How the Attributes of Professional Services Set Their Own Barriers to Trade

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Motivation :

In 2007, Only 10 % of world trade in world BoPs attributed to 'Business services' and ... almost 6% to 'Professional services' (PS in what follows).

Why so little Professional Services trade flows crossing the border ?

Apparent **paradox** :

- As in goods, proximity between buyers and consumers not needed
- Corollary : No reason a priori to have a higher substitution of exports towards more FDI in the case of professional services than in the case for goods
- Similar-magnitude effects of barriers to trade proxies (ex : distance ; language) (Walsh, 2006 ; Lennon, 2008 ; Nicoletti et al, 2010)
- OECD countries should be producing more of these services because of their comparative advantage

Then, **WHAT produces the HUGE trade difference** ?

Value added :

THIS PAPER : provides one source of missing Professional services trade

IDEA : Intrinsic characteristics of these services matter

Fact : Prof. services materialize through consulting activities (Law/Management, etc...) and/or blueprints

- Offer customized to the client's needs
- Demand hardly recurrent over time
- (Non standardized+intangible) : makes reputation harder to set overtime and across space

Implication : lower probability of renewals

- increases exits and multiply search/matching costs for services firms
- reduces expected (long term) gains from trade ;
- reduces the number of firms to enter the market at each date

What we do :

- use a dataset that compiles together services' exporters and non exporters + manufacturing exporters and non-exporters
- In particular, a new fact consistent with a new literature (Ariu, 2012) : 'missing' exports of PSF (prof. services firms) due to missing 'number' of firms participation, as compared to manufacturing
- set a simple dynamic theory to model the extensive margin for a product from PSF and Manuf. : highlight the role of proba to re-exports
- Take it to the test and estimate proba of 1st and second time exports+ estimated gains from trade

A flavor of econometric findings :

- Conditional on firm and destination characteristics, the probability to start export to some market (when already having paid fixed costs), is 10 to 30% smaller for PSF than Manuf. Firms
- however, the probability of repeating exports to the same market is on average 5 times lower for PSF
- the theory-based procedure to estimate expected gains reveals that trading goods' gains are about 3-4 times higher, on average, than trading from PSFs.
- Barriers to trade in services are thus represented here, by the LACK of expected gains in services [not necessarily high fixed costs] !

Data

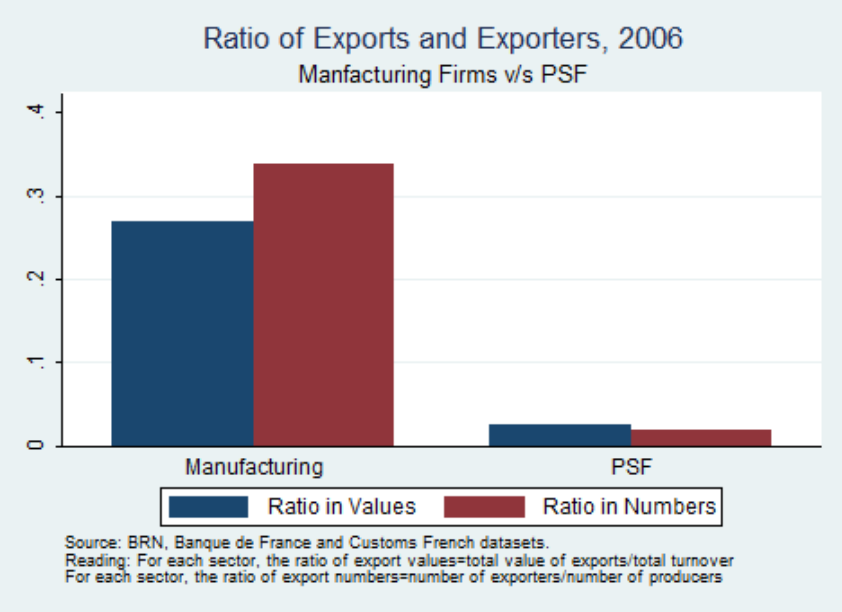
- *The 'Banque de France' database for services trade (BDF)* : Mode I firm level services trade, by destination.
- *The French Customs database for trade in goods* : Firm level trade in goods, by destination
- *The BRN database from the French Ministry of Finance* : Firm level data on account sheets declarations for over 800,000 firms in France (95% of French aggregate value added)

