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Heterogeneity in Managerial Strategies and Internationalization of Firms: the case of Italy

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Abstract

The recent empirical literature on firms’ performance has focused on the multidimensional concept of firms’ managerial strategies. In this paper, we analyze the relationship between firms’ managerial strategies and firms’ performance, accounting for entrepreneur’s specific characteristics, firm’s strategies, organizational capabilities. We also emphasize the role of firms’ internationalization mode. We match and merge three different datasets for Italy, the Capitalia survey, ICE-Reprint and AIDA for the period 2001-2003 and investigate a possible non-linear impact of managerial strategies on firms’ performance. The specific characteristics of the entrepreneur do not seem to significantly affect firms’ performance, while the mode of internationalization plays a role. We find evidence of some important non linearities when we single out the role of skilled workers and managers in determining firm’s success in highly competitive markets.

KEY WORDS: Managerial Strategies, Internationalization, Panel Analysis, Non-linearities.

JEL classification: C1, F1, F2, L1

1 Introduction

In order to be successful in today’s world wide competitive environment, companies set up complex strategies exploiting different firms’ characteristics. The role of entrepreneurs and managers, labor force’ skills and talent, investments and internationalization strategies are crucial for a successful firm in manufacturing

products of high quality at low cost. This set of heterogeneous characteristics can be broadly defined as firms' managerial strategies and are likely to affect both the competitiveness and the economic performance of firms. Recently, an increasing number of papers has stressed the importance of firms' managerial strategies in explaining firms' economic performance, showing that not only investments (in either physical or human capital) or labor (Holtz-Eakin and Kao, 2003; Audretsch and Thurik, 2001) but also organization, good management etc. are crucial to explain heterogeneity in firms' performance (Audretsch et al., 2006).

A relatively new, but quickly growing, literature collects and elaborates micro evidence, at a firm level, on managerial practices, organizational structures and human capabilities relating them to firms' performance (Bloom and Van Reenen, 2007). This issue is not easy to address, on the one hand, because these concepts are difficult to define and, on the other hand, because they are hard to pinpoint precisely and even harder to measure. In particular, the problems of definition and measurement arise because managerial practices and organizational structures are often defined using both formal and informal proxies. And usually the observer can only state whether a structural feature exists or not, without being really able to assess its effects on firms' performance (f.e. the role of creativity on firms' productivity). In this line of research, a crucial feature of firms' managerial strategies is represented by the fact that firms' strategies are related to several aspects of analysis, both at micro and macro level. At micro level, managerial strategies involve individual decisions and actions; while, at a macro level they relate industry characteristics, firms' geographical localization, institutional framework, etc.

A strand of empirical literature casts light on the relationship between managerial strategies and several aspects of firms performance (innovative capacity, productivity, etc.). Koski et al. (2009) use a survey database on Finnish manufacturing firms (2002-2005) to empirically explore which organizational factors explain larger innovative output and whether managerial practices differ between small and large firms. They show that the difference in organizational practices between firms is substantial and leads to gaps in innovation levels, both between small and large firms and high and low tech firms. Maksoud et al. (2008), instead, focus on innovative managerial practices emphasizing the role of quality, innovation and flexibility of a large survey of Japanese manufacturing firms in 2003. They show that non financial performance measures, innovative managerial practices, workers' skills and training are key aspects of market competition. Bloom and Van Reenen (2007) use an original survey to collect management practices data from four different countries (UK, USA, France and Germany). These measures of managerial practices are strongly associated with firm level productivity and play a significant cross-country role when product-based market competition is weak and when family-owned firms pass management control down to the eldest son. In

line with Bloom and Van Reenen (2007), Castellani and Giovannetti (2009) focus on labor productivity using an original and extended database on Italian multinational firms. Managerial practises and organizational capabilities are proxied by several variables such as production of innovating goods and processes, number of managers and share of R&D workers. They show that the total factor productivity premia of exporters are mainly due to these managerial strategies and that multinational firms have, on average, superior organizational capabilities and managerial practises than family firms.

In line with this literature, we focus on a relevant though less explored aspect of firms' performance: sales. We emphasize the multidimensionality of firms' managerial strategies and we relate their economic performance to entrepreneur's specific characteristics (age and sex), firm's strategies (modes of internationalization and financing activities) and organizational capabilities (share of skilled workers, innovation and R&D activities) , using different proxies and an original database.

