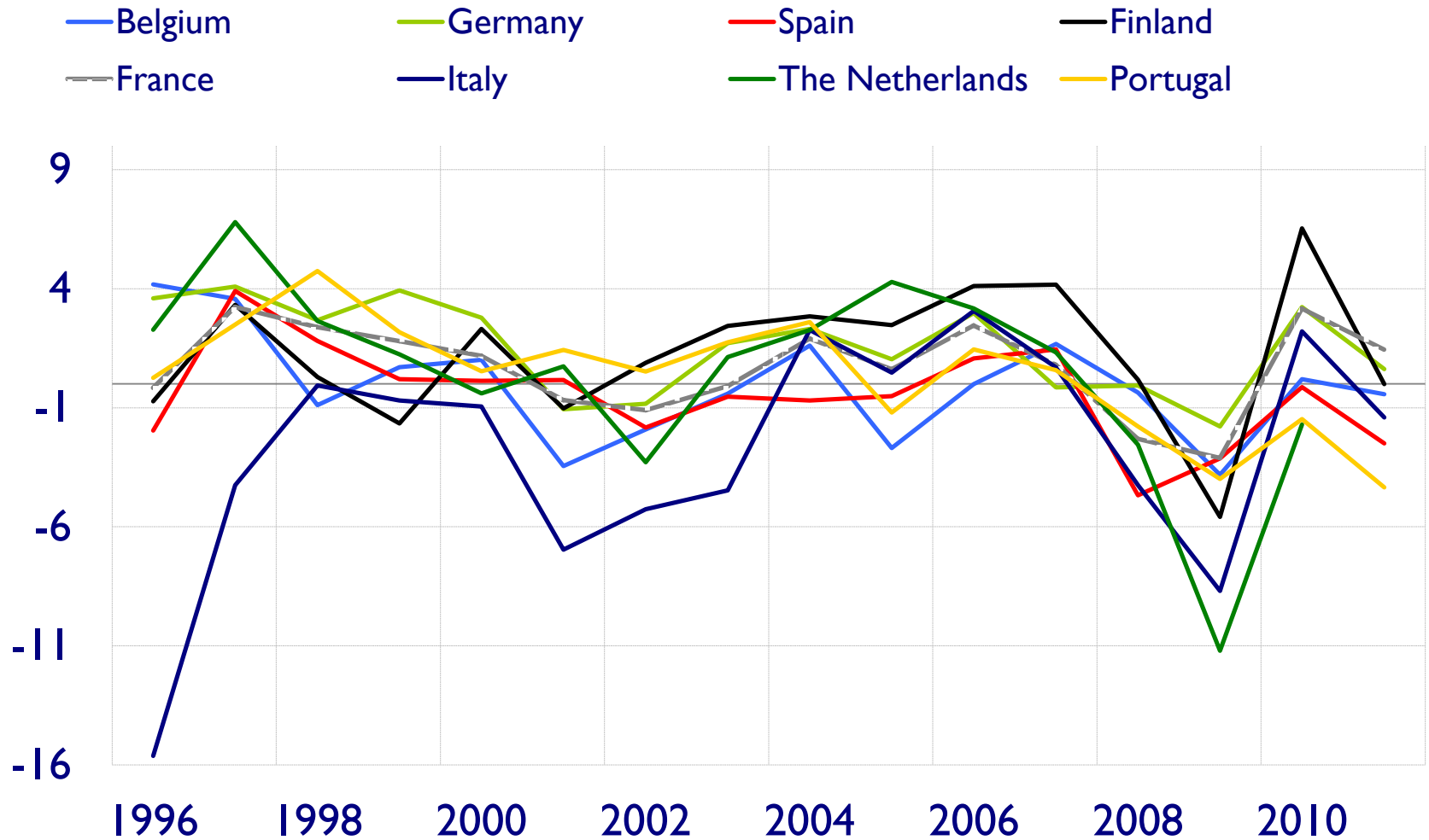
**Final indicator:
weighted average of
predicted probabilities**

Financial constraints across countries (narrow indicator)



Source: Amadeus, authors' calculations

Firm-level labour productivity (rate of growth)



Source: Amadeus, authors' calculations. Weighted averages.