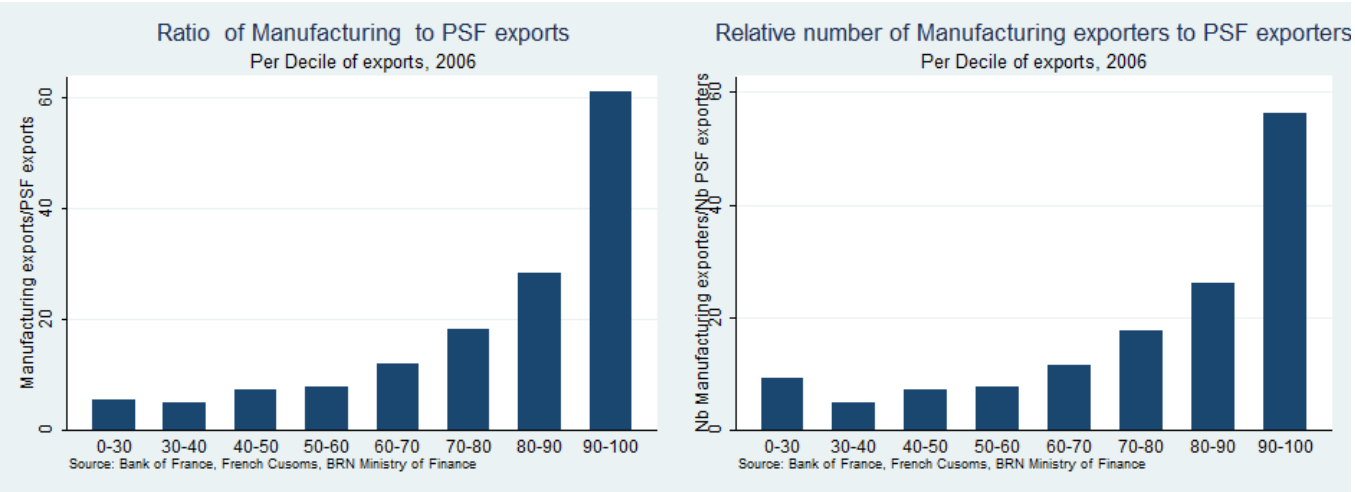
Merging of the databases, period 2000-2006 :

- Pool together BDF and Customs :
  - Firms from Manufacturing and their flows in goods ;
  - Firms from Prof Services sector and their flows of services

    (inspired from management literature, (concerns High level of human capital professions : R&D, consultancies, advertisement, legal firms, etc...))
- Merge with BRN :
  - include non-exporters in the same sectors
  - firm characteristics of exporters and non-exporters

Fact 1 : Export in services 15 times smaller than goods (in value and number of firms) !





Fact 2 : Exporters to non exporters ratios in services and goods

Again a ratio of 1 to 7.5 :
30% of manufacturers are exporters of goods
2% of PSF are exporters of their services

Per destination (on average), a ratio of ...16 :
4% goods exporters
0.25% PSF exporters

Fact 3 : Prof services are smaller but more productive

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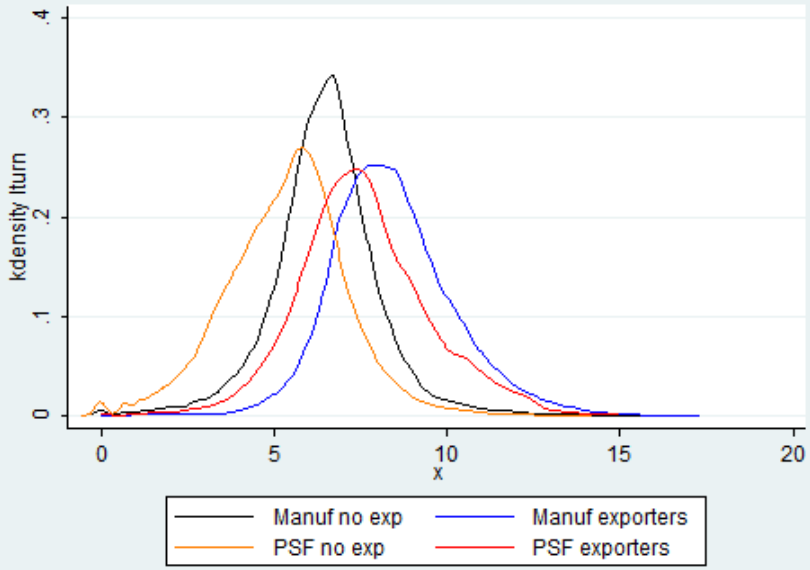

