



EUROPEAN COMMISSION
European Research Area



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The Bruegel-Unicredit EFIGE dataset

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What is EFIGE?



EFIGE stands for « European Firms In a Global Economy: Internal policies for external competitiveness ».

It is a FP7-sponsored research project started at the end of 2008, for a duration of 4 years

EFIGE Budget: € 3 mln of which

- €1.6 for survey activities leading to the collection of new data
- € 0.48 from UniCredit

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Participating Institutions



Partner	Country	Associate partner
Bruegel	Belgium	Bank of Belgium
Carlos III	Spain	Bank of Spain
CEPII	France	Bank of France
IAW	Germany	BundesBank
Ld'Agliano (UniMI)	Italy	Bank of Italy
CEPR	UK	
IEHAS	Hungary	
Unicredit	Italy	
		OECD

Motivation - 1



- ‘Countries’ do not produce, do not trade, do not compete; neither do ‘sectors’. It is firms *within* countries or sectors that produce, trade and compete.
- This obvious statement makes it clear that understanding the firm-level facts is essential to good policy making.
- Firm-level analysis should complement the policy making toolbox in Europe.
- However, currently we do not have harmonized and comprehensive statistical information on European firms that:
 - Provide complete information on their international operations
 - Combine these information with balance sheet data and info on other characteristics (innovation, employment structure, financing etc.)
- These data exist for US or China.

Motivation - 2

- Why is harmonized statistical information at the firm-level important?
- Because it reveals facts on external competitiveness that are simply unobservable at the aggregate level but determine aggregate economic performance:
 - *Aggregate exports are driven by few top exporters.* The top 1%, 5% and 10% exporters account for no less than 40%, 70% and 80% of aggregate exports.
 - *Few firms export a large fraction of their turnover.* Around 5% and 25% of firms export more than 90% and 50% of their turnover and account for roughly 10% and 70% of total exports.
 - *There is a clear and surprising similar ranking across countries in the international exposure of firms, with the most productive ones undertaking FDI, then outsourcing, than import/export*
- Currently we are unable to compare this information systematically across EU countries based on national statistics only

Motivation - 3



- Firm-level data exploring the different characteristics of firms across the EU are also important for internal competitiveness' analysis
- Contrary to standard beliefs there is no "average firm": within narrowly defined (4-digit SIC) US manufacturing industries, firms in the 90th percentile of TFP are on average 1.92 times more productive than the 10th percentile (i.e. these firms make twice as much output with the same inputs in the same product category, Syverson, 2004).
- These within-industry differences are way larger than the difference in average TFP measured across industries. Such a high level of within-industry heterogeneity is persistent no matter which specific measure of firm-level performance (employment, turnover, value added per worker, wage, etc.) is chosen.
- The latter, if neglected or not appropriately measured, can induce relatively inefficient policy prescriptions based on 'average' industry-based performance measures.

Policy issues explored



- What are the features of European firms that successfully compete in international markets?
- How are these features distributed within individual European countries?
- What policies can further foster their performance?
- What policies can promote the participation of other European firms that are currently excluded from international markets?
- How can European firms best cope with the adjustment required by globalization?
- What policies can smooth that adjustments?

These and other answers are provided in 7 Country Reports, 4 Policy Reports, 1 Cross-Country Report, more than 60 Working Papers, all available on the EFIGE website (www.efige.org)

The EFIGE dataset



- The project has generated new data through a cross-country survey, gathering both qualitative and quantitative information at the firm level.
- A detailed questionnaire containing more than 150 variables for a total of more than 450 different items related to the operations of international firms has been run via CATI (Computer Assisted Telephone Interview) and CAWI (Computer Assisted Web Interview), obtaining a representative sample of some 15,000 manufacturing firms in seven EU countries
- All in all the **Bruegel-Unicredit EFIGE dataset** contains more than 7,200,000 data points containing information on firms' activities in the EU: these data are now freely available
- Information has been collected in early 2010 thus covering the period from 2007 to 2009. Specific questions allow for an understanding of the behavior of firms during the crisis

The data collected

15,272 interviews completed in total.

	AT		DE		FR		HU		IT		SP		UK		TOTAL ACHIEVED
	Fixed	Achieved	Fixed	Achieved	Fixed	Achieved	Fixed	Achieved	Fixed	Achieved	Fixed	Achieved	Fixed	Achieved	
10-49	356	352	2038	1910	2250	2236	370	367	2524	2515	2520	2520	1554	1625	11,525
50-249	110	103	749	763	540	560	90	90	331	368	330	334	420	483	2,701
250 + (boosted)	34	45	213	334	210	205	40	43	145	146	150	151	126	122	1,046
<i>Repr. quotas</i>	<i>20</i>		<i>180</i>		<i>150</i>		<i>25</i>		<i>60</i>		<i>90</i>		<i>120</i>		<i>645</i>
TOTAL	500	500	3000	3007	3000	3001	500	500	3000	3029	3000	3005	2100	2230	15,272

* Quotas on firms' size have been set accordingly to the manufacturing companies (10+ employees) distribution in each Country (on the basis of the national official statistical sources) with a boost for Companies with 250+ employees .

