Internationalization of Service SMEs: Evidence from France

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Outline

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Motivation I

- ▶ SMEs constitute the overwhelming majority of firms all around the world (OECD 2009)

- ▶ During the last decades economic activity has shifted away from agriculture and manufacturing and, nowadays, is mostly conducted in service industries (Pilat, Cimper, Olsen and Webb 2006)

- ▶ Production processes are organized more internationally today implying that firms compete on world markets rather than focusing on their domestic markets only (Helpman 2006)

- ▶ With very few exceptions, the available literature on the trade behaviour of SMEs is firmly rooted in the evidence from manufacturing. As a result, little information is available to policy-makers on the trade patterns and channels of services SMEs

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Motivation II

- ▶ In OECD countries, the scarce available evidence suggests that only three to 20 percent of services SMEs engage in international activities.

- ▶ Recent discussions under GATS and other fora have also stimulated reflections on whether small services firms trade differently than large multinationals in the same services market (see, e.g., Persin 2011)

For economies which are characterized by a large proportion of service SMEs, the international competitiveness of these firms is crucial for the overall economic prosperity

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This paper . . .

- ▶ Analyzes potential export restrictions by utilizing firm level data for service industries in France

- ▶ Estimates two-part models for **extensive** and **intensive margin** export decisions and controls for unobservable heterogeneity across firms.

- ▶ Puts a specific focus on service SMEs

- ▶ Investigates the persistence of export decisions

- ▶ Analyzes potential heterogeneity across different types of services.

- ▶ Estimates 'export-starting' and 'export-stopping' probabilities

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Main theoretical hypotheses

1. SMEs might be less likely to export to foreign markets
   - Exporting induces additional fixed-costs as well as variable trade costs (e.g., Melitz 2003)
   - Financial constraints for small firms (e.g., Cabral and Mata 2003)
   - Risk of failure is large for small firms (e.g., Caves 1998)

2. More productive firms are more likely to serve foreign markets
   - **More productive firms are able to bear additional fixed and variable costs (e.g., Melitz 2003)**

3. $\implies$ **A firm's exporter status is relatively persistent**

4. Risk of engaging in foreign markets can be reduced by incorporation
   - Incorporation might lead to financial advantages (Sloan and Chittenden 2006)
   - Business owners are willing to accept higher risks if their firms are incorporated (e.g., Storey 1994)

5. Service trade costs reduce the probability to export

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A TWO-PART MODEL FOR EXPORTING IN SERVICES

▶ Estimating export probabilities ('extensive margin'):

$$Pr(\text{ex}_{it} = 1|\text{ex}_{i,t-1}, \mathbf{x}_{it}, \alpha_i) = \Phi(\rho\text{ex}_{i,t-1} + \mathbf{x}_{it}\gamma + \alpha_i),$$

▶ Estimating export shares('intensive margin'):

$$E(\text{ex-sh}_{it}|\text{ex-sh}_{i,t-1}, \mathbf{x}_{it}, \eta_i, \text{ex}_{it} = 1) = G(\lambda\text{ex-sh}_{i,t-1} + \mathbf{x}_{it}\beta + \eta_i),$$

$$\text{where} \quad G(z) \equiv \Lambda(z) = \frac{\exp(z)}{\exp(1+z)}.$$

▶ The **first specification** assumes that
   ▶ $\rho = \lambda = 0$,
   ▶ $\alpha_i|\mathbf{x}_{it} \sim N(0, \sigma_a^2)$ (random effects assumption)
   ▶ $\eta_i|\mathbf{x}_{it} \sim N(0, \sigma_e^2)$ (random effects assumption)

▶ The **second specification**
   ▶ estimates ρ and accounts for the initial conditions problem
   ▶ assumes $\alpha_i|\text{ex}_{i,0}, \mathbf{x}_{it} \sim N(\gamma_0 + \gamma_1\text{ex}_{i,0} + \bar{\mathbf{x}}_i\zeta, \sigma_a^2)$
   ▶ $\eta_i|\text{ex}_{i,0}, \mathbf{x}_{it} \sim N(\beta_0 + \beta_1\text{ex-sh}_{i,0} + \bar{\mathbf{x}}_i\xi, \sigma_e^2)$

   (see, Mundlak 1978 and Chamberlain 1980, Wooldridge 2005)

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Data

- *Data source:* AMADEUS database (update. 170, Nov. 2008)

- Export information is most comprehensively collected for France

- Included service industries:
    - Accommodation and food service industries
    - **Construction**
    - **Information and communication industries (ICT)**
    - **Financial service activities**
    - **Legal and accounting activities**
    - Activities of head offices and management consultancy activities
    - **Architectural and engineering activities**
    - Administrative and support service activities
    - Other service activities