The paper is structured as follows. We present the dataset, obtained by matching and merging three different databases, and the methodology in section 2. Results of our estimates are in section 3: we test the hypothesis that heterogenous firms characteristics (internationalization mode, technological level and entrepreneur's age) affect the relationship between firms' managerial strategies and performance. We show that important non linearities exist in the relationship between firms' performances and education of employees and that firms with a different international involvement need different typologies of management and labor force to successfully compete. Section 4 concludes.

2 The Data and The Model

We match and merge to gain the intersection of three different datasets: Capitalia (2005), ICE-Reprint 2001-2003 and AIDA. AIDA provides standard data on budgets of Italian companies, Capitalia's Observatory on Small and Medium Size Firms is a survey on a representative sample of 4305 Italian firms, providing information on many different aspects, such as R&D, innovation and destination markets for exports¹. The sample includes all firms with more than 500 employees and, among firms with less than 500 employees, a representative sample selected using a stratified design on location, industrial activity and size. Finally, the ICE-Reprint database is the census of foreign affiliates of Italian firms with a turnover higher than 2.5 millions of euros and provides information also on the number of

¹The questionnaire of the Capitalia Survey, available on request, provides detailed information on individual variables, except FDI and budget.

employees and sales (for details, see Mariotti and Mutinelli, 2005). In this paper, we use ICE-Reprint for information on foreign direct investment, AIDA for data on sales and entrepreneur's age and Capitalia for the other variables. Our consolidated dataset provides information on firms' processes of internationalization, economic performance, innovative capacity and growth and labor force characteristics and has information on a panel of 4305 firms for the period 2001-2003.

To assess firms performance we regress sales on entrepreneur's specific characteristics, firm's strategies and organizational capabilities.

More specifically, we distinguish three sets of variables, each accounting for a different aspect of firms' managerial strategies:

1. *Entrepreneur's characteristics*: entrepreneurs' age, sex, belonging to a family firm²;
2. *Firms's strategies*: investments, R&D expenditures, the share of self-financing, acquisitions and breaking down, decision to export, to export only to EU25 and/or to invest abroad;
3. *Managerial/organizational capacity and skills*: the percentage of employees with a degree, the share of managers and/or specialized workers over total labor force.

Let $\ln(y_{i,t})$ be the firm's log of sales at time t , our general model can be written as:

$$\ln(y_{i,t}) = \alpha + \sum_{j:1}^k \beta_j X_{i,j,t} + \varepsilon_{i,t} + \mu_i + \nu_t \quad (1)$$

where $X_{i,j,t}$ represents the set of covariates (where $j : 1, \dots, k$) encompassing above.

We believe that some of these variables may affect firm's performance in a non linear way, due to possible discontinuity in individual firm' behavior and to the existence of threshold triggering different behavior such as exporting or not exporting. In other words, non linearities are able to assess and discuss problems of heterogeneous firms. Therefore, in the following, to account for the variety of complex economic phenomena for which a linear relationship may be inconsistent we use non linear specifications. Specifically, we use a quadratic form, which allows us to capture decreasing or increasing marginal effects on sales. We split

²See Barba Navaretti et al. (2007) for a definition of "family firm" using data out of the Capitalia Survey, and Favero et al., 2006

$X_{i,j,t}$ in two matrices, one including variables with only linear effects on sales (\mathbf{R}) and one variables with also possible non linear effects (\mathbf{Z}). Model (1) can be then re-written as:

$$\ln(y_{i,t}) = \alpha + \sum_{j:1}^k [\beta_j R_{i,j,t} + \gamma_j Z_{i,j,t} + \rho_j Z_{i,j,t}^2] + \varepsilon_{i,t} + \mu_i + \nu_t \quad (2)$$

The statement that Z_j has a diminishing (or increasing) marginal effects on y is the same as saying that the slope of the function in Figure 1 decreases (increases) as Z_j increases (decreases).

Figure 1 about here.