Relating Firm-level Productivity and Financial Constraint : Preliminary Evidence

	FR index (Broad)	FR expected (Broad)	Real Operating Revenue	Real Value Added	Sales per worker	Labour Productivity
FR index (Broad)	1.000					
FR expected (Broad)	0.187	1.000				
Real Operating Revenues	-0.004	-0.021	1.000			
Real Value Added	-0.002	-0.018	0.384	1.000		
Sales per worker	-0.016	-0.022	0.040	0.013	1.000	
Labour Productivity	-0.063	-0.051	0.037	0.038	0.483	1.000

	FR index (Narrow)	FR expected (Narrow)	Real Operating Revenue	Real Value Added	Sales per worker	Labour Productivity
FR index (Narrow)	1.000					
FR expected (Narrow)	0.188	1.000				
Real Operating Revenues	-0.005	-0.027	1.000			
Real Value Added	-0.003	-0.024	0.384	1.000		
Sales per worker	-0.008	-0.018	0.040	0.013	1.000	
Labour Productivity	-0.072	-0.068	0.037	0.038	0.483	1.000

Relating Firm-level Productivity and Financial Constraint: The Econometric Model (I)

- **Woolridge (2011) and Levinsohn-Petrin (2006) including the Index of Financial Constraint as additional state variable (Fernandes, 2007; Moreno-Badía and Slootmaekers, 2009)**

$$y_{i,t} = \beta_0 + \beta_l l_{i,t} + \beta_k k_{i,t} + \beta_f FCI_{i,t} + d_i + d_t + \Omega_{i,t} + \varepsilon_{i,t}$$

$$E(\varepsilon_{i,t} / l_{i,t}, k_{i,t}, FCI_{i,t}, m_{i,t}, \dots, l_{i,1}, k_{i,1}, FCI_{i,1}, m_{i,1}) = 0$$

$$\Omega_{i,t} = g(k_{i,t}, FCI_{i,t}, m_{i,t})$$

$$\Omega_{i,t} = E(\Omega_{i,t} / \Omega_{i,t-1}) + \mu_{i,t}$$

$$E(\mu_{i,t} / k_{i,t}) = 0 \quad E(\mu_{i,t} / FCI_{i,t}) = 0$$

- **Main assumption: Intermediate Inputs are chosen before Labour Inputs (we will relax it as Robustness Check)**

The Econometric Model (2)

To estimate the production function equation:

1. we approximate the unspecified function $g(\dots)$ using a third order polynomial with full set of interactions among the state variables, i.e. $c(k_{i,t}, FCI_{i,t}, m_{i,t})$
2. we use instrumental variables $z=(1, l_{i,t}, k_{i,t}, FCI_{i,t}, c_0(k_{i,t}, FCI_{i,t}, m_{i,t}))$ where $c_0(\dots) = c(\dots)$ without the linear terms
3. we apply **GMM** by country/sector
4. standard errors are computed by using bootstrap method with 500 replications.