- Definition of firm size classes (Eurostat 2008):
    - **Micro firms:** < 10 employees
    - **Small firms:** $10 \leq$ employees < 50
    - **Medium firms:** $50 \leq$ employees < 250
    - **Large firms:** $250 \leq$ employees

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Empirical specification of $\mathbf{x}_{it}$

- Firm size (employment)

- Total factor productivity (Levinsohn and Petrin 2003)

- Net investment per employee

- No. of subsidiaries

- Domestic and foreign corporate group dummies

- Legal form

- Regional dummies

- 2-digit industry and year fixed effects

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DESCRIPTIVE STATISTICS

Variable	Firms[a]	Mean	Std.Dev.	Min.	Max.
Exporter status	159,776	0.151	0.358	0	1
Export shares	159,776	0.025	0.112	0	1
No. of employees	159,776	28.556	152.175	1	9,603
Log(TFP)	159,776	3.880	0.515	2.385	5.584
Net investment p.e. (in thousands)	159,776	1.512	13.815	-61	169
No. of subsidiaries	159,776	0.292	1.389	0	50
Foreign corporate group	159,776	0.009	0.093	0	1
Domestic corporate group	159,776	0.501	0.500	0	1
Legal forms					
Société à responsabilité limitée (SARL)	159,776	0.615	0.487	0	1
Entre. unip. à responsabilité limitée (EURL)	159,776	0.059	0.235	0	1
Société anonyme simplifiée (SAS)	159,776	0.195	0.396	0	1
Société anonyme (SA)	159,776	0.116	0.320	0	1
Société en nom collectif (SNC)	159,776	0.007	0.081	0	1
Regional dummies					
Paris region	159,776	0.091	0.288	0	1
Belgian border	159,776	0.062	0.242	0	1
German border	159,776	0.045	0.208	0	1
Swiss border	159,776	0.049	0.216	0	1
Italian border	159,776	0.040	0.196	0	1
Spanish border	159,776	0.044	0.205	0	1
Mediterranean Sea	159,776	0.099	0.299	0	1
Atlantic Ocean	159,776	0.215	0.411	0	1

Notes: [a] The 159,776 firms in the sample are typically observed repeatedly, leaving us with 498,298 observations for the empirical exercise below.

Estimation results: No dynamics

Variable	Ex-all		Ex-10		Ex-25	
	First part	Second part	First part	Second part	First part	Second part
Log (no. of employees)	0.025^{***}	-0.021^{***}	0.001^{***}	-0.019^{***}	0.000^{***}	-0.018^{***}
Log(TFP)	0.029^{***}	0.039^{***}	0.003^{***}	0.056^{***}	0.001^{***}	0.056^{***}
Net investment p.e.	-0.000	0.000	0.000^{*}	0.000^{*}	0.000	0.000
No. of subsidiaries	-0.001^{*}	0.002^{***}	0.000^{*}	0.000	0.000	0.001
Foreign corporate group	0.030^{***}	0.026^{***}	0.005^{***}	0.045^{***}	0.002^{***}	0.045^{***}
Domestic corporate group	0.029^{***}	-0.002	0.003^{***}	-0.003	0.001^{***}	0.003
Legal forms						
SARL	-0.002	0.017^{**}	-0.001	0.037^{***}	0.000	0.025
EURL	-0.018^{***}	0.026^{***}	-0.002^{***}	0.060^{***}	0.000	0.030
SAS	0.023^{***}	0.023^{***}	0.002^{*}	0.026^{*}	0.001^{**}	0.013
SA	0.028^{***}	0.030^{***}	0.003^{**}	0.035^{**}	0.002^{***}	0.014
SNC	-0.007	0.002	-0.002	-0.012	0.000	-0.035
Reginal dummies						
Paris region	0.046^{***}	0.028^{***}	0.009^{***}	0.015^{***}	0.003^{***}	0.018^{***}
Belgian border	0.058^{***}	-0.015^{***}	0.004^{***}	-0.029^{***}	0.001^{***}	-0.012^{*}
German border	0.066^{***}	0.016^{***}	0.009^{***}	-0.023^{***}	0.003^{***}	-0.044^{***}
Swiss border	0.044^{***}	0.000	0.004^{***}	-0.005	0.001^{***}	0.008
Italian border	0.012^{***}	-0.008	0.001	-0.028^{***}	0.003^{*}	-0.051^{***}
Spanish border	0.011^{***}	-0.012^{***}	0.000	-0.026^{***}	0.000	-0.025^{***}
Mediterranean Sea	0.019^{***}	0.032^{***}	0.004^{***}	0.034^{***}	0.001^{***}	0.031^{***}
Atlantic Ocean	-0.010^{***}	0.016^{***}	0.000	0.007	0.000	-0.003
Fixed effects						
2-digit industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	498,298	75,167	498,298	27,097	498,298	16,063

