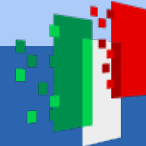




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Green strategies and internationalization: The case of the Italian textile clusters§

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Aims & research questions

Theoretical background

Data

Variable description and econometric model

Descriptive statistics

Empirical results

Discussion and conclusion

Aims

To investigate the effect of external economies of clusters on firm certification propensity

To investigate the effect of international trade on firm certification propensity

Research questions

1. Does territory matter for firm green strategies?
2. Do international markets allow firm to overcome entry barriers in green strategies?

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The decision to exploit green strategies may be influenced by the **local context** where firms are located (Blasi and Sedita, 2021), thanks to the literature about:

- geographical **proximity** (Torre and Rallet, 2005; Bellandi et al., 2021; etc.)
- **external economies** of scale (Becattini et al., 2009; Krugman, 1991; etc.)
- innovation **spillovers** (Cohen and Levinthal, 1990; etc.)

Spatial proximity may enable the exchange of knowledge and information about the environment regulations and green strategies (i.e. **Local Green Spillovers**), potentially affecting the green strategies of nearby firms (Gehman and Grimes, 2017; etc.).

Some firm-characteristics – such as their financial structure and economic performance – may affect the implementation of green strategies (Petrovito, 2020; Tian and Lin, 2019).

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Aida: financial and ownership/management information

Istat: firm export-import by value, products, and country of destination-origin

Istat: information on SLL and district localization

Accredia: list of UNI-ISO 14001 certified firms

CNR-IRCRES: list of green product certified firms (Ecolabel UE, OEKO-TEX, Standard 100, Leather standard, Made in Green, STeP, FSC, RAF, RWS, RMS, RAS, RDS, NPF, SFA, GOTS, OCS, GRS, RCS); Financial rating scores

Sample

Data of 13,258 firms; 3 industries (13-14-15 Nace); 138 local labour area (SLL), one year (2022); 2,079 observations

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Variable descriptions and econometric model

Dependent variable (Y_i^*)

Green strategy propensity (1=certified firm; 0=non-certified firm)

Explanatory variables

International Openness EU and No-EU (ration between the mean of export/import and the mean of sales, 2019-2022)

International Spillovers EU and No-EU (number of internationalized firms in each SLL)

District membership (1 dummy: No district; 1 dummy: Textile district)

Local Green Spillovers (number of certified firms in each SLL)

Controlling variables

Productivity (2022); Vertical Integration (2022); Rating (D-AAA); Age; Size (classes); Industry (textile vs clothing and leather); Macroarea (South vs North-Est, North-West, Center)

Econometric model

Logistic regression

Aims & research questions

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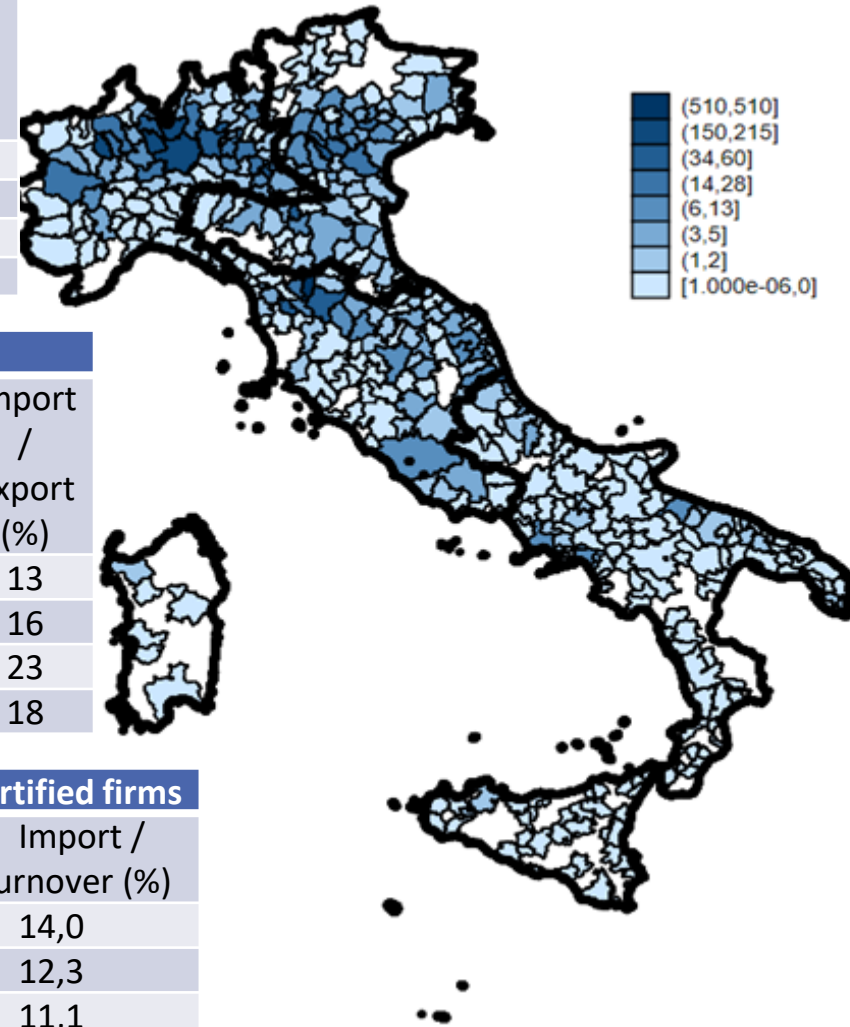
Descriptive statistics