Marginal Impacts of Financial Constraints on Productivity

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communication and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	-0.247 (0.197)	-0.746*** (0.103)	-1.343*** (0.234)	-0.937*** (0.178)	-0.879*** (0.0611)	-0.362*** (0.140)	-1.008*** (0.241)	-0.857*** (0.124)	-0.917*** (0.0691)
Germany	-0.527 (0.386)	-0.308*** (0.117)	-0.605** (0.259)	-1.315*** (0.263)	-0.833*** (0.0703)	-0.865*** (0.118)	-0.607*** (0.218)	-0.221 (0.215)	-1.049*** (0.102)
Spain	-0.610*** (0.0254)	-0.413*** (0.0208)	-1.214*** (0.130)	-1.129*** (0.0628)	-0.857*** (0.0145)	-0.901*** (0.0327)	-0.718*** (0.0225)	-0.869*** (0.0341)	-0.782*** (0.0175)
Finland	-0.586*** (0.149)	-0.734*** (0.0694)	-0.455* (0.253)	-1.069*** (0.182)	-0.994*** (0.0500)	-1.048*** (0.127)	-0.906*** (0.0922)	-0.874*** (0.103)	-1.049*** (0.0779)
France	-0.646*** (0.0356)	-0.632*** (0.0247)	-0.945*** (0.127)	-1.261*** (0.0839)	-1.001*** (0.0188)	-0.888*** (0.0464)	-1.023*** (0.0316)	-0.665*** (0.0351)	-0.962*** (0.0200)
Italy	-0.831*** (0.0614)	-0.481*** (0.0335)	-1.270*** (0.102)	-1.146*** (0.0730)	-1.005*** (0.0145)	-0.939*** (0.0636)	-0.642*** (0.0406)	-0.832*** (0.0466)	-0.791*** (0.0221)
Netherlands	-0.601 (1.460)	-0.883*** (0.218)	-1.240* (0.741)	-1.265** (0.573)	-1.096*** (0.106)	-0.843*** (0.256)	-0.417 (0.352)	-0.690** (0.334)	-1.171*** (0.159)
Portugal	-0.623*** (0.0574)	-0.175*** (0.0482)	-1.375*** (0.394)	-1.219*** (0.163)	-0.741*** (0.0335)	-0.702*** (0.0730)	-0.761*** (0.0493)	-1.037*** (0.111)	-0.693*** (0.0413)

Robustness checks:

Intermediate Input and Labour Input chosen at the same time

➤ We relax the assumption regarding Intermediate Input

$$y_{i,t} = \beta_0 + \beta_l l_{i,t} + \beta_k k_{i,t} + \beta_f FCI_{i,t} + d_i + d_t + \Omega_{i,t} + \varepsilon_{i,t}$$

$$E(\Omega_{i,t} / k_{i,t}, FCI_{i,t}, k_{i,t-1}, FCI_{i,t-1}, m_{i,t-1}, \dots, k_{i,1}, FCI_{i,1}, m_{i,1}) = f(g(k_{i,t-1}, FCI_{i,t-1}, m_{i,t-1}))$$

