

# Italy and the Maghreb Countries: The Role of Trade and Investment



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# Outline

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- Background
- Questions
- Empirical modelling
- Data
- Results
- Comments (I)
  
- Additional descriptive evidence
  - Is the Maghreb attractive for FDI?
- Comments (II) and concluding remarks

# Background

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- There seems to be a positive relationship between export performance and the share of vertical trade in each country's total trade.
  - e.g. Mirodout and Ragoussis 2009
- 'vertical specialisation' often leads to vertical intra-industry trade and one-way trade as a result of back-and-forth transactions
  - e.g. Ando 2006; Kimura and Ando 2005
- The 'vertical specialisation' concept recalls the slicing up of the value chain in a global perspective
  - e.g. Gereffi, Humprey and Sturgeon 2005

# Research questions

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- Are import flows from Italian Regions to the Maghreb countries positively correlated with export flows?
  - Does this hold for two 'Made in Italy' industries, namely textile and clothing on one hand, and leather and footwear on the other hand?
  - Are Italian import flows in such sectors affected by selected domestic and foreign variables? To what extent and for which Region-country pairs?
  - Is there any evidence of international fragmentation of production between Italian Regions and Northern Africa?
  
- Are the Maghreb capable in attracting FDI?
  - Which is the role of Italian investments in the area? (A proxy to compute the Italian presence in the Maghreb is suggested).

# Empirical modelling

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- A two-way static gravity panel data (GLS)

$$y_{i,t} = X_{i,t}\beta + \mu_{i,t}$$

where:

$y_{i,t}$  is the dependent variable (the level of import of a given region),

$X_{i,t}$  is the  $n \times K$  matrix of explanatory variables and

$\beta$  is a  $K \times 1$  vector of parameters.

It is assumed that  $\mu_{i,t}$  follows a *two-way* error component model:

$$\mu_{i,t} = \mu_i + \lambda_t + v_{i,t}$$

where  $v_{i,t} \sim IID(0, \sigma_v^2)$ .

# Empirical modelling (2)

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$\mu_i$  is the regional-specific residual differing across partner countries and  $\lambda_t$  denotes the year-period effect.

Under these circumstances the estimated standard errors of the parameters and the variance-covariance matrix estimates are inconsistent for the presence of both heteroskedasticity and serial correlation.

Therefore we used the Newey-West (1987) covariance-matrix estimator and a Generalised Least Square specification for our model.

# Empirical modelling (3)

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The exogenous variables are the following

- ❑ *EXPORT* represents regional exports towards the selected countries, i.e. measures imports' elasticity on exports,
- ❑ *LNPRODGROW* represents the ratio between the domestic industry and services productivity logarithmic growth rate,
- ❑ *LNAVFOREIGN* is the added value of the foreign partner country,
- ❑ *XRFORIGN* is the bilateral real exchange rate,
- ❑ *DISTANCE* is the kilometric distance between the regional capital city and the partner country capital city,
- ❑ *DPARTNER* is a country dummy,
- ❑ *DREGION* is a regional dummy,
- ❑ *DYEAR* is a yearly dummy.

All variables are expressed in logs in order to interpret the coefficient as the response elasticity of the dependant variable to a percentage variation of the explanatory variables.

# Empirical modelling (4)

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We divided the original sample of twenty Italian regions in two subsamples.

The first, denoted as 'TypeA Regions', indicates those regions with higher trade flows, while the second, denoted as 'TypeB Regions', those with lower trade volumes, finally the whole sample was labelled as 'Type A+B Regions'.

Such a distinction is primarily oriented to understand if the Regions which are the most involved in the imports of goods, are, at the same time, those showing higher export flows towards the selected partner countries.

# The Data

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- Import and export data are from [www.coeweb.istat.it](http://www.coeweb.istat.it), the Italian statistical repository for international trade flows
- Domestic added value and productivity are from Istat, the Italian national institute of statistics
- Foreign added value and exchange rates are from the World Bank
- FDI to the Maghreb are from
  - FDIStat, World Investment Report, 2008 (UNCTAD)
  - Surveys and Elaborations Service - Department on Foreign Statistics - Bank of Italy
  - ICE - Reprint Milan Polytechnic, Comext and World Bank