Notes: Average marginal effects reported (see, Bartus 2005). *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

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Estimation results: With dynamics

Variable	Ex-all		Ex-10		Ex-25	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.427^{***}	0.391^{***}	0.488^{***}	0.566^{***}	0.503^{***}	0.463^{***}
Log (no. of employees)	0.018^{***}	-0.005	0.003	-0.004	0.001	0.007
Log(TFP)	0.014^{***}	0.003	0.004^{**}	0.017^{*}	0.001	0.015
Net investment p.e.	0.000	0.000^{*}	0.000	0.000	0.000	0.000
No. of subsidiaries	-0.001^{***}	0.001^{***}	0.000	0.001	0.000	0.000
Foreign corporate group	0.007	0.009^{*}	-0.001	0.014	-0.001	0.020
Domestic corporate group	0.012^{***}	-0.002	0.003^{***}	0.001	0.001	0.012^{*}
Legal forms						
SARL	0.005	0.002	0.007^{*}	0.023	0.006	0.024
EURL	-0.002	0.005	0.006	0.019	0.008	-0.011
SAS	0.014^{***}	0.003	0.010^{**}	0.001	0.007	-0.013
SA	0.014^{***}	0.003	0.011^{**}	0.014	0.008	0.003
SNC	0.010	-0.003	0.015^{*}	-0.008	0.010	0.007
Reginal dummies						
Paris region	0.010^{***}	0.004	0.004^{**}	-0.003	0.004^{**}	0.006
Belgian border	0.024^{***}	-0.012^{***}	0.004^{**}	-0.024^{***}	0.000	-0.013
German border	0.019^{***}	-0.002	0.004^{**}	-0.037^{***}	0.001	-0.065^{***}
Swiss border	0.016^{***}	-0.003	0.004^{*}	-0.003	0.005^{**}	0.011
Italian border	0.007^{**}	-0.005	0.000	-0.034^{***}	-0.002	-0.060^{***}
Spanish border	0.003	-0.002	-0.001	-0.005	0.001	0.002
Mediterranean Sea	0.005^{***}	0.000	0.000	-0.002	0.002	-0.001
Atlantic Ocean	-0.002^{*}	0.001	-0.001	-0.002	0.001	-0.017^{**}
Fixed effects						
2-digit industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	276,039	31,551	118,268	7,331	76,202	2,723

Notes: Notes: Average marginal effects reported (see, Bartus 2005). *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

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Estimation results: Selected service sectors

Variable	Financial industries		ICT firms		Professional services	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.572^{***}	0.419^{***}	0.538^{***}	0.308^{***}	0.539^{***}	0.394^{***}
Log (no. of employees)	0.036^{***}	0.010	0.033^{***}	-0.009	0.025^{***}	-0.006
Log(TFP)	0.008	-0.023	0.033^{***}	0.001	0.033^{***}	0.003
Net investment p.e.	-0.000^{***}	0.000	0.000	0.000	0.000	0.000
No. of subsidiaries	-0.002^{*}	0.002	-0.005^{**}	-0.002^{**}	-0.004^{***}	-0.001
Foreign corporate group	0.040	0.011	0.004	-0.006	0.060^{***}	0.013
Domestic corporate group	0.022^{***}	0.005	0.012^{*}	-0.002	0.029^{***}	0.003
Legal forms						
SARL	-0.000	0.029	-0.003	-0.006	0.036^{*}	0.007
EURL	0.007	0.017	0.002	0.018	0.014	0.019
SAS	-0.002	0.030	0.021	0.003	0.053^{**}	0.002
SA	-0.008	0.023	0.028	-0.001	0.053^{**}	0.015
SNC	-0.067^{**}	-0.277^{***}	0.022	-0.020	-0.015	0.003
Reginal dummies						
Paris region	0.017^{*}	-0.015	0.008	0.010^{***}	0.036^{***}	0.006
Belgian border	0.001	-0.003	0.062^{***}	0.005	0.018^{**}	-0.016^{**}
German border	0.010	-0.023^{*}	0.030	-0.001	0.032^{***}	-0.000
Swiss border	0.002	-0.029^{**}	0.031	0.013	-0.001	-0.022^{***}
Italian border	0.018	-0.009	0.038	-0.007	0.023^{**}	0.000
Spanish border	-0.017	-0.013	-0.010	-0.001	0.009	0.004
Mediterranean	0.014	-0.003	0.001	0.015^{**}	-0.004	-0.008
Atlantic Ocean	-0.003	0.004	-0.024^{***}	-0.013^{**}	-0.009^{*}	0.003
Fixed effects						
2-digit industry	No	No	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,871	821	13,008	5,435	35,327	5,529