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Descriptive statistics

	1317 Certified firms			11940 Non-certified firms		
	Turnover / employee (000euros)	Turnover / firm (000euros)	Employee s / firm	Turnover / employees (000euros)	Turnover / firm (000euro s)	Emple yees / firm
Textile	334	15.347	46	226	2.896	13
Clothing	373	22.475	60	271	4.295	16
Leather	375	34.107	91	295	6.740	23
Total	349	18.559	53	274	4.801	18



	1317 Certified firms			11940 Non-certified firms		
	Exports / firm (000 euros)	Import / firm (000 euros)	Import / export (%)	Exports / firm (000 euros)	Import / firm (000 euros)	Import / export (%)
Textile	334	15.347	46	226	2.896	13
Clothing	373	22.475	60	271	4.295	16
Leather	375	34.107	91	295	6.740	23
Total	349	18.559	53	274	4.801	18

	1317 Certified firms		11940 Non-certified firms	
	Export / turnover (%)	Import / turnover (%)	Export / turnover (%)	Import / turnover (%)
Textile	34,0	19,0	25,6	14,0
Clothing	42,1	19,3	33,3	12,3
Leather	40,0	17,4	34,3	11,1
Total	36,8	18,8	32,7	12,0

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Preliminary results

Discussion and conclusion

1. Exact matching for building balance sample of certified vs non certified firms (variables used for matching: total assets; ATECO; Age; Province)

Several logit regressions with fixed effects for industry (textile vs clothing and leather), Macroarea (South vs North-Est, North-West, Center), Size

$$\begin{aligned} Y_i^* = & \beta_0 + \beta_1 Prod_i + \beta_2 IV_i + \beta_3 Rat_i + \beta_4 Rat_i^2 + \\ & + \beta_5 Op_EXP_EU_i + \beta_6 Op_EXP_NoEU_i + \beta_7 Op_IMP_EU_i + \beta_8 Op_IMP_NoEU_i + \beta_9 LGS_i \\ & + \beta_{10} NoMD_i + \beta_{11} MTD_i + \beta_{12} IS_EU_i + \beta_{13} IS_NoEU_i + \\ & + \beta_{14} Age_i + \beta_s \sum_{s=1}^S Size_{s_i} + \beta_m \sum_{m=1}^M Macroarea_{m_i} + \beta_d \sum_{d=1}^D District_{d_i} + \varepsilon_i \end{aligned}$$