# Results (1)

Table 1: Estimates for the model on the textile and clothing industry

	TypeA Regions Coefficient	TypeB Regions Coefficient	TypeA +B Regions Coefficient
Constant		4.94**	
EXPORT	0.72***	0.31***	0.38***
LNPRODGROW	0.6***	-0.22	0.64**
LNAVFOREIGN	0.78***	0.04	0.63***
XRFORIGN	-0.46	-0.84	-0.37**
DISTANCE	-0.53**		
Country Effects			
MOROCCO	-4.06***	-3.48***	-4.4***
EGYPT	-2.27***	-0.94***	-2.8***
TUNISIA			
Regional Effects			
PIEDMONT	1.34***		3.46***
LOMBARDY	1.38***		3.69***
VENETO	1.9***		4.18***
EMILIA-ROMAGNA	0.99***		2.85***
TUSCANY	0.81***		2.98***
ABRUZZO	0.83***		2.97***
MARCHE	-0.01		1.86***
UMBRIA		1.62***	1.41***
AOSTA VALLEY		0.48	0.75
TRENTINO-ALTO ADIGE		-0.71*	-0.47
LIGURIA		0.73*	0.49*
FRIULI-VENEZIA GIULIA		0.55	-0.01
LAZIO			1.61***
APULIA			2.1***
CAMPANIA			1.92***
CALABRIA		-0.77***	-0.77**
SICILY		1.62***	1.21***
SARDINIA		0.94**	0.66
Time Effects			
DYEAR02	0.08*	-0.03	
DYEAR03	-0.07	-0.21	-0.07
DYEAR04	-0.2**	-0.2	-0.11***
DYEAR05	0	-0.45**	-0.05*
DYEAR06	-0.03	-0.41**	-0.06
DYEAR07	-0.1	-0.14	
R-squared	0.72	0.71	0.82

Note: \*\*\*, \*\* and \* indicate significance at 1%, 5% and 10% respectively.

# Comments (I)

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- If looking at Table 1 we notice that the elasticity of imports' due to a variation in exports is very different if looking at 'TypeA Regions' rather than to 'TypeB Regions'. In both cases the coefficient is statistically significant, but it is more than double in the former group. If considering the whole sample the coefficient is significant and its value is fairly close to the one expressed by 'TypeB Regions'.
- 'TypeA Regions' show a significant and positive sign for the variable that measures the variation in productivity, conversely to what takes place for the group of 'TypeB Regions', where the variable is not significant and carries a negative sign. If looking instead at the whole group of regions the variation on productivity carries again a positive and significant sign, whose value is higher than the sole 'TypeA Regions'.
- Similarly, the coefficient expressing the added value of the foreign partner country is positive and significant for 'TypeA Regions', while it is close to zero for 'TypeB Regions'. If looking, again, at the whole sample the coefficient is again positive and largely significant.

# Results (2)

Table 2: Estimates for the model on the leather and footwear industry

	TypeA Regions Coefficient	TypeB Regions Coefficient	TypeA+B Regions Coefficient
Constant			
EXPORT	0.82***	0.09***	0.21***
LNPRODGROW	-0.41	-0.09	-0.07***
LNAVFOREIGN	1.20**	0.52***	0.53***
DISTANCE	-1.66***	-0.01	-0.50***
XRFORIGN	-1.67***		
Country Effects			
MOROCCO	-6.31***	-1.38***	-3.46***
EGYPT	-4.01***	-1.88***	-2.49***
Regional Effects			
PIEDMONT	2.05**		2.66***
LOMBARDY	1.99**		3.76***
VENETO	2.72***		4.96***
EMILIA-ROMAGNA	2.09***		4.40***
TUSCANY	2.12**		5.03***
ABRUZZO			0.21
UMBRIA			3.87
MARCHE	1.70**		-0.20***
LAZIO			0.68
APULIA	0.40		0.10***
CAMPANIA	2.30***		-0.52***
LIGURIA		-0.38	4.56***
TRENTINO-ALTO ADIGE		0.15***	0.54
FRIULI-VENEZIA GIULIA		-0.30	-0.20**
CALABRIA		-0.08	-0.11
SICILY		0.86***	0.51**
SARDINIA		-0.01	0.10
Time Effects			
DYEAR01	0.77***	-0.09	0.23***
DYEAR02	0.54***	0.10	0.24*
DYEAR03	0.16***	-0.12**	-0.05***
DYEAR04	0.22***	-0.06**	-0.15***
DYEAR05	0.84***	-0.05	-0.25***
DYEAR06	0.20***	-0.13**	-0.14***
R-squared	0.76	0.86	0.91

Note: \*\*\*, \*\* and \* indicate significance at 1%, 5% and 10% respectively.