The quadratic function in Figure 1 has an inverted U-shape with a maximum if $\gamma_j > 0$ and $\rho_j < 0$ (continuous line), and a U-shape with a minimum if $\gamma_j < 0$ and $\rho_j > 0$ (dashed line). The turning point is:

$$Z_j^* = \frac{|\gamma_j|}{|2\rho_j|} \quad (3)$$

and the slope:

$$\text{slope}(Z_j) = \frac{\Delta y}{\Delta Z_j} \approx \gamma_j + 2\rho_j Z_j \quad (4)$$

The nonlinearity is characterized by the fact that the change in the dependent variable for a given change in a regressor depends on the starting value of the regressor itself (Wooldridge, 2008). Hence, for small changes in Z_j we can compute the effect on y

$$\Delta y \approx (\gamma_j + 2\rho_j Z_j) \Delta Z_j \quad (5)$$

3 The Results

3.1 Descriptive Statistics

Table 1 reports descriptive statistics. As expected, entrepreneurs are mostly middle aged men³, since the average age is 55 years old; 69% of firms of our database are family firms. We notice also that, on average, 8% of workers are managers and white collars and around 4% of employees have a degree. Roughly half of the

³We do not report statistics for sex, roughly 87% of the entrepreneurs are men. See Giovannetti et al. (2007).

firms can count on self-financing, 13% did an acquisition in the period of observation while less than 5% sold existing activities. Finally, 74.6% of the sample export, while 10.5% invest abroad⁴.

We can get some interesting insights (and lines of work as well as testable hypothesis) by dividing the sample according to the international involvements of the firms in our sample (Table 2). The share of employees with degree (our skilled workers) is larger for FDI makers (7.4%) and for exporters (4.8%) than for the whole sample (4.3%), suggesting a “ranking” already emphasized in the literature (Mayer and Ottaviano, 2007; Bernard et al., 2007). Internationalized firms, especially FDI makers, employ more skilled workers (here proxied by employees with degree) because they offshore low value added phases of production and keep at home design, services etc. (workers which usually have a degree but are not necessarily part of the management). If we look at the share of management we find the opposite ranking, this may be due to the different average size of firms with different degree of involvement abroad (De Benedictis and Giovannetti, 2010). In our sample, the share of management is larger for firms operating only in the domestic market: 8.8% for non-exporters, 8% for non-FDI makers versus 0.075 for exporters and 0.059 FDI makers⁵. This seems to suggest that Italian non-internationalized firms may need a larger share of white collars and managers to implement their managerial and commercial strategies.

Table 1 about here.

Table 2 about here.

3.2 Model Results

We use a Cross-sectional time-series nonlinear model with feasible generalized least squares (GLS), heteroschedasticity robust method. It allows estimation when cross-sectional correlation and heteroschedasticity across groups is present (random effects). We run a log-log nonlinear specification for the whole sample.

Let $\ln(y_{i,t})$ be the firm i log of sales at time t , in model (1) and, as mentioned

⁴A detailed description of the data we use can be found in De Benedictis and Giovannetti (2010).

⁵It is worth noting that FDI makers are substantially larger than less (or no) internationalized firms. Furthermore, when looking at employment in the different categories between 2001 and 2003, the increase of total labor force is higher and, especially, much less volatile for internationalized firms, suggesting a more heterogeneous behavior for domestic firms in front of challenges of globalization.

above, let us split the variables according to their expected linear/nonlinear relationships with sales:

$$\ln(y_{i,t}) = \alpha + \sum_{j:1}^k [\beta_j R_{i,j,t} + \gamma_j Z_{i,j,t} + \rho_j Z_{i,j,t}^2 + \delta_j D_{i,j}] + \varepsilon_{i,t} + \mu_i + \nu_t \quad (6)$$

where, $R_{i,j,t}$ includes log of investments and log of R&D expenditures which have a linear impact on sales, $Z_{i,j,t}$ is the set of variables with a nonlinear effect (quota of employees with degree, age of the entrepreneur and management) and $D_{i,j}$ is a set of time-invariant covariates (self-financing, acquisitions, breaking downs, being a family firm, being and exporters and FDI makers).

Table 3 about here.

Table 4 about here.

Table 5 about here.

Table 6 about here.