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Discussion and conclusion

Empirical results



	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
Productivity	0.000	0.000	0.000	0.000	0.000	0.000
Vertical Integration	-0.000	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
Rating	4.991***	3.926*	3.997*	4.083*	3.888*	3.573*
Rating2	-3.518***	-2.655*	-2.674*	-2.739*	-2.604*	-2.428*
Exp_Openness_EU		-0.000**	-0.000**	-0.000**	-0.000**	-0.000**
Exp_Openness_NoEU		-0.000	-0.000	-0.000	-0.000	-0.000
Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***
Local Green Spillovers			0.002**	0.003***	0.002**	0.033***
No district (d)				-0.395*		-0.013
Textile district (d)					0.622***	0.593***
International Spillovers EU (by SLL, district)						0.004
International Spillovers NoEU (by SLL, district)						-0.016**
Age	0.001	0.002	0.002	0.002	0.001	0.001
Size2 (d)	0.414***	0.206	0.226	0.224	0.237	0.236
Size3 (d)	0.624***	0.450**	0.480***	0.477***	0.487***	0.537***
Center (d)	0.512**	0.270	-0.003	0.244	0.634**	0.696**
North-East (d)	-0.071	-0.150	-0.153	0.205	0.390	0.377
North-West (d)	0.633***	0.570**	0.483**	0.462*	0.545**	0.549**
Nace14 (d)	-0.594***	-0.584***	-0.502***	-0.520***	-0.518***	-0.544***
Nace15 (d)	-0.050	0.009	0.134	0.162	0.121	0.025
Constant	-2.094***	-1.567**	-1.675**	-1.699**	-2.219***	-1.975**
Observations	2,079	1,676	1,676	1,676	1,676	1,676

Empirical results



	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
Productivity	0.000	0.000	0.000	0.000	0.000	0.000
Vertical Integration	-0.000	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
Rating	4.991***	3.926*	3.997*	4.083*	3.888*	3.573*
Rating2	-3.518***	-2.655*	-2.674*	-2.739*	-2.604*	-2.428*
Exp_Openness_EU		-0.000**	-0.000**	-0.000**	-0.000**	-0.000**
Exp_Openness_NoEU		-0.000	-0.000	-0.000	-0.000	-0.000
Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***
(1) Financial ratings and size affects certification propensity					0.002**	0.033***
No district (d)				-0.393		-0.013
Textile district (d)					0.622***	0.593***
International Spillovers EU (by SLL, district)						0.004
International Spillovers NoEU (by SLL, district)						-0.016**
Age	0.001	0.002	0.002	0.002	0.001	0.001
Size2 (d)	0.414***	0.206	0.226	0.224	0.237	0.236
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VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
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Vertical Integration	-0.000	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
Rating	4.991***	3.926*	3.997*	4.083*	3.888*	3.573*
Rating2	-3.518***	-2.655*	-2.674*	-2.739*	-2.604*	-2.428*
Exp_Openness_EU		-0.000**	-0.000**	-0.000**	-0.000**	-0.000**
Exp_Openness_NoEU		-0.000	-0.000	-0.000	-0.000	-0.000
Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***

(1) Export intensity reduces probability to be certified, whereas import intensity increases it. In addition, EU exports have a negative effects, whereas No-EU imports have a positive effect.

International Spillovers EU (by SLL, district)						0.004
International Spillovers NoEU (by SLL, district)						-0.016**
Age	0.001	0.002	0.002	0.002	0.001	0.001
Size2 (d)	0.414***	0.206	0.226	0.224	0.237	0.236
Size3 (d)	0.624***	0.450**	0.480***	0.477***	0.487***	0.537***
Center (d)	0.512**	0.270	-0.003	0.244	0.634**	0.696**
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Observations	2,079	1,676	1,676	1,676	1,676	1,676

Empirical results



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VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
Productivity	0.000	0.000	0.000	0.000	0.000	0.000
Vertical Integration	-0.000	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
Rating	4.991***	3.926*	3.997*	4.083*	3.888*	3.573*
Rating2	-3.518***	-2.655*	-2.674*	-2.739*	-2.604*	-2.428*
Exp_Openness_EU		-0.000**	-0.000**	-0.000**	-0.000**	-0.000**
Exp_Openness_NoEU		-0.000	-0.000	-0.000	-0.000	-0.000
Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***
Local Green Spillovers			0.002**	0.003***	0.002**	0.033***

(3) Local Green Spillovers (number of certified firms in each SLL) increases the probability to be certified.