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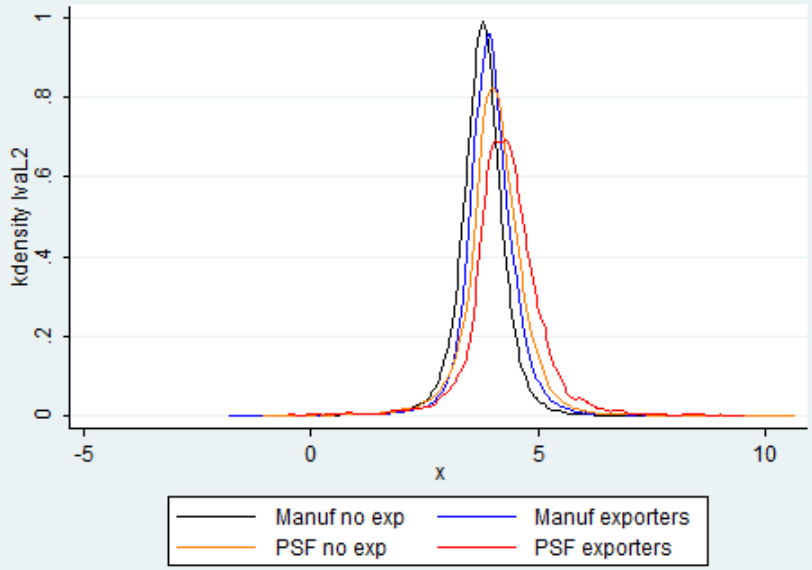


Bit of theory

Consider a very standard dynamic framework taken from Macro theory (see Stockey-Lucas, 1989)

Elegant to represent a firm's (intertemporal) value fonction W

p=proba of getting 1st contract, q=proba of getting a 2nd one
V_y=(intertemp.) gain linked to contracts in a market, y=current gain.

C= fixed cost of entry, and $\delta \in (0,1)$ =discount factor
2 **recursive** equations :

- The value function W (to determine choice of entering)

$$W = -C + pV_y + \delta(1-p)W \tag{1}$$

  Enters (pays fixed costs) if expected intertemporal gain higher than C

- The intertemporal gain from a contract, if entry

$$V_y = y + \delta q V_y + \delta(1-q)W \tag{2}$$

Bit of theory (2)

Resolving 1 and 2 one obtains a solution for W and V
A risk neutral firm, enters the market (decides to search for a contract) if $W > 0$
A sufficient condition for $W > 0$ is :

$$-C + \underbrace{\left(\frac{py}{(1-\delta q)}\right)}_{ExpectedGains} > 0. \tag{3}$$

Decision to enter more likely when :

- probability p of a successful matching in some market is high
- opportunity to perpetuate the contracts in this market, through q is high
- current gain y is high, conditional to matching

Identifications strategy 1

- Estimate p, the proba of new exports, for each individual firm, using observables (and compare it across good and services exporters)
- Estimate q, the proba to renew contract for each individual firm, using observables
- As expected gains function of p and q, estimate these gains for services vs goods traders

How to define p=Proba to find a New contract ?

Here, one is concerned by the population which is already on the market (already paid the fixed cost), searching for a NEW contract.
Let : f firm index, j destination index and t time index
Then :

$D_{N,fjt}$ = dummy variable to design a new contract defined as :

$D_{N,fjt} = 1$ if $(Exp_{fjt} > 0$ & $NoExp_{f,j,t-1})$
$D_{N,fjt} = 0$ if $(NoExp_{fjt}$ & $Exp_{f,else,t} > 0 or Exp_{f,else,t-1} > 0)$

where $Exp_{f,else,t} > 0$ describes export to any market other than j at time t. It informs that the firm f is already on the export market.

Then, $p_N = P(D_{N,jt} = 1)$

How to represent q=Proba to Renew contract ?