# Comments (I)

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- The elasticity of imports to exports is significant all along the three sample, but the coefficient is higher for the 'TypeA Regions', actually four times higher circa than what takes place for the complete dataset, and ten times higher than the coefficient expressed for 'TypeB Regions'.
- Contrary to the textile and clothing industry, the coefficient for the variation of the productivity is not significant in this sector if the two regional samples are considered independently, but it becomes significant if looking at the entire one.
- As far as the added value of the foreign country is concerned, we find an expected positive sign, which is largest for 'TypeA Regions', and almost the double of the coefficient of the 'TypeB Regions' and of the overall sample.
- Different results emerge, instead, if considering the exchange rate and distance. In the former case, the value is negative and the coefficient is significant just only for 'TypeA Regions' and for the total sample. In the latter case, the coefficient is negative (as expected), and largely significant only for the case of 'TypeA Regions'.

# Comments (I)

## The role of Italian Regions in the Maghreb

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Outward flows from Italian regions to the selected Maghreb countries are extremely low (Tables available upon request.)

- Amongst the Nations, we noticed the limited relevance of Algeria whose attractiveness is extremely low, compared to the highest values expressed by Tunisia.

- Amongst the Regions,

1) we are able to isolate the leading one, **Lombardy**, that has a strong linkage with Egypt, but it also has significant relations with Tunisia and Morocco.

2) The second place is occupied by **Veneto** with a significant outward flow towards Tunisia,

3) which is the preferred destination also for capital coming from **Piedmont**.

4) The fourth place is occupied by **Emilia-Romagna**, showing a remarkable relationship with Egypt.

# Is the Maghreb attractive for FDI?

## A Regional Comparison

Table 5: FDI Stock - Comparison between some Maghreb countries, North Africa and Africa - values in million Dollars at current prices

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Morocco	Inward	5,448	6,655	7,056	8,419	8,842	11,649	12,131	17,106	19,883	20,752	29,939	32,516
	Outward	297	306	326	344	402	499	453	560	676	666	1,350	2,002
Algeria	Inward	1,901	2,161	2,768	3,059	3,497	4,693	5,758	6,392	7,274	8,355	10,151	11,815
	Outward	183	183	184	231	249	258	358	372	630	652	687	977
Tunisia	Inward	11,181	10,629	12,237	11,432	11,545	11,520	13,861	16,229	17,844	16,840	21,853	26,223
	Outward	29	32	34	33	33	32	37	43	47	52	89	118
Egypt	Inward	15,326	16,578	17,654	18,719	19,955	20,465	21,112	21,349	23,506	28,882	38,925	50,503
	Outward	355	521	566	604	655	668	696	716	875	967	1,116	1,781
North Africa	Inward	34,676	36,874	40,787	42,945	45,688	50,637	56,029	65,736	75,035	84,700	116,293	141,460
	Outward	1,902	2,365	2,729	3,056	3,282	3,224	3,175	3,385	3,636	3,874	4,243	5,400
Africa	Inward	90,157	100,194	108,657	152,668	152,614	149,561	164,652	202,233	240,887	270,984	335,435	393,429
	Outward	32,884	32,722	36,007	43,391	44,156	29,194	34,066	40,384	52,655	52,487	66,762	72,752

Source: FDIStat, World Investment Report, 2008

# Is the Maghreb attractive for FDI?

## (2)

## A Regional Comparison

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Table 6: Percentage of FDI stock on GDP - Comparison between some Maghreb countries, North Africa and Africa

