

¿How do firms in Argentina get financing to export?

Tomás Castagnino Laura D'Amato Máximo Sangiácomo
BCRA

September 20 - 21 2012
CompNet Workshop
Banque de France

- Motivation
- Our contribution
- Descriptive Analysis
- Econometric Analysis
- Firms' survival in export markets
- Conclusion

Motivation

What are the relevant factors that explain firms' performance in export markets? The role of credit frictions

- Different performances in export markets due to *heterogeneity* in *productivity* and *entry costs* (Melitz, 2003)
- Reinforcement of selection problem by *Credit constraints* (Chaney, 2005; Manova, 2006, 2010)
- Distortionary impact of credit frictions on firms' decisions and dynamics (Clementi and Hopenhayn, 2006)
- Unobservability of firms' productivity
- Importance of lending relationships (Manova, 2009)

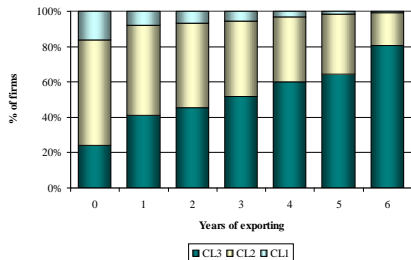
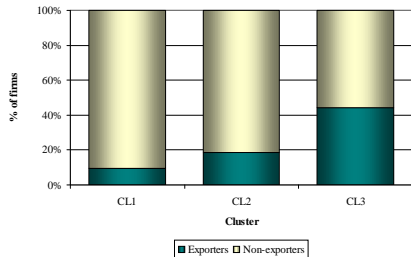
Our contribution

- It is the first attempt to investigate the way firms finance their exporting activity in Argentina
- We resort to two strands of literature: (i) *heterogeneity in productivity and export performance* (ii) *credit constraints and lending relationship*
- We use of a rich microeconomic data base that entails firms' characteristics, export and domestic and external debt figures

The sample

- Annual information (2001-2006) for 38.207 firms which produce tradable goods (9.807 of which are exporters)
- We identify firms' clusters according to size criterion
- Why size?
 - Larger firms have better export performance
 - Credit constraints relax as firms' size increases,

Descriptive Analysis



Exporters vs. Non-exporters

	Exporters			Non-exporters			
	CL1	CL2	CL3	CL1	CL2	CL3	
Number of firms	477	3,898	5,432	4,553	17,048	6,799	
Exporters (% total)	5%	40%	55%				
Size	1.9	7.7	44.6	1.9	6.6	32.7	✓
Rationed firms	188	921	436	2,611	7,188	1,396	
Rationed firms (%)	39%	24%	8%	57%	42%	21%	
Access to bank financial services	2.604	3.297	4.574	2.263	2.785	3.788	✓
Number of credit lines	0.82	1.05	1.42	0.81	0.91	1.13	✓
Number of financial entities	0.78	1.01	1.69	0.72	0.85	1.23	✓
Collateral pledging	28%	27%	25%	36%	31%	29%	

Descriptive Analysis

	Exporters to DC			Non-exporters to DC			
	CL1	CL2	CL3	CL1	CL2	CL3	
Number of firms	183	1,330	2,490	294	2,568	2,942	
Exporters to DC (% total)	5%	33%	62%				
Size	1.9	7.7	50.5	1.9	7.7	39.6	☑
Access to bank financial services	2.567	3.359	4.683	2.629	3.265	4.479	
Number of credit lines	0.75	1.07	1.44	0.88	1.04	1.40	
Number of financial entities	0.65	0.98	1.68	0.87	1.03	1.70	
Collateral pledging	25%	25%	25%	29%	28%	26%	
External debt	30.9%	33.3%	41.3%	18.1%	16.9%	21.8%	
External transactions	0.57	0.91	2.46	0.17	0.26	0.58	☑
External creditors	0.21	0.34	0.86	0.086	0.098	0.216	☑
External credit	2.542	3.572	5.896	1.225	1.558	2.652	☑

Patterns in export financing

% credit supply to exporting firms by bank ownership

Year	State-owned	Domestic Private	Foreign Private	Credit unions
2001	13.7	23.4	62.4	0.5
2002	24.1	26.3	49.2	0.4
2003	27.7	32.1	40.0	0.2
2004	24.7	42.3	32.6	0.4
2005	22.1	47.3	30.4	0.3
2006	18.2	51.3	30.3	0.2