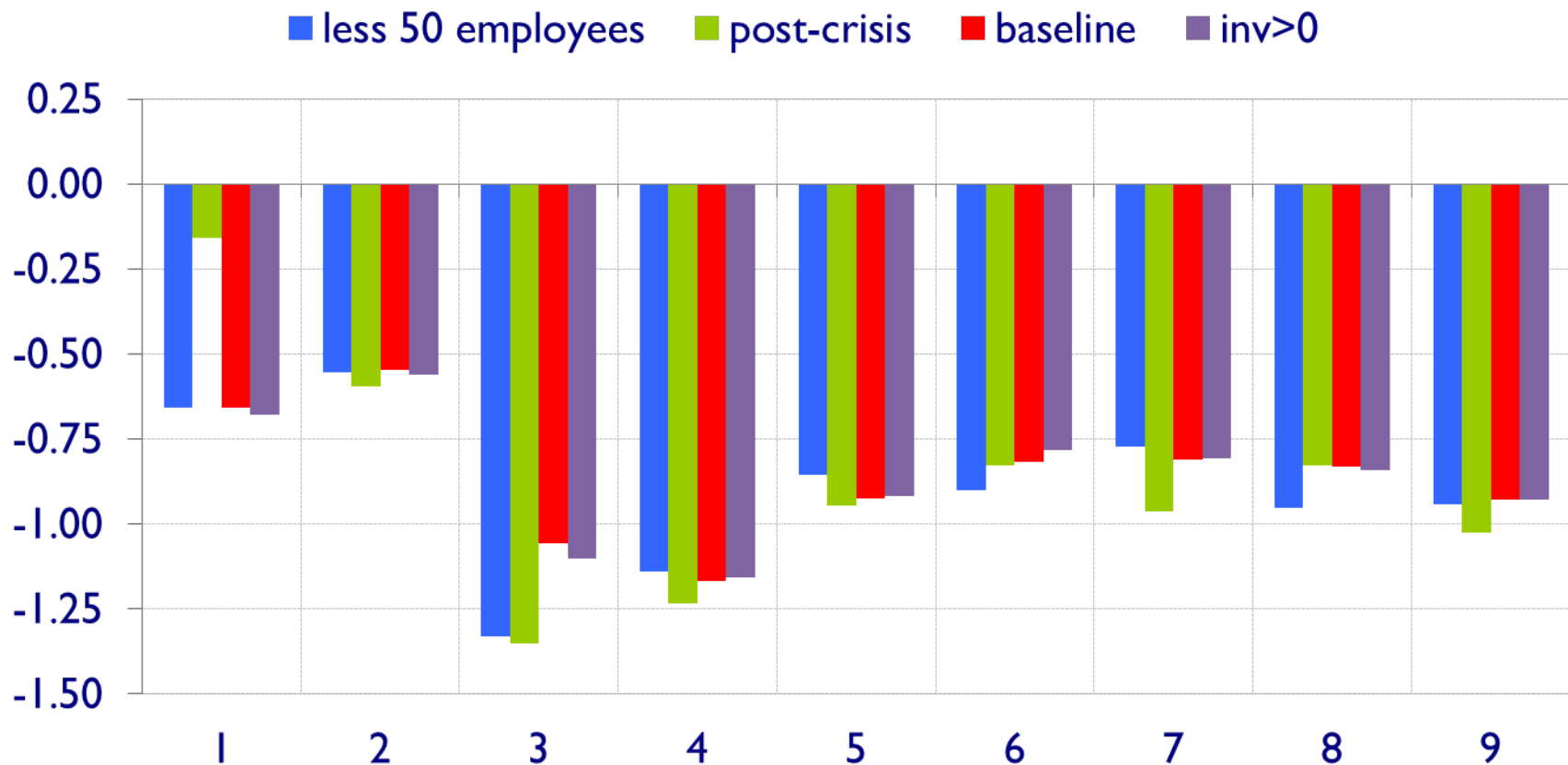
$$E(\mu_{i,t} + \varepsilon_{i,t} / k_{i,t}, FCI_{i,t}, l_{i,t}, k_{i,t-1}, FCI_{i,t-1}, l_{i,t-1}, m_{i,t-1}, \dots, k_{i,1}, FCI_{i,1}, l_{i,1}, m_{i,1}) = 0$$

➤ We estimate the model for the following sub-samples:

1. Micro and Small Size Firms;
2. Firms with Positive Investment Rate;
3. Financial Crisis (2008-2011)

➤ We estimate the model using the Narrow version of the Index of Financial Constraints

Robustness tests: marginal impacts



Sectors: 1 Accommodation and Food activities; 2 Construction and real estate; 3 Energy, gas and water supply; 4 Information and Communication and R&D; 5 Manufacturing; 6 Other business Activities; 7 Retail trade; 8 Transport and Storage and 9 Wholesale Trade.

Conclusions

New evidence on the link between financial constraints and productivity.

We followed a twofold empirical strategy:

- 1. we developed an indicator of financial constraints at firm level**
- 2. we included this indicator to a firm-level production equation**

Our results show that financial constraints do significantly lower productivity in the majority of sectors across countries.