Notes: Notes: Average marginal effects reported (see, Bartus 2005). *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

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Predictions from the two-part model

	Financial industries		ICT firms		Professional services	
	Ex. prob.	Ex. share	Ex. prob.	Ex. share	Ex. prob.	Ex. share
Micro	6.53	17.32	38.48	8.94	14.73	14.95
Small	22.32	13.91	50.44	8.52	27.96	15.73
Medium	50.38	12.60	61.24	9.34	52.36	12.60
Large	54.50	19.96	62.87	8.74	63.86	12.13
Total	12.62	15.20	49.04	8.82	23.69	14.76

ESTIMATION RESULTS: ICT SUB-SECTORS

Variable	Publishing		Computer programming		Information services	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.379^{***}	0.369^{***}	0.339^{***}	0.398^{***}	0.351	0.497^{***}
Log (no. of employees)	0.093^{***}	-0.001	0.028^{*}	-0.015	0.018	-0.033
Log(TFP)	0.037^{**}	0.009	0.045^{**}	0.025	0.079^{**}	-0.028
Net investment p.e.	-0.000	-0.000	0.000	0.000	0.000	0.000
No. of subsidiaries	-0.007^{***}	-0.003^{**}	0.002	-0.001	0.007	-0.012^{***}
Foreign corporate group	-0.008	0.011	0.078^{**}	-0.010	-0.047	-0.080^{**}
Domestic corporate group	0.009	-0.003	0.011	-0.002	0.023	-0.022
Legal forms						
SARL	-0.014	0.001	0.039	-0.054^{***}	-0.010	-0.025
EURL	-0.037	0.040^{*}	0.028	-0.064	0.024	0.049
SAS	-0.004	0.010	0.070	-0.052^{***}	-0.003	0.011
SA	-0.007	0.003	0.108^{**}	-0.045^{***}	-0.068^{*}	-0.024
SNC	-0.043	-0.005	0.762	-0.030	-0.092	-0.019
Reginal dummies						
Paris region	0.035^{***}	0.001	0.006	-0.012	-0.011	0.017
Belgian border	0.163^{***}	-0.038^{*}	0.052^{**}	0.003	0.052	0.068^{***}
German border	0.035	0.014	0.048^{**}	-0.022	0.050	-0.124^{***}
Swiss border	0.034	-0.029^{**}	0.056^{*}	0.040^{*}	-0.229	-
Italian border	0.040	0.008	0.077^{*}	-0.005	-0.005	-0.016
Spanish border	-0.012	-0.004	0.007	0.014	-0.064^{*}	0.005
Mediterranean	0.016	0.005	0.016	0.017	0.025	0.038
Atlantic Ocean	-0.035^{***}	0.014	-0.004	-0.010	0.064^{**}	-0.040^{**}
Fixed effects						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,224	1,297	2,455	1,132	603	205

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%. 5% and 1% levels, respectively.

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Design
In the spirit of Engel, Procher and Schmidt (2013)

Question

Which firm- and industry-specific characteristics are able to explain which firms start to export or stop doing so?

- ► Construct 2 **different** samples that contain
  - ► never exports and 'export starters'
  - ► 'all-time exporters' and 'export stoppers'

- ► Create Cross-Sections (Difficulty to predict timing of entry and exit)

- ► Apply simple Probit models in order to estimate export-starting and export-stopping probabilities

- ► Focus on 4 industries: Professional services, ICT, transport and construction

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Estimation results: Export starters