Table 3 shows that when we consider the whole sample, the dimensions of firms' managerial strategies regarding international involvement and management capabilities are significant and strongly affect firms' performance, while the entrepreneurs' characteristics are either not significant (age) or negatively affect performance (family). To be an exporter and/or an FDI maker, on average, increases the sales level by 31.6% and 70.4% respectively. A 1% increase in investment (R&D expenditures) increases sales by 13% (4%), all other constant⁶.

Human capital, proxied by the share of employees with degree, and management are always significant. We mentioned above that these variables can affect sales in a non linear way: a possible discontinuity at individual level, such for instance the existence of thresholds triggering heterogeneous reactions, an "optimal" ratio of managers to workers etc. can indeed imply non linearity at aggregate level. We find evidence of these non linearities. The share of employees with degree shows a maximum (i.e. has a pattern similar to the continuous line in Figure 1): there is a positive effect of hiring skilled workers up to when their share does not

⁶Additional diagnostic tests are available upon request.

exceed 54.50% of the labor force⁷. Above this level the cost of hiring new skilled workers seems to be higher than the benefits the firms receive in terms of higher sales.

On the other hand, the share of management (miming a shape such as the dashed line in Figure 1) has a minimum (30.2%). Thus, only if the firms in our sample change their labor composition (i.e. increase the number of managers and white collars) to reach that minimum threshold, the effect on sales will be positive (on average). Below this level the benefits of a new organizational setting do not seem to offset the costs sustained by the firm.

In discussing descriptive statistics we noticed that the average share of skilled workers and managers differ significantly for different levels of international involvements of firms. As a matter of fact, the discussed effects may depend also on other characteristics of the entrepreneur.

Hence, to gain new insights on managerial strategies' influence on firms' heterogeneous performance, we further analyze:

- different entrepreneurs' age groups, to see whether the very low numerical value of age coefficient in our estimate depends on heterogeneity of entrepreneurs' (we split the sample considering "young" entrepreneur with less than 45 years and mature otherwise);
- firms in high and low-tech sectors⁸;
- international involvement at different levels (heterogeneity of firms' performance may depend upon several aspects: exporters and non-exporters, FDI and non-FDI makers, exporters not investing abroad and firms that export to the EU25 countries more than 60% of their own exports);

Table 4 and 5 present results for the subgroups. As expected, and in line with our general results (Table 3), investment and R&D have a positive and significant impact and, interestingly, their magnitude does not vary across subgroups (but for FDI-makers). The share of employees with degree (both levels and square) is

⁷In table 6 we computed the turning points and the total (linear and nonlinear) composite effect of each variable on the whole sample and different subgroups.

⁸We build a technological dummy using the Pavitt taxonomy. This taxonomy distinguishes between traditional, scale, specialized and high-tech sectors. Results in Table 4 are reported for a dummy equal to zero when the firm is either in traditional or in scale sectors and one otherwise. Since the scale sectors include also firms that cannot be classified as low tech (like the transport sector), we also run the model using (1) a dummy equal 0 only for traditional sectors and 1 otherwise; (2) the 4 Pavitt classes separately and (3) some relevant sectors (mechanics, textile, clothing and chemicals). Results are robust and available upon request.

positive and significant. However, coefficients vary upon the subgroups considered. Table 6 shows that the coefficient of share ranges from 0.81% for young entrepreneurs to 3.88% for non-exporter. More specifically, assuming that a firm with a young entrepreneur has 4.3% of employees with degree (the sample average), a 1% increase in the share of graduates leads to a 0.81% increase in sales; moreover, return in human capital is increasing up to almost 60% of the labor force. On the other hand, when the firm is run by a mature entrepreneur the same investment in human capital leads to a 2.92% increase in sales; however the increase in return decreases as the share reaches 53.70% of the labor force (see Table 6). These results seem to suggest that a young entrepreneur may have a lack of experience that cannot be completely mitigated by investing in human capital.

The same reasoning can be applied to other variables related to managerial strategies that have non linear effects on firms' performance. Out of all the results, let us focus on the differences between non-internationalized firms (those that either do not export or do not invest abroad, see Table 5) and those with international involvement. The increase in sales due to a 1% increase in the share of skilled workers is 3.9% for domestic firms, which is higher than the corresponding increase in sales for exporters (+2.3%), FDI-makers (+1.5%) and exporters not investing abroad (+2.4%). If we recall that firms investing abroad and exporters have on average a higher share of labor force with degree (7% and 5%) than those that are not internationalized (less the 3% for non-exporters), we can justify the higher marginal contribution of skilled workers in domestic firms up to around 55% of labor force. Furthermore, internationalized firms need an extended set of competencies that cannot be proxied simply by a degree (Mayer and Ottaviano, 2007, Giovannetti et al. 2010)⁹.