Further analysis: robustness check on broad/narrow indicators; indirect approach to test financial constraints

Thank you

Robustness tests:

Intermediate Input and Labour Input chosen at the same time

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communication and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	-0.445** (0.212)	-0.788*** (0.105)	-1.448*** (0.265)	-1.050*** (0.197)	-0.886*** (0.0636)	-0.408*** (0.143)	-1.032*** (0.264)	-0.811*** (0.124)	-0.867*** (0.0709)
Germany	-0.543 (0.419)	-0.374** (0.146)	-1.300*** (0.281)	-1.651*** (0.293)	-0.990*** (0.0728)	-0.886*** (0.124)	-0.596*** (0.221)	-0.569** (0.252)	-1.150*** (0.116)
Spain	-0.662*** (0.0284)	-0.523*** (0.0253)	-1.347*** (0.145)	-1.208*** (0.0662)	-0.969*** (0.0151)	-1.091*** (0.0356)	-0.835*** (0.0248)	-0.962*** (0.0367)	-0.807*** (0.0194)
Finland	-0.750*** (0.159)	-0.768*** (0.0762)	-0.687** (0.308)	-1.113*** (0.178)	-1.092*** (0.0515)	-0.994*** (0.136)	-0.998*** (0.0919)	-0.939*** (0.0988)	-1.058*** (0.0834)
France	-0.717*** (0.0374)	-0.683*** (0.0265)	-1.001*** (0.152)	-1.336*** (0.0862)	-1.026*** (0.0190)	-0.870*** (0.0469)	-1.069*** (0.0324)	-0.685*** (0.0369)	-0.906*** (0.0222)
Italy	-0.895*** (0.0683)	-0.480*** (0.0391)	-1.311*** (0.115)	-1.184*** (0.0806)	-1.013*** (0.0154)	-0.952*** (0.0674)	-0.694*** (0.0482)	-0.859*** (0.0478)	-0.735*** (0.0243)
Netherlands	-1.426 (1.245)	-1.253*** (0.246)	-1.607** (0.762)	-1.131** (0.477)	-1.057*** (0.129)	-0.813*** (0.273)	-0.601 (0.401)	-0.772** (0.308)	-1.141*** (0.182)
Portugal	-0.640*** (0.0536)	0.117** (0.0539)	-1.759*** (0.439)	-1.135*** (0.174)	-0.748*** (0.0382)	-0.702*** (0.0784)	-0.862*** (0.0558)	-1.009*** (0.115)	-0.725*** (0.0514)

Robustness tests: Micro and Small size Firms (<50 employees)

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communication and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	-0.0680 (0.301)	-0.889*** (0.168)	-1.258*** (0.276)	-1.008*** (0.239)	-0.979*** (0.0934)	-0.321 (0.243)	-0.582** (0.271)	-0.847*** (0.184)	-0.978*** (0.0715)
Germany	n.a.	-0.300 (0.220)	-0.569 (0.407)	-1.916 (1.171)	-0.547*** (0.212)	-0.472 (0.591)	-0.607 (0.434)	-1.435* (0.864)	-1.105*** (0.202)
Spain	-0.601*** (0.0266)	-0.398*** (0.0211)	-1.230*** (0.158)	-1.029*** (0.0654)	-0.799*** (0.0156)	-0.907*** (0.0354)	-0.716*** (0.0247)	-0.850*** (0.0358)	-0.770*** (0.0175)
Finland	-0.575*** (0.142)	-0.766*** (0.0832)	-0.200 (0.281)	-1.242*** (0.214)	-1.018*** (0.0656)	-1.087*** (0.143)	-0.900*** (0.0939)	-0.979*** (0.0977)	-1.109*** (0.0825)
France	-0.647*** (0.0354)	-0.656*** (0.0258)	-1.087*** (0.144)	-1.272*** (0.100)	-0.969*** (0.0229)	-0.902*** (0.0509)	-1.051*** (0.0314)	-0.723*** (0.0400)	-1.012*** (0.0229)
Italy	-0.867*** (0.0664)	-0.445*** (0.0369)	-1.420*** (0.131)	-1.112*** (0.0802)	-0.969*** (0.0181)	-0.920*** (0.0734)	-0.630*** (0.0438)	-0.848*** (0.0556)	-0.768*** (0.0230)
Netherlands	n.a.	0.0137 (1.814)	n.a.	n.a.	-0.826 (1.942)	n.a.	n.a.	0.0610 (233.9)	-1.069** (0.456)
Portugal	-0.597*** (0.0602)	-0.167*** (0.0500)	-1.664*** (0.388)	-1.176*** (0.164)	-0.698*** (0.0386)	-0.688*** (0.0755)	-0.746*** (0.0540)	-0.995*** (0.118)	-0.716*** (0.0425)