Patterns in export financing

External credit by lender type

Year	Financial entity	Related company	Supplier	Client	Other
2001	38.5	38.9	5.6	3.1	13.9
2002	44.6	36.0	5.8	1.7	11.8
2003	45.2	35.2	5.0	1.7	12.9
2004	45.4	32.4	7.0	2.0	13.1
2005	39.6	37.3	7.2	2.0	14.0
2006	36.8	38.8	7.5	2.9	14.0

Limits of our analysis

- Focus on correlations rather than on marginal effects
- Direction of causality not obvious

The estimation methodology

- Linear probability model
- Panel with fixed effects to control for non-observables and time effects
- Use lagged values of size and different *proxies* of access to credit to alleviate the endogeneity problem

Exporters vs. non-exporters

Dummy Export	Total	CL1	CL2	CL3
Size _(t-1)	0.0396*** [0.00217]	0.0112* [0.00615]	0.0310*** [0.00282]	0.0477*** [0.00382]
Access to bank financial services _(t-1)	0.00170*** [0.000607]	-0.00511** [0.00216]	0.00224** [0.000915]	0.00202** [0.000935]
Constant	0.0617*** [0.00520]	0.0317*** [0.00730]	0.0296*** [0.00563]	0.125*** [0.0128]
Observations	139,844	15,238	73,672	50,934
Number of firms	37,718	4,930	20,694	12,094
R ²	0.011	0.003	0.009	0.016
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.

Number of destinations

Destinations' number	Total	CL1	CL2	CL3
Size _(t-1)	0.445*** [0.0384]	-0.0329 [0.224]	0.393*** [0.0577]	0.473*** [0.0497]
External credit _(t-1)	0.0358*** [0.00330]	-0.000688 [0.0201]	0.0254*** [0.00554]	0.0386*** [0.00409]
Constant	0.924*** [0.114]	1.476*** [0.268]	0.994*** [0.118]	0.871*** [0.175]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.086	0.017	0.067	0.095
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1% ** at 5% * at 10%

Developed countries

Developed country	Total	CL1	CL2	CL3
Size _(t-1)	0.0285*** [0.00816]	-0.0577 [0.0610]	0.0341** [0.0136]	0.0273*** [0.0102]
External credit _(t-1)	0.000557 [0.000701]	-0.00648 [0.00546]	-0.00213 [0.00130]	0.00157* [0.000843]
Constant	0.223*** [0.0242]	0.389*** [0.0728]	0.210*** [0.0278]	0.224*** [0.0361]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.002	0.010	0.003	0.003
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1% ** at 5% * at 10%

Duration Analysis

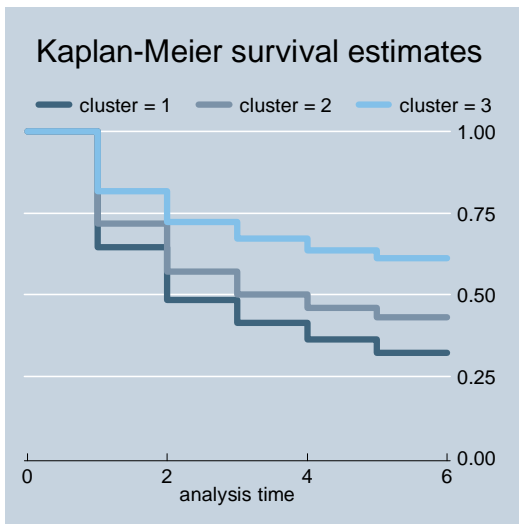
Exports duration by firm size

Spell length	CL1			CL2			CL3			Total
	<i>Number of spells</i>			<i>Number of spells</i>			<i>Number of spells</i>			
	1	2	3	1	2	3	1	2	3	
1	2.0	0.6	0.1	12.6	6.4	1.4	10.2	8.4	1.3	42.9
2	0.8	0.2	0.0	5.3	2.2	0.2	4.6	3.5	0.3	17.1
3	0.4	0.1		3.3	1.6		4.0	2.6		12.0
4	0.2	0.0		1.9	0.7		3.0	1.0		6.7
5	0.1			1.3			3.0			4.4
6	0.2			3.1			13.6			16.9
Total	3.6	0.9	0.2	27.4	10.9	1.6	38.3	15.5	1.6	100

- 25% of the firms are sporadic exporters
- 17% are permanent exporters (of which 13% belong to CL3)

Duration Analysis

Estimated survival functions by cluster



Conclusions

- An established relationship with domestic banks important to enter export markets
- Once firms become exporters, what seems to matter is the access to foreign financing (Chaney, 2005)
 - Access to foreign financing increases the probability of exporting to industrial and distant markets
 - Better performance in terms of quantity of products and number of markets they serve
- Permanent exporters are mostly the largest firms, while small and medium size firms are predominantly sporadic exporters
- The larger firms in the sample exhibit a quite higher survival probability than small and medium size ones
- But once firms remain as exporters for more than 3 years, the probability of survival decreases at same rate, independently of size

