Firms' Exports and Corporate Taxes: Panel Data Evidence from Italy

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INTRODUCTION

- The rich literature on international trade has allowed a detailed investigation of export market participation.

- The seminal papers by Melitz (2003) and Helpman et al. (2004) opened new frontiers.

- Our aim is to contribute to a better understanding of how and why participation in international trade differs across firms in connection with the burden of home corporate taxes.

INTRODUCTION

- This paper investigates the extent to which taxes affect two important margins of trade: the extensive margin of exporting and conditional on positive exports, the intensive margin of the export.

- At the extensive margin, it tells us about the relative importance of taxation as a fixed cost to access markets.

- At the intensive margin, it informs us on the relative importance of taxes as export variable costs relative to domestic sales costs.

WHY OUR INTEREST?

The inclusion of corporate taxation as a source of heterogeneity in firm-specific costs is interesting as heterogeneity in other factors.

Our results show that corporate taxes matter at both the extensive and the intensive margin.

However, empirics suggests that trade adjustments due to changes in profit taxation, occur mainly through the adjustment of export quantities of existing exporters, rather than through changes in the number of exporting firms.

WHY OUR INTEREST?

Evolution of corporate tax systems has always been at the heart of policymakers' debates.

From the mid-80's many OECD countries have undertaken significant reforms to reduce nominal corporate tax rates and this trend shows no sign of stopping.

Italy was a latecomer to the corporate tax cut. Two main reforms were introduced between 1997 and 2006, and the statutory corporate tax rate declined from 53.95% to 37.3%.

DATA

- This paper uses a balanced panel combining firms' survey data with company accounts for the period 1998-2006 (*Indagine sulle Imprese Manifatturiere, CAPITALIA, and CERVED*).

- The final dataset covers 855 corporations (7695 observations for the whole period) and contains information on firm's characteristics (size, employment structure, legal status, participation in groups or consortia, ownership structure), and firm's activities (investments, finance).

Descriptive statistics

Tab. 3 - Number, operating surplus, ROS, labor productivity, markup of exporting and non-exporting firms. (Years 1998-2006; median values)

	Exporting	Non-exporting
Number	4608	1281
Operating surplus	522,278	304,887
ROS	0.044	0.043
Labor productivity	8,721	7,990
Markup	0.321	0.31

Source: own calculations

Descriptive statistics

Tab. 4 - Markup premium

	Estimates
Export propensity	0.0147***
	(0.0046)
Size	0.0070*
	(0.0036)
Capital-Labor ratio	-0.0096***
	(0.0026)
Labor productivity	0.0192***
	(0.0015)
Constant	0.1668***
	(0.0389)
Observations	7695
Number of firms	855

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The premium is computed through" the following calculation: $0.0147*e^{0.1668}$ =0.018

Synthetic measures of firms' heterogeneity

Tab. 7 - Standard deviation of turnover and labor productivity

Variables	Standard deviation log turnover	Standard deviation log labor productivity
Log exporting intensity	0.0072***	0.0351***
	(0.0027)	(0.0050)
Log capital labor ratio	0.0056***	0.0175***
	(0.0018)	(0.0034)
Log size	0.0032	0.0214***
	(0.0035)	(0.0064)
EATR	1.5069***	0.7200***
	(0.0511)	(0.0940)
Log skilled labor	0.0112***	0.0597***
	(0.0014)	(0.0026)
Constant	0.6413***	0.6671***
	(0.0357)	(0.0658)
Observations	7695	7695
Number of firms	855	855
R-squared	0.2692	0.2288

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The empirical strategy

- To evaluate the impact of firm-specific corporate taxes on exports we first examine the extensive margin of trade, that is, the probability of exporting. Then we extend the analysis to firms' export volumes by considering the change in export intensity to corporate taxation.

- To compute corporate effective tax rates we follow the methodology recently proposed by Egger et al. (2009) that allows to calculate firm-specific effective tax rates.

- This approach computes the tax burden falling on a hypothetical investment project incorporated into a neoclassical investment model, by taking into account the main determinants of the corporate tax system (statutory tax rates, tax allowances, specific investment tax credits) and of personal taxation.

- Such rates defined as forward-looking effective tax rates and have the advantage of being independent of tax planning activities of the company. Therefore, they are exogenous from an empirical perspective.

Export Propensity

Decision to export can be expressed as a binary choice where the dependent variable equals to one if firm reports positive exports at time t (and zero otherwise).We control for unobserved heterogeneity across firms by including a firm fixed effects.

The probability of a change in outcome is estimated by a random effects panel probit model.