Here, one is concerned by the population which has already signed a contract in $t-1$, searching to renew the contract in t.
Let :

$D_{R,jt}$ = dummy variable to design the 2nd time contract in j, defined as :

$D_{R,jt} = 1$ if $(Exp_{jt} > 0$ & $Exp_{jt-1} > 0)$
$D_{R,jt} = 0$ if $(NoExp_{jt}$ But $Exp_{jt-1} > 0)$

Then, $q = P(D_{R,jt} = 1)$

Identifications strategy2

Let : $Z \in \{N, R\}$

1. Run a series of regressions for year 2006 and by Type=$\{$Serv, Goods$\}$, at firm-sector-region of origin-cty destination where :

   $$Pr^T(D_{Z,ij} = 1/x_i, x_j) = F(X_i.\beta_1^T + X_j.\beta_2^T + c_T)$$

   with : X_i = vector of firm i characteristics (activity variable+Origin Region+sector)

   X_j = vector of country characteristics

   Different methods : Panel RE, FE, Mixed, RE Probit, etc...
2. Estimate $Pr^T(D_{Z,ijt} = 1/x_i, x_j)$ in-sample and out of sample (i.e firm that do not export at all)
3. Estimate Expected Gains for all firms : $\frac{py}{(1-\delta q)}$
4. show magnitude of differences across goods and services