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Morocco	Inward	13.31	17.82	17.63	21.18	23.86	30.85	29.97	34.34	35.26	35.2	45.8	44.09
	Outward	0.72	0.82	0.81	0.86	1.09	1.32	1.12	1.12	1.2	1.13	2.06	2.71
Algeria	Inward	4.05	4.49	5.74	6.29	6.38	8.51	10.11	9.4	8.55	8.16	8.75	8.96
	Outward	0.39	0.38	0.38	0.48	0.45	0.47	0.63	0.55	0.74	0.64	0.59	0.74
Tunisia	Inward	57.08	56.25	61.76	54.96	59.38	57.69	65.85	64.93	63.23	58.56	71.24	75.62
	Outward	0.15	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.18	0.29	0.34
Egypt	Inward	19.91	19.52	19.46	19.57	20.04	21.67	23.44	27.69	28.52	28.49	35.36	38.11
	Outward	0.46	0.61	0.62	0.63	0.66	0.71	0.77	0.93	1.06	0.95	1.01	1.34
North Africa	Inward	15.72	15.99	17.29	17.53	17.8	20.23	22.99	25.47	25.02	23.91	28.59	29.84
	Outward	0.9	1.07	1.21	1.3	1.34	1.36	1.39	1.4	1.29	1.18	1.04	1.14
Africa	Inward	16.07	17.19	18.91	26.24	25.21	25.63	28.28	29.13	29.15	27.92	30.64	31.27
	Outward	6.21	5.98	6.66	8.03	7.94	5.34	6.27	6.18	6.88	5.88	6.45	6.09

Source: FDIStat, World Investment Report, 2008

# Is the Maghreb attractive for FDI?(3)

## The Italian participation in the Maghreb firms

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Table 7: Number of foreign firms participated by Italian firms

	1.1.2002	1.1.2003	1.1.2004	1.1.2005	1.1.2006	1.1.2007	1.1.2008
Algeria	86	87	91	94	95	95	97
Morocco	104	107	110	113	114	115	120
Tunisia	251	253	260	267	269	283	295
Egypt	87	91	97	99	100	103	106
Total Maghreb	528	538	558	573	578	596	618
France	1,869	1,890	1,950	1,992	2,004	2,061	2,123
Spain	1,193	1,218	1,287	1,325	1,342	1,394	1,633
Germany	1,462	1,527	1,557	1,608	1,619	1,683	1,743
Brazil	620	635	657	654	659	665	710
Russia	235	245	254	266	301	317	334
India	195	204	217	226	238	256	269
China	614	654	698	774	851	923	975

Source: ICE - Reprint Milan Polytechnic

# Is the Maghreb attractive for FDI?

(4)

The Italian role in the Maghreb: how many employees?

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Table 8: Employees of foreign firms participated by Italian firms

	1.1.2002	1.1.2003	1.1.2004	1.1.2005	1.1.2006	1.1.2007	1.1.2008
Algeria	1,612	1,632	1,748	1,788	1,832	1,855	1,887
Morocco	10,061	10,271	10,654	11,102	10,940	11,447	11,548
Tunisia	18,592	18,990	19,128	19,094	19,193	20,034	20,844
Egypt	5,080	5,261	5,356	5,370	9,923	8,555	8,302
Totale Maghreb	35,345	36,154	36,886	37,354	41,888	41,891	42,581
France	156,562	133,585	132,619	134,176	134,354	136,871	137,642
Spain	68,479	64,433	65,960	66,078	57,226	58,577	73,971
Germany	79,913	92,659	92,307	94,987	94,263	99,420	95,248
Brazil	90,363	84,788	79,832	65,042	68,296	67,420	76,748
Russia	28,597	28,446	27,875	29,364	30,316	28,087	32,372
India	13,150	13,320	14,396	14,237	14,112	14,495	15,154
China	31,477	36,894	40,042	45,806	52,622	59,166	61,023

Source: ICE - Reprint Milan Polytechnic

# Is the Maghreb attractive for FDI?

(5)

The overall turnover generated by Italian investments

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Table 9: Turnover of foreign firms participated by Italian firms (data expressed in million of Euros)

	1.1.2002	1.1.2003	1.1.2004	1.1.2005	1.1.2006	1.1.2007	1.1.2008
Algeria	442	707	693	825	1,671	1,931	2,050
Morocco	635	654	628	685	767	937	1,030
Tunisia	1,046	1,334	1,365	1,440	1,512	1,607	1,748
Egypt	1,652	1,744	1,448	1,707	2,629	3,027	3,234
Total Maghreb	3,774	4,439	4,135	4,658	6,578	7,503	8,063
France	48,101	41,654	43,207	46,901	48,458	50,104	53,336
Spain	20,135	17,907	20,602	23,066	23,367	26,864	52,295
Germany	36,687	34,928	35,230	39,205	42,547	46,922	49,693
Brazil	16,885	12,774	12,713	11,772	13,875	16,542	22,062
Russia	1,736	1,832	2,036	2,257	2,558	4,691	4,321
India	951	981	1,025	1,082	1,178	1,250	1,419
China	2,465	2,816	2,883	3,354	4,123	20,512	4,959