Sample questions

A8 - belonging to a group	D17 - reduction/increase of export activities in 2009
A21 - provenance of CEO	D23c - percentage of 2008 annual turnover represent by the total purchased services (from anywhere)
A23 - who takes strategic decisions	D26 - percentage of the total purchased services (from anywhere) represented by the services purchased from abroad
B5 - percentage/number of employees involved in R&D activities	D30d- percentage of 2008 annual turnover represented by the total purchased intermediate goods (from anywhere)
B6 - percentage/number of university graduates employees	D32 - percentage of the total purchased intermediate goods (from anywhere) represented by the intermediate goods purchased FROM ABROAD
B7 - percentage/number of foreign employees	D38 - percentage of 2008 turnover represented by the production activities through direct investment
B21- reduction/increase of workforce	D48 - main destinations of the production activity
C5 - percentage of the turnover represented by the investments in 2007-2009	D49 - percentage of 2008 turnover represented by production activities through contracts/agreements
C14 - product/process innovation	D56 - main destinations of the production activity
C21 - percentage of turnover represented by R&D investments in 2007-2009	F1 - overall distribution of the firm's debt structure
D4 - percentage of 2008 annual turnover represented by the export activities	F6 - kind of financial instruments used to satisfy the firm's external financing needs
D7 - top 3 destinations of export activities	F10 - percentage of the firm's total bank debit held at main bank
D11- percentage of the total export per countries (3 info.)	E1 - percentage of the firm's turnover made up by sales of produced-to-order goods
D11a - as D1 for the main country outside UE	Eb - quality of firm's main product

Validation of EFIGE sample



Correlations between AMADEUS and Eurostat variables

Number of Employees	0.61***
Revenues/Production value	0.52***
Cost of Employees/Wages	0.71***
Labour Productivity	0.84***

Note: Observations are country-year-specific averages (weighted in AMADEUS sample). Eurostat data are derived from Structural Business Statistics, Manufacturing, over 10 employees

Correlations for countries with particularly good quality in balance sheet data as reported from AMADEUS (France, Italy, Spain) are always above 90 per cent. In Germany, Austria, Hungary and UK the EFIGE sample of firms linked with AMADEUS has a number of missing observations in balance sheet data

Validation of EFIGE sample



Labour productivity growth. Comparison between EFIGE (merged with Amadeus) and OECD- STAN

Country	Year	STAN not deflated	Amadeus-Efige not deflated	STAN manufacturing deflator	Amadeus-Efige, manufacturing deflator	Amadeus-Efige, 2-digit deflator
France	$\Delta(2008-2001)$	9.80	10.24	12.63	12.62	14.14
Spain	$\Delta(2008-2001)$	9.57	9.66	1.55	1.13	-0.11
Italy	$\Delta(2008-2001)$	6.38	7.95	-2.00	-0.51	-1.51

Note: France and Spain do not have information on employees for 2008 in the OECD-STAN database: the aggregate values refer to 2007.

Extensive margin of export (% of exporting firms)

Country	Firm size class					
	Between 10 and 49		Between 50 and 249		More than 249	
	EFIGE	National source	EFIGE	National source	EFIGE	National source
France *	59.9	66.7	75.0	83.9	87.9	93.5
Germany *	59.4	60.6	77.8	78.6	80.0	90.6
Hungary	61.7	61.6	79.3	85.1	97.4	96.0
Italy	69.9	65.4	86.6	86.5	92.6	96.7
Spain	57.9	45.2	76.2	80.8	88.0	92.2
UK	59.6	39.5	77.1	66.2	81.1	77.6

Use of EFIGE data - 1



Some research questions can be pursued uniquely with EFIGE

1. Compare international activities of firms both across EU countries and across international modalities (export, import, outsourcing, foreign investment) and link these activities with different measures of firm performance (via balance sheet data)
2. Further explore the drivers of firms' performance thanks to the information available on other firm characteristics typically unobservable from balance sheet data:
 - organization (proprietary network and internal hierarchies)
 - structure and skills of the workforce
 - innovation and R&D activities
 - financial structure and financial decisions
 - strategic choices (e.g. quality or reaction to exchange rate shocks)

Use of EFIGE data - 2



International institutions have started to 'use' EFIGE

1. The ECB has started since March 2012 a research network on competitiveness (CompNet) in which one research pillar is aimed at establishing firm-level based indicators of competitiveness, following up on EFIGE
2. The United Nations Conference on Trade and Development (UNCTAD) is planning to use evidence from EFIGE in their analysis of international investment in the forthcoming World Investment Report 2013
3. Various Directorate General of the EC are actively exploring the use of firm-level data as pioneered (among others) from EFIGE
4. A new research project (MAPCOMPETE) is currently under negotiation with DG Research to further explore competitiveness indicators based on the existing (and now available) firm-level data

Use of EFIGE data - 3



Ideally our competitiveness-related policies should use EFIGE-type data and analysis in order to move from 'shift' to 'shape'

- Traditional policies on competitiveness attempt to 'shift' the performance distribution in a given industry or country, by trying to improve the performance of the 'average' firm within a (supposed) normal distribution...
- In reality, given the high degree of firm heterogeneity, it is simpler to act within the existing (Pareto) distribution, setting up policies that foster the reallocation of activities from less to relatively more productive firms, already present in the tail of the distribution
- One thus needs to complement (and possibly de-emphasize) the analysis based on aggregate indicators by systematically using the evidence coming from the firm level to improve the efficiency of our policy-making