4 Conclusions

Empirical literature has recently focused on the concept of firms' managerial strategies. It is a multifaceted concept and affects firms' heterogeneity and performance. We emphasize the multidimensional aspects by concentrating on three sets of variables: entrepreneurs' characteristics, entrepreneurs' strategies and managerial capacity. We focus on sales as a proxy of firms' performance and we find that the effects on sales are, on average, highly significant and non linear. However, these linear and non-linear effects vary, also significantly, among subgroups. Exploiting

⁹For instance, some skills such as specialized blue collar are crucial to win the challenges of globalization in specific sectors but do not require a degree. Given a lack of available information at a sector/firm level, however, we are unable to assess the role of skills proxied by training and not by education

this information, we gain some insights to evaluate the role of the entrepreneur as a measure of managerial strategies of the firm. Interestingly, the entrepreneur's age plays no role fostering the firm's performance: being young and dynamic does not guarantee the success of the firm in competitive markets. All else constant, firms in international markets perform better than purely domestic firms. In summary, a firm with a successful set of managerial strategies invests and stimulates skilled labor force and finds the optimal level of management share to succeed in international markets. Using these strategies the firm is able to compete and increase her market shares. From our results, it emerges that the successful firm explores new markets and invests in human capital. However, firms heterogeneity is really large in our sample showing a different role of managerial strategies in small family-owned firms and in larger companies. Our results also show that firms investing abroad - which are, on average, larger than non (or less) international firms - need a lower share of managers and white collars and higher share of skilled workers to be competitive and increase their sales.

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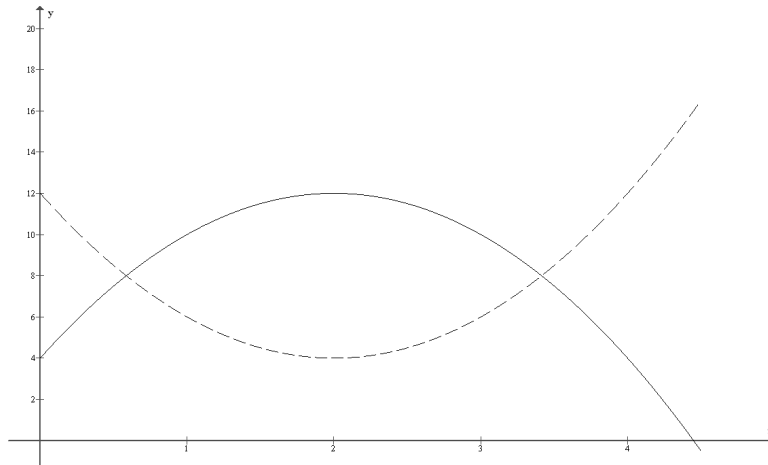


Figure 1: Quadratic Effects in Z_j

	Whole Sample	Low Tech	High Tech	Young	Mature
Sales (log)	40.900 [180.000]	39.200 [197.000]	44.800 [133.000]	32.900 [168.000]	73.600 [216.000]
Investment (log)	0.981 [5.284]	0.894 [4.023]	1.173 [7.326]	1.033 [5.525]	0.781 [4.214]
R&D	0.256 [2.571]	0.182 [2.834]	0.427 [1.819]	0.307 [2.851]	0.062 [0.848]
Employees w/degree	0.043 [0.154]	0.032 [0.134]	0.066 [0.189]	0.048 [0.161]	0.021 [0.120]
Family	0.695 [0.460]	0.716 [0.451]	0.650 [0.477]	0.709 [0.454]	0.642 [0.480]
Age (years)	54.541 [13.395]	54.201 [13.385]	55.291 [13.390]	54.679 [13.431]	53.982 [13.237]
Management	0.078 [0.077]	0.077 [0.078]	0.080 [0.075]	0.079 [0.076]	0.075 [0.078]
Self-financing	0.484 [0.411]	0.464 [0.401]	0.521 [0.412]	0.492 [0.411]	0.173 [0.201]
Acquisitions	0.133 [0.340]	0.123 [0.329]	0.155 [0.362]	0.134 [0.341]	0.130 [0.336]
Breaking Downs	0.047 [0.212]	0.046 [0.209]	0.051 [0.220]	0.046 [0.210]	0.050 [0.219]
Export	0.748 [0.434]	0.700 [0.458]	0.855 [0.352]	0.759 [0.427]	0.703 [0.457]
FDI Makers	0.106 [0.308]	0.088 [0.283]	0.148 [0.355]	0.104 [0.305]	0.116 [0.320]
Low-Tech Firms	0.687 [0.464]			0.717 [0.450]	0.679 [0.467]