Robustness tests:

Firms with Positive Investment Rate

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communicatio n and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	-0.252 (0.192)	-0.731*** (0.0990)	-1.254*** (0.231)	-0.842*** (0.187)	-0.858*** (0.0594)	-0.350** (0.141)	-1.014*** (0.245)	-0.834*** (0.131)	-0.931*** (0.0643)
Germany	-0.449 (0.351)	-0.190 (0.121)	-0.577** (0.256)	-1.242*** (0.268)	-0.841*** (0.0666)	-0.809*** (0.125)	-0.601*** (0.213)	-0.234 (0.226)	-1.012*** (0.109)
Spain	-0.601*** (0.0279)	-0.382*** (0.0239)	-1.241*** (0.127)	-1.154*** (0.0680)	-0.854*** (0.0146)	-0.890*** (0.0321)	-0.719*** (0.0267)	-0.836*** (0.0353)	-0.786*** (0.0175)
Finland	-0.625*** (0.174)	-0.741*** (0.0820)	-0.610** (0.241)	-0.946*** (0.177)	-0.995*** (0.0534)	-0.916*** (0.140)	-0.883*** (0.105)	-0.889*** (0.101)	-0.974*** (0.0803)
France	-0.619*** (0.0356)	-0.626*** (0.0263)	-1.021*** (0.143)	-1.294*** (0.0857)	-0.995*** (0.0193)	-0.878*** (0.0455)	-1.029*** (0.0336)	-0.651*** (0.0370)	-0.948*** (0.0219)
Italy	-0.854*** (0.0608)	-0.490*** (0.0345)	-1.324*** (0.108)	-1.135*** (0.0748)	-1.007*** (0.0141)	-0.931*** (0.0649)	-0.618*** (0.0434)	-0.803*** (0.0498)	-0.795*** (0.0224)
Netherlands	-0.865 (1.492)	-0.782*** (0.201)	-1.171 (0.823)	-1.435** (0.645)	-1.068*** (0.118)	-0.822*** (0.267)	-0.232 (0.338)	-0.619 (0.384)	-1.263*** (0.159)
Portugal	-0.693*** (0.0644)	-0.181*** (0.0575)	-1.675*** (0.413)	-1.220*** (0.168)	-0.733*** (0.0369)	-0.665*** (0.0788)	-0.792*** (0.0569)	-1.027*** (0.133)	-0.716*** (0.0441)