International Spillovers NoEU (by SLL, district)						-0.016**
Age	0.001	0.002	0.002	0.002	0.001	0.001
Size2 (d)	0.414***	0.206	0.226	0.224	0.237	0.236
Size3 (d)	0.624***	0.450**	0.480***	0.477***	0.487***	0.537***
Center (d)	0.512**	0.270	-0.003	0.244	0.634**	0.696**
North-East (d)	-0.071	-0.150	-0.153	0.205	0.390	0.377
North-West (d)	0.633***	0.570**	0.483**	0.462*	0.545**	0.549**
Nace14 (d)	-0.594***	-0.584***	-0.502***	-0.520***	-0.518***	-0.544***
Nace15 (d)	-0.050	0.009	0.134	0.162	0.121	0.025
Constant	-2.094***	-1.567**	-1.675**	-1.699**	-2.219***	-1.975**
Observations	2,079	1,676	1,676	1,676	1,676	1,676

Empirical results



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VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
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Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***
Local Green Spillovers			0.002**	0.003***	0.002**	0.033***
No district (d)				-0.395*		-0.013
Textile district (d)					0.622***	0.593***

(4)-(5) Localization outside a district affects negatively the certification propensity, whereas localization in a fashion district (textile, clothing or leather) has a positive effect.

Size2 (d)	0.414***	0.206	0.226	0.224	0.237	0.236
Size3 (d)	0.624***	0.450**	0.480***	0.477***	0.487***	0.537***
Center (d)	0.512**	0.270	-0.003	0.244	0.634**	0.696**
North-East (d)	-0.071	-0.150	-0.153	0.205	0.390	0.377
North-West (d)	0.633***	0.570**	0.483**	0.462*	0.545**	0.549**
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Nace15 (d)	-0.050	0.009	0.134	0.162	0.121	0.025
Constant	-2.094***	-1.567**	-1.675**	-1.699**	-2.219***	-1.975**
Observations	2,079	1,676	1,676	1,676	1,676	1,676

Empirical results



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VARIABLES	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity	Cert.propensity
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Vertical Integration	-0.000	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
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Exp_Openness_NoEU		-0.000	-0.000	-0.000	-0.000	-0.000
Imp_Openness_EU		0.000	0.000	0.000	0.000	0.000
Imp_Openness_NoEU		0.000**	0.000***	0.000***	0.000***	0.000***
Local Green Spillovers			0.002**	0.003***	0.002**	0.033***
No district (d)				-0.395*		-0.013
Textile district (d)					0.622***	0.593***
International Spillovers EU (by SLL, district)						0.004
International Spillovers NoEU (by SLL, district)						-0.016**

(6) International spillovers (number of importing or exporting firms in each SLL) have a negative effect if we consider the NoEU relationships.

Center (d)	0.512**	0.270	-0.003	0.244	0.634**	0.696**
North-East (d)	-0.071	-0.150	-0.153	0.205	0.390	0.377
North-West (d)	0.633***	0.570**	0.483**	0.462*	0.545**	0.549**
Nace14 (d)	-0.594***	-0.584***	-0.502***	-0.520***	-0.518***	-0.544***
Nace15 (d)	-0.050	0.009	0.134	0.162	0.121	0.025
Constant	-2.094***	-1.567**	-1.675**	-1.699**	-2.219***	-1.975**
Observations	2,079	1,676	1,676	1,676	1,676	1,676

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The main **results** are:

- The influence of size, financial rating, district localization, and local green spillovers is significant in all the models
- Export intensity has a negative influence (because of the EU exports) whereas import intensity has a positive influence (thanks to NoEU imports)

Contributions: intersection of strategic management, regional studies, and sustainable development literature

Policy implication

- Micro and Small firms need support to overcome the entry barriers in green strategies
- Diffusion of best practices at local level creates spillovers and an imitation process for increasing the certified firms (Local Green Spillovers)

Future research: to investigate the greenwashing phenomenon
to investigate the certifying intensity (number of certifications per firm)

Thank you for your attention!

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