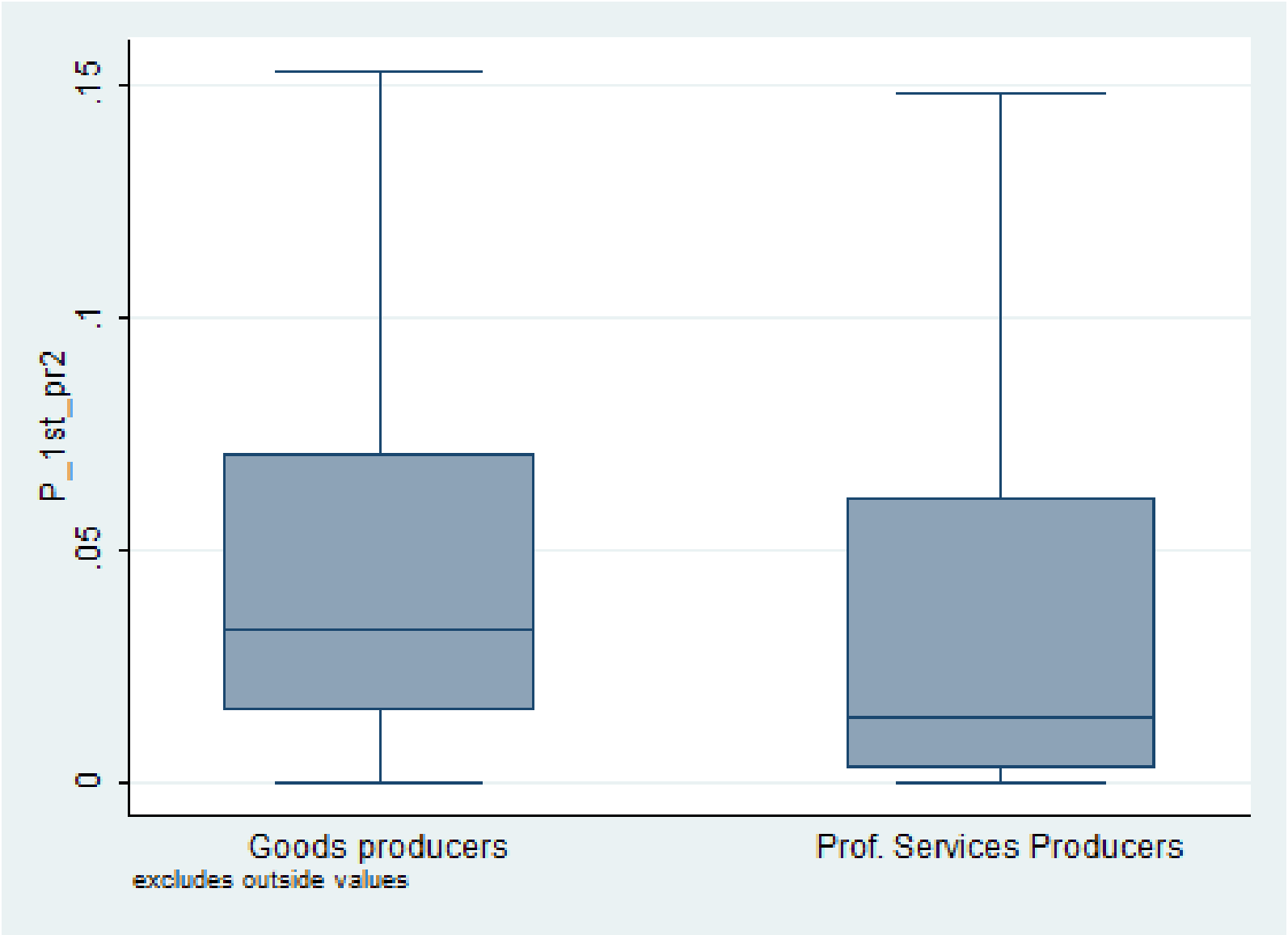
Results : Pr of NEW exports

	Goods1	Services1	Goods2	Services2	Goods3
Log of Employment (t-1)	0.013	0.005	0.016	0.006	0.016
	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***
Log of VA per employee (t-1)	0.014	0.004	0.016	0.005	0.016
	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***
lpop_d			0.021	0.020	
			(0.000)***	(0.001)***	
lgdpcap_d			0.017	0.025	
			(0.001)***	(0.001)***	
ldist			-0.011	-0.012	
			(0.001)***	(0.001)***	
o.curcol			0.000	0.000	
			(0.000)	(0.000)	
1 for regional trade agreement in force			0.021	0.012	
			(0.002)***	(0.002)***	
1 for contiguity			0.050	0.048	
			(0.003)***	(0.006)***	
1 for common official of primary language			0.009	0.010	
			(0.003)***	(0.005)**	
common legal origin			-0.015	-0.013	
			(0.001)***	(0.002)***	
Constant	-0.015	0.012	-0.185	-0.218	
	(0.003)***	(0.004)***	(0.011)***	(0.017)***	
R2	0.01	0.00	0.03	0.06	0.04
N of Observations	193,744	42,806	177,980	39,686	193,744