Robustness tests: Financial Crisis

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communication and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	1.928** (0.919)	-1.293*** (0.244)	-1.955*** (0.505)	-1.287** (0.519)	-0.939*** (0.140)	-0.614** (0.255)	-1.486*** (0.459)	-0.723** (0.312)	-1.035*** (0.141)
Germany	-1.139 (0.870)	-0.388* (0.208)	-0.551** (0.258)	-1.374*** (0.406)	-0.783*** (0.0955)	-0.924*** (0.147)	-0.709** (0.293)	-0.708** (0.323)	-1.051*** (0.161)
Spain	-0.619*** (0.0488)	-0.543*** (0.0441)	-1.244*** (0.220)	-1.037*** (0.112)	-1.004*** (0.0324)	-0.901*** (0.0610)	-0.905*** (0.0614)	-1.141*** (0.0779)	-0.953*** (0.0386)
Finland	-0.516 (0.330)	-0.846*** (0.175)	-0.625 (0.437)	-1.183*** (0.354)	-0.940*** (0.118)	-0.981*** (0.298)	-0.991*** (0.181)	-0.632*** (0.243)	-1.279*** (0.161)
France	-0.736*** (0.0749)	-0.441*** (0.0483)	-0.341 (0.241)	-1.401*** (0.182)	-1.002*** (0.0429)	-0.692*** (0.0901)	-1.060*** (0.0665)	-0.762*** (0.0769)	-1.134*** (0.0451)
Italy	-0.775*** (0.0833)	-0.489*** (0.0616)	-1.347*** (0.173)	-1.194*** (0.124)	-1.178*** (0.0293)	-0.992*** (0.0974)	-0.842*** (0.0788)	-0.879*** (0.0863)	-1.011*** (0.0451)
Netherlands	n.a.	-4.505 (5.657)	n.a.	n.a.	0.652 (3.130)	n.a.	n.a.	n.a.	-5.580 (3.426)
Portugal	-0.592*** (0.0795)	-0.167** (0.0665)	-1.660*** (0.465)	-1.159*** (0.215)	-0.769*** (0.0458)	-0.680*** (0.0934)	-0.759*** (0.0673)	-0.958*** (0.142)	-0.709*** (0.0559)

Robustness tests: Narrow Index of Financial Constraint

	Accommodation and Food Activities	Construction and Real Estate	Energy, Gas and Water Supply	Information, Communication and R&D	Manufacturing	Other Business Activities	Retail Trade	Transport and Storage	Wholesale Trade
Belgium	-0.0651 (0.0572)	-0.220*** (0.0304)	-0.413*** (0.0677)	-0.277*** (0.0533)	-0.265*** (0.0181)	-0.108** (0.0422)	-0.314*** (0.0709)	-0.254*** (0.0373)	-0.274*** (0.0187)
Germany	-0.161 (0.118)	-0.105*** (0.0367)	-0.204** (0.0826)	-0.392*** (0.0742)	-0.254*** (0.0197)	-0.261*** (0.0349)	-0.167** (0.0675)	-0.0848 (0.0690)	-0.323*** (0.0343)
Spain	-0.191*** (0.00795)	-0.141*** (0.00642)	-0.379*** (0.0378)	-0.347*** (0.0193)	-0.262*** (0.00427)	-0.273*** (0.00989)	-0.222*** (0.00739)	-0.278*** (0.0103)	-0.239*** (0.00543)
Finland	-0.183*** (0.0426)	-0.227*** (0.0225)	-0.155* (0.0832)	-0.320*** (0.0516)	-0.295*** (0.0162)	-0.334*** (0.0391)	-0.279*** (0.0301)	-0.288*** (0.0346)	-0.308*** (0.0232)
France	-0.204*** (0.00994)	-0.183*** (0.00709)	-0.279*** (0.0426)	-0.368*** (0.0259)	-0.295*** (0.00559)	-0.265*** (0.0145)	-0.311*** (0.00902)	-0.192*** (0.0102)	-0.281*** (0.00612)
Italy	-0.263*** (0.0178)	-0.157*** (0.0101)	-0.390*** (0.0322)	-0.357*** (0.0220)	-0.305*** (0.00432)	-0.289*** (0.0187)	-0.202*** (0.0124)	-0.253*** (0.0143)	-0.247*** (0.00668)
Netherlands	-0.143 (0.593)	-0.271*** (0.0617)	-0.369 (0.255)	-0.341** (0.161)	-0.322*** (0.0334)	-0.254*** (0.0697)	-0.132 (0.104)	-0.210** (0.0928)	-0.353*** (0.0512)
Portugal	-0.198*** (0.0179)	-0.0635*** (0.0152)	-0.414*** (0.115)	-0.370*** (0.0476)	-0.225*** (0.0105)	-0.219*** (0.0206)	-0.233*** (0.0154)	-0.313*** (0.0352)	-0.210*** (0.0127)