Variable	Full sample	Prof. services	ICT firms	Transport	Construction
Mirco firms	-0.128^{***}	-0.228^{***}	-0.056	-0.082^{***}	-0.173^{***}
Small firms	-0.061^{***}	-0.126^{***}	0.006	-0.009	-0.093^{***}
Medium firms	-0.011	-0.028	0.052	0.039	-0.043^{***}
Log(TFP)	0.022^{***}	0.027^{***}	0.042^{***}	0.018^{**}	0.017^{***}
Net investment p.e.	0.000	0.000	0.000	0.000	0.000
No. of subsidiaries	-0.000	-0.009^{***}	0.002	0.007^{**}	0.001
Foreign group	0.079^{***}	0.178^{***}	0.135^{**}	0.015	0.121^{**}
Domestic group	0.046^{***}	0.087^{***}	0.068^{***}	0.060^{***}	0.021^{***}
Legal forms					
SARL	-0.025^{**}	-0.020	-0.033	-0.045	-0.019^{*}
EURL	-0.046^{***}	-0.054^{**}	-0.003	-0.077^{***}	-0.030^{***}
SAS	0.037^{***}	0.051	0.046	0.036	0.026^{*}
SA	0.054^{***}	0.094^{**}	0.101^{*}	0.014	0.044^{**}
SNC	0.025	-0.012	0.007	-0.062	0.049^{*}
Reginal dummies					
Paris region	0.039^{***}	0.084^{***}	0.027^{*}	-0.093^{***}	0.022^{***}
Belgian border	0.065^{***}	0.039^{***}	0.047	0.084^{***}	0.057^{***}
German border	0.072^{***}	0.064^{***}	0.066^{*}	0.074^{***}	0.060^{***}
Swiss border	0.033^{***}	-0.010	0.047	0.053^{***}	0.032^{***}
Italian border	0.009	0.046^{**}	-0.030	-0.003	0.004
Spanish border	0.021^{***}	0.035^{**}	0.026	0.016	0.014^{**}
Mediterranean	0.014^{***}	-0.016	0.039^{*}	0.029^{**}	0.017^{***}
Atlantic Ocean	-0.016^{***}	-0.036^{***}	-0.036^{**}	-0.003	-0.009^{***}
Fixed effects					
Industry	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.141	0.084	0.055	0.082	0.091
Observations	84,561	18,590	5,428	11,023	49,520

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

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ESTIMATION RESULTS: EXPORT STOPPERS

Variable	Full sample	Prof. services	ICT firms	Transport	Construction
Mirco firms	-0.089^{***}	-0.096^{*}	0.021	-0.058	-0.188^{***}
Small firms	-0.041	-0.078	0.063	-0.070^{*}	-0.086
Medium firms	0.001	-0.039	0.101^{*}	-0.013	-0.052
Log(TFP)	-0.106^{***}	-0.102^{***}	-0.074^{***}	-0.158^{***}	-0.070^{***}
Net investment p.e.	0.000	0.000	-0.000	0.000	0.001
No. of subsidiaries	-0.002	-0.004	0.009	0.008	-0.009^{*}
Foreign group	0.012	0.035	0.036	0.116^{**}	-0.048
Domestic group	0.013^{*}	0.020	0.048^{***}	0.005	0.038^{***}
Legal forms					
SARL	-0.045	-0.020	-0.042	-0.066	-0.089
EURL	-0.072^{**}	0.015	-0.062	-0.097^{*}	-0.141^{*}
SAS	0.018	0.026	0.019	-0.023	0.027
SA	0.029	0.049	0.015	-0.030	0.048
SNC	0.037	0.186^{*}	-0.150	0.061	-0.012
Reginal dummies					
Paris region	-0.039^{***}	-0.019	-0.021	-0.039	-0.029
Belgian border	-0.029^{**}	-0.027	-0.085^{**}	-0.054^{***}	0.010
German border	-0.027^{*}	-0.013	-0.014	-0.083^{***}	-0.002
Swiss border	-0.043^{***}	-0.071^{**}	-0.001	-0.088^{***}	-0.010
Italian border	-0.019	0.017	-0.156^{***}	-0.057^{*}	0.045
Spanish border	0.027	0.065^{*}	-0.013	0.005	0.040
Mediterranean	0.015	0.003	0.043	0.008	0.028
Atlantic Ocean	-0.015	0.034^{*}	0.062^{**}	-0.023	-0.066^{***}
Fixed effects					
Industry	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.024	0.019	0.022	0.020	0.029
Observations	22,279	6,220	3,675	6,426	5,958

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

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Conclusions I

- ▶ The probability of engaging in any export activities is an increasing function of firm size

- ▶ There is some evidence for the self-selection hypothesis of the new-new trade theory

- ▶ Export decisions in French service firms seem to be extremely persistent

- ▶ More productive and/or incorporated firms export larger shares of their services to foreign markets

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Conclusions II

- ▶ Conditional on being an exporting firm, an increase in firm size decreases a firm's fraction of export

- ▶ The impact of firm size and productivity on a firm's export activities substantially varies across different types of services.

- ▶ Firm size is a crucial restriction for starting to export to foreign markets but does not affect the probability to exit from foreign markets.

Policy conclusion

Export promotion policies should be directed towards (small) firms which face difficulties in establishing their first export relationships and have to be tailored for each individual service industry to account for structural differences

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