Source: ICE - Reprint Milan Polytechnic

# Is the Maghreb attractive for FDI?

(6)

## Turnover per employee stemming from the Italian presence

Table 10: Turnover per employee of foreign firms participated by Italian firms (values in Euros)

	1.1.2002	1.1.2003	1.1.2004	1.1.2005	1.1.2006	1.1.2007	1.1.2008
Algeria	273,883	433,272	396,625	461,633	912,118	1,041,132	1,086,486
Morocco	63,095	63,645	58,907	61,701	70,082	81,856	89,228
Tunisia	56,272	70,253	71,382	75,427	78,758	80,234	83,837
Egypt	325,098	331,572	270,407	317,952	264,920	353,840	389,593
Total Maghreb	106,776	122,789	112,091	124,699	157,040	179,103	189,345
France	307,233	311,816	325,796	349,546	360,672	366,064	387,497
Spain	294,032	277,912	312,339	349,066	408,327	458,603	706,964
Germany	459,082	376,947	381,658	412,739	451,369	471,961	521,720
Brazil	186,856	150,652	159,252	180,992	203,154	245,362	287,458
Russia	60,692	64,392	73,055	76,853	84,368	167,017	133,470
India	72,327	73,679	71,221	75,999	83,503	86,202	93,619
China	78,324	76,321	72,009	73,215	78,349	346,684	81,268

Source: ICE - Reprint Milan Polytechnic

# Is the Maghreb attractive for FDI?

(7)

*A tentative proxy of Italian FDI in each country*

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Flow per employee of foreign firms participated by Italian firms - values in million Dollars at current prices

	Flow per employee of foreign firms participated by Italian firms						
	2001	2002	2003	2004	2005	2006	2007
Egypt	0.455	0.419	0.464	0.61	0.334	0.544	0.655
Moreocco	0.125	0.124	0.144	0.158	0.171	0.185	0.245
Tunisia	0.182	0.177	0.212	0.264	0.278	0.294	0.352
France	0.362	0.446	0.537	0.617	0.627	0.659	0.757
Spain	0.368	0.432	0.543	0.641	0.774	0.846	0.807
Germany	0.977	0.858	1.039	1.18	1.229	1.301	1.597
Brazil	0.049	0.046	0.053	0.086	0.09	0.106	0.113
Russia	0.378	0.389	0.49	0.622	0.73	0.948	1.023
India	0.184	0.186	0.218	0.288	0.342	0.445	0.577
China	0.306	0.316	0.379	0.442	0.443	0.501	0.628

Source: our elaboration on ICE - Reprint Milan Polytechnic, Comext and World Bank data

# Comments (II)

## The role of Italian Regions in the Maghreb: A measure of trade flow per employee

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As official statistics do not always provide the stock of outward IDE from Italy to other countries, included those of our interest, we decided to proxy it with the number of Italian employees abroad and compute the volume of trade flow per employee.

Through our calculations, we noticed that within the Maghreb area, Egypt shows the highest value, a country that already in the year 2001 showed a remarkable level. Much more lower are the digits presented by Tunisia and Morocco, with a steady rise all along the time span.

It is quite hard to provide a comparison between the Maghreb countries and the so-called BRICs, that present an enormous economic power and are extremely different one from the other.

***Our measure seems quite reliable if looking at the results provided for Germany, France and Spain.***

# Concluding remarks

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***The estimates of the gravity model generally support the idea of an international fragmented production between Italy and the Maghreb.***

Indeed,

firstly, the paper shows that:

- a growing amount of raw textiles is shipped overseas from some Italian Regions to Tunisia and Egypt in order to be further processed exploiting significant comparative advantages, and then re-imported domestically;
- but it also highlights (if looking at import composition at a narrow level) that Italian Regions often import finished product to be either placed internally or abroad.

Secondly, the paper contributes, although in a mostly descriptive fashion,

- to the analysis of FDI flows and stocks directed to the Maghreb countries and to understand that
- sometimes those Italian Regions that trade the most with a country are also more inclined to invest in it. ***This is not always the case, and further research is needed to shed some light on this topic, relying on more detailed trade and FDI data.***