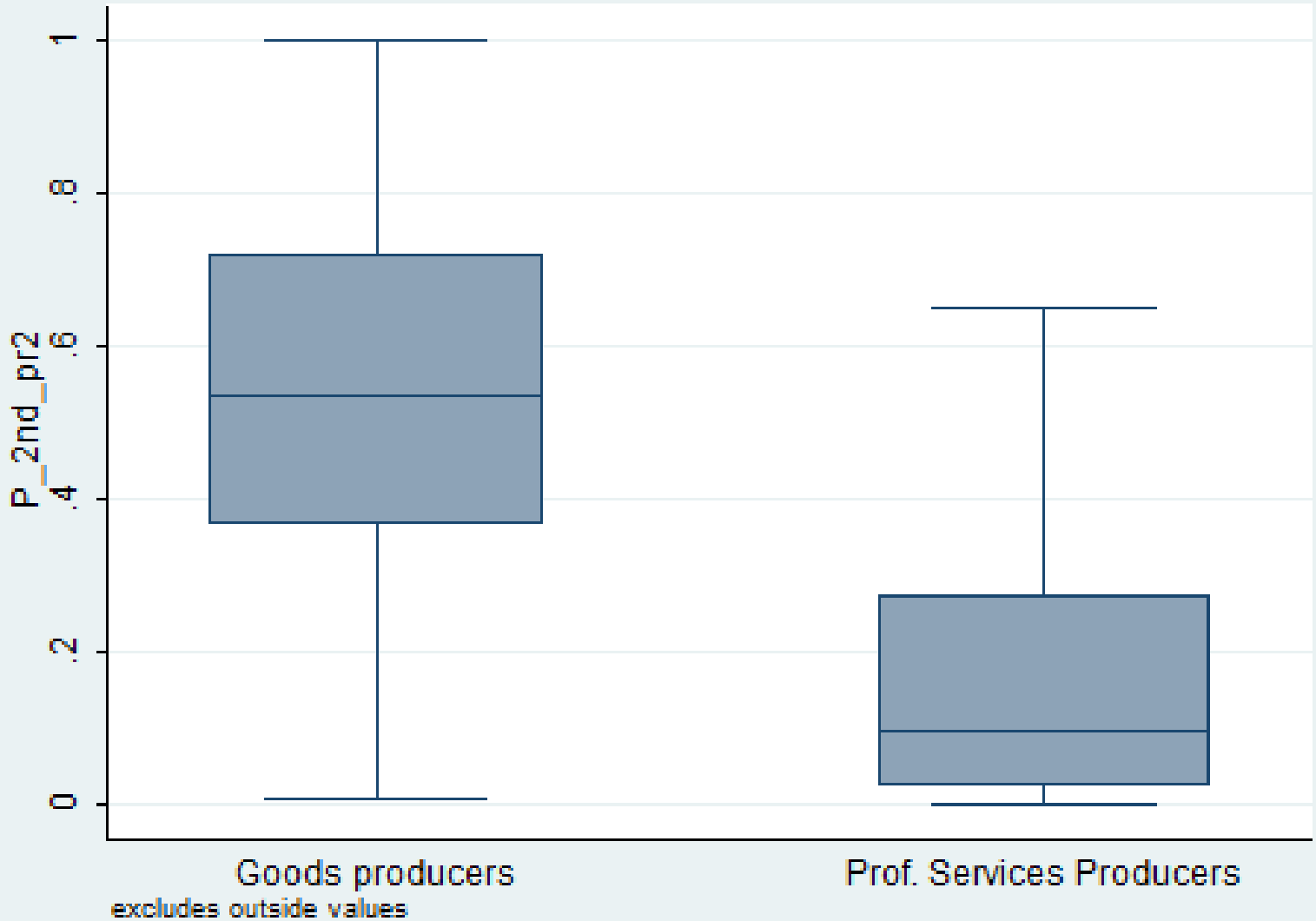
Results : Pr of RECURRENT exports

	Goods1	Services1	Goods2	Services2	Goods3
Log of Employment (t-1)	0.051	0.064	0.061	0.067	0.058
	(0.002)***	(0.005)***	(0.002)***	(0.005)***	(0.001)***
Log of VA per employee (t-1)	0.056	0.049	0.072	0.050	0.069
	(0.004)***	(0.008)***	(0.004)***	(0.008)***	(0.004)***
lpop_d			0.103	0.071	
			(0.002)***	(0.008)***	
lgdpcap_d			0.077	0.070	
			(0.003)***	(0.012)***	
ldist			-0.123	-0.080	
			(0.004)***	(0.011)***	
o.curcol			0.000	0.000	
			(0.000)	(0.000)	
1 for regional trade agreement in force			0.079	-0.080	
			(0.009)***	(0.024)***	
1 for contiguity			-0.010	0.005	
			(0.006)*	(0.024)	
1 for common official of primary language			0.085	0.097	
			(0.007)***	(0.028)***	
common legal origin			0.020	-0.043	
			(0.004)***	(0.015)***	
Constant	0.340	-0.026	0.004	-0.340	
	(0.010)***	(0.022)	(0.056)	(0.204)*	
R2	0.03	0.10	0.16	0.18	0.22
N of Observations	59,691	3,895	57,864	3,824	59,691

Estimated 1st time proba of exporting



Estimated 2nd time proba of exporting



Assume : y=mark-up=1.20 for both types of firms.

One can compare expected gains from exports per euro of production, for PSF and Manufacturing :

Estimated Gains

Expected Gains for ACTIVE firms (which paid the fixed costs)

Variable	Obs	Mean	Std. Dev.	Min	Max
Goods	177980	.0214643	.0428203	3.64e-06	.9614635
Services	39686	.0071041	.0158723	6.73e-07	.5662456

Expected Gains for NON ACTIVE firms (which did not export at ALL)

Variable	Obs	Mean	Std. Dev.	Min	Max
Goods	2009964	.0151834	.0328762	3.08e-06	1.453621
Services	3518470	.0045557	.0091527	5.15e-07	.8069344

Many robstness checks : 1) Exclude firms belonging to MNEs or firms doing FDI in destination countries
2) Look at some Manuf sector where goods are customized (Scientific Prof. goods category) : results are very similar to services
3) Look at small countries in the dataset (contracts renewals should be smaller) : proba to reexport goes further down for prof services

Conclusion

- Difference between PSF and Manuf trade driven mainly by a difference between number of exporters
- differences in 1st time export contracts plays a small role
- seem to be significantly related to differences in contracts' renewals :
  1/ Pr Renew around 5 times higher for goods
  2/ Expected (long term) gains 3-4 times higher for goods

More robustness checks to be done
If differences at aggregate levels come from differences in intrinsic attributes of services compared to goods, then policy trying to reduce barriers to trade might not be too much services trade creating...