Tab. 8 – Export extensive margin – Probit estimates and marginal effects

	Estimates	Marginal effects
L1 EATR	4.2527***	0,1964***
	(1.3093)	(0,0560)
L1 Export	3.6830***	
	(0.0780)	
L1 Labor taxes	-0.9111	
	(1.6582)	
Services imports	0.7393***	0,0028***
	(0.0589)	(0,0008)
Size	0.6353***	0,0052***
	(0.0493)	(0,0014)
Age	-0.3644***	
	(0.0800)	
Labor productivity	0.1165***	0,0010***
	(0.0222)	(0,0003)
R&D intensity	3.2054**	0,0535**
	(1.5160)	(0,0194)
Capital-labor	0.1865***	0,0016***
	(0.0399)	(0,0005)
Sector	0.6073***	0,0035***
	(0.0766)	(0,0010)
Markup	0.4099**	0,0078***
	(0.1951)	(0,0030)
KOF	0.0395***	
	(0.0146)	
Debt equity	-0.0978***	-0,0003**
	(0.0199)	(0,0001)
Dummy year	0.3813***	0,0081***
	(0.0668)	(0,0022)
Constant	-3.8771***	
	(0.8902)	
Observations	7695	7695
Number of firms	855	855

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

EXPORT INTENSITY

- The dependent variable is the share of exports in total sales, the export/sales ratio. We expect that controlling for firms' characteristics, the effect of EMTR on exporting intensity is likely *ceteris paribus* to be negative.

- The model is estimated following a dynamic generalized method of moments (GMM) instrumental variable approach.

- Two-step system GMM estimator with finite-sample correction and robust standard errors. The dynamic GMM model applied allows for the influence of past export experience on future export profiles.

Tab. 9 – Export intensive margin - Dynamic panel regression estimates

	Estimates
L1 Export intensity	0.8142***
	(0.0252)
L1 EMTR	-1.9244***
	(2.3708)
L1 labor taxes	-4.8680***
	(10.7592)
Cash flow	2.6110***
	(3.5338)
Labor productivity	0.2241***
	(0.0706)
R&D intensity	0.1246***
	(0.0276)
Markup	6.1834***
	(0.9129)
Interaction EMTR*Markup	-10.5994*
	(6.3631)
Services imports	0.1455**
	(0.0685)
SD turnover	-1.1841***
	(0.1912)
Area	-0.5184***
	(0.1288)
KOF index	0.0290
	(0.0196)
Constant	3.2058*
	(1.6379)
Observations	7695
Number of firms	855

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tab. 10 – Export intensive margin - Quantile regression estimates

	Q=10	Q=25	Q=50	Q=75	Q=90
L1 EMTR	-6.9396***	-5.9266***	-4.6806***	-3.1961***	-3.4536***
	(0.9026)	(0.6760)	(0.5398)	(0.4871)	(0.4632)
L1 labor taxes	-3.0828	-1.1476	-3.4856***	-3.7926***	-3.3441***
	(1.9399)	(1.6797)	(1.0624)	(0.9328)	(0.9360)
Size	1.1824***	1.1496***	0.9834***	0.8801***	0.8120***
	(0.0405)	(0.0302)	(0.0255)	(0.0199)	(0.0180)
Capital labor	0.2917***	0.1451***	0.1413***	0.1761***	0.2156***
	(0.0651)	(0.0515)	(0.0343)	(0.0228)	(0.0181)
Labor productivity	0.3857***	0.4195***	0.3237***	0.2852***	0.3013***
	(0.0678)	(0.0447)	(0.0294)	(0.0201)	(0.0145)
Dummy year	-0.3079**	-0.2098***	-0.1616***	-0.1311***	-0.1029*
	(0.1404)	(0.0806)	(0.0587)	(0.0467)	(0.0571)
Markup	-0.0058	0.6494**	0.4667**	0.6739***	0.5923***
	(0.4192)	(0.2562)	(0.2029)	(0.1647)	(0.1603)
Constant	0.5363	2.5751***	5.5340***	6.8085***	6.9108***
	(0.7516)	(0.7934)	(0.5816)	(0.4020)	(0.3595)
Observations	3441	3441	3441	3441	3441

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

CONCLUSIONS

- Main conclusion: the inclusion of corporate taxation as a dimension of heterogeneity in firm-specific costs seem to be particularly important.

- The paper highlights a positive relationship between corporate taxation and export participation pointing to some substitution of firms' sales between domestic and foreign markets.

- In contrast, taxes decrease the export intensity of incumbent exporters.

- Quantile regression suggests that the impact of corporate taxation and export turnover varies along the size distribution of export/sales ratio.

- An understanding of these mechanisms is important for policy-makers concerned with fostering firms' competiveness.