Patterns in export financing

Year	Bank	External credit
2003	19.8	80.2
2004	26.9	73.1
2005	35.1	64.9
2006	40.9	59.1

Descriptive Analysis

Year	Entering other than Mercosur					Mercosur				
	Related company	Client	Supplier	Financial entity	Other	Related company	Client	Supplier	Financial entity	Other
2001	32.6	2.3	4.4	47.5	13.2	45.1	4.7	6.7	29.4	14.1
2002	33.0	1.4	4.8	52.7	8.1	39.2	2.2	6.9	34.6	17.1
2003	32.5	1.8	4.1	52.1	9.6	37.8	1.3	6.2	36.9	17.8
2004	32.1	2.4	5.2	50.9	9.4	33.2	1.4	9.2	35.9	20.4
2005	35.1	2.1	6.4	44.6	11.8	40.9	1.9	8.2	30.9	18.2
2006	36.9	2.7	6.9	39.9	13.6	41.2	3.1	8.2	33.0	14.5

Export performance

Period	Markets			Products		
	Improve	Unchanged	Worsen	Improve	Unchanged	Worsen
2001-2002	25.7	46.7	27.6	24.9	47.4	27.7
2002-2003	30.2	47.2	22.7	26.8	45.9	27.3
2003-2004	36.7	46.0	17.3	32.0	47.5	20.5
2004-2005	27.1	51.5	21.4	25.0	51.8	23.2
2005-2006	26.1	52.7	21.1	24.3	52.8	23.0

Number of destinations

Destinations' number	Total	CL1	CL2	CL3
Size _(t-1)	0.445*** [0.0384]	-0.0329 [0.224]	0.393*** [0.0577]	0.473*** [0.0497]
External credit _(t-1)	0.0358*** [0.00330]	-0.000688 [0.0201]	0.0254*** [0.00554]	0.0386*** [0.00409]
Constant	0.924*** [0.114]	1.476*** [0.268]	0.994*** [0.118]	0.871*** [0.175]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.086	0.017	0.067	0.095
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.

Volume of exports

Exports' volume	Total	CL1	CL2	CL3
Size _(t-1)	0.296*** [0.0309]	-0.0874 [0.233]	0.247*** [0.0569]	0.323*** [0.0374]
External credit _(t-1)	0.0143*** [0.00266]	-0.0309 [0.0209]	0.0120** [0.00546]	0.0152*** [0.00308]
Constant	9.186*** [0.0918]	9.360*** [0.278]	9.019*** [0.117]	9.251*** [0.132]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.095	0.053	0.067	0.110
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.

Number of products

Products' number	Total	CL1	CL2	CL3
Size _(t-1)	1.279*** [0.127]	0.645 [0.993]	0.734*** [0.161]	1.525*** [0.169]
External credit _(t-1)	0.0511*** [0.0109]	0.00710 [0.0888]	0.0257* [0.0155]	0.0579*** [0.0139]
Constant	0.972*** [0.376]	2.812** [1.185]	1.996*** [0.330]	0.130 [0.595]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.020	0.008	0.013	0.023
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.

Developed countries

Developed country	Total	CL1	CL2	CL3
Size $_{(t-1)}$	0.0285*** [0.00816]	-0.0577 [0.0610]	0.0341** [0.0136]	0.0273*** [0.0102]
External credit $_{(t-1)}$	0.000557 [0.000701]	-0.00648 [0.00546]	-0.00213 [0.00130]	0.00157* [0.000843]
Constant	0.223*** [0.0242]	0.389*** [0.0728]	0.210*** [0.0278]	0.224*** [0.0361]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.002	0.010	0.003	0.003
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.

Mercosur plus Chile

Mercosur + Chile	Total	CL1	CL2	CL3
Size _(t-1)	-0.0395*** [0.00877]	0.0791 [0.0685]	-0.0361** [0.0157]	-0.0428*** [0.0107]
External credit _(t-1)	-0.00156** [0.000754]	0.00797 [0.00613]	0.00157 [0.00151]	-0.00273*** [0.000882]
Constant	0.596*** [0.0260]	0.423*** [0.0818]	0.596*** [0.0322]	0.607*** [0.0377]
Observations	25,221	721	8,073	16,427
Number of firms	8,724	368	3,357	4,999
R ²	0.010	0.016	0.011	0.011
Individual effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES

Standard errors in brackets

*** Significant at 1%, ** at 5%, * at 10%.