Note: Standard errors in brackets

Table 1: Descriptive Statistics (2001-2003)

	Non-Export	Export	Non-FDI	FDI Makers	Export/Non-FDI	Exp>60% in EU
Sales (log)	17.700 [57.400]	47.600 [203.000]	29.800 [121.000]	133.000 [410.000]	34.100 [135.000]	54.800 [189.000]
Investment (log)	0.395 [2.534]	1.167 [5.882]	0.751 [4.766]	2.914 [8.216]	0.900 [5.483]	1.241 [4.940]
R&D	0.061 [0.898]	0.326 [2.942]	0.211 [2.617]	0.654 [2.082]	0.271 [3.041]	0.339 [3.545]
Employees w/degree	0.026 [0.135]	0.048 [0.160]	0.039 [0.150]	0.074 [0.178]	0.044 [0.157]	0.043 [0.150]
Family	0.729 [0.445]	0.685 [0.464]	0.713 [0.452]	0.546 [0.498]	0.706 [0.456]	0.673 [0.469]
Age (years)	55.853 [13.730]	54.159 [13.269]	54.838 [13.360]	52.106 [13.440]	54.481 [13.222]	54.031 [13.167]
Management	0.088 [0.092]	0.075 [0.070]	0.080 [0.079]	0.059 [0.055]	0.077 [0.072]	0.072 [0.070]
Self-financing	0.451 [0.421]	0.495 [0.406]	0.478 [0.413]	0.533 [0.386]	0.489 [0.401]	0.491 [0.403]
Acquisitions	0.083 [0.276]	0.149 [0.356]	0.114 [0.317]	0.300 [0.458]	0.126 [0.331]	0.157 [0.364]
Breaking Downs	0.026 [0.159]	0.054 [0.225]	0.042 [0.200]	0.096 [0.294]	0.047 [0.211]	0.058 [0.233]
Export			0.724 [0.447]	0.956 [0.206]		
FDI Makers	0.019 [0.135]	0.134 [0.341]				0.125 [0.331]
Low-Tech Firms	0.820 [0.385]	0.642 [0.479]	0.702 [0.457]	0.566 [0.496]	0.658 [0.475]	0.685 [0.464]

Note: Standard errors in brackets

Table 2: Descriptive statistics for firms with different modes of internationalization (2001-2003)

	Whole Sample
Investments	0.13564 [0.00191]***
R&D	0.04318 [0.00064]***
Employees w/degree	2.4472 [0.06864]***
Employees w/degree (square)	-2.24519 [0.08292]***
Family	-0.23011 [0.00783]***
Age	-0.00273 [0.00169]
Age (square)	-0.00002 [0.00001]
Management	-2.42948 [0.12221]***
Management (square)	4.02221 [0.36696]***
Self Financing	-0.00261 [0.00008]***
Acquisitions	0.64137 [0.01145]***
Breaking Down	0.48587 [0.01967]***
Export	0.31695 [0.00776]***
Fdi Makers	0.70467 [0.01105]***
Constant	14.31361 [0.05335]***
Observations	8732
Number of groups	2915

Note: Standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3: firms' managerial strategies and Sales: Whole Sample (2001-2003)

	High Tech	Low Tech	Young (<i>age</i> < 45)	Mature (<i>age</i> ≥ 45)
Investments	0.14128 [0.00436]***	0.12358 [0.00236]***	0.14909 [0.00365]***	0.13838 [0.00186]***
R&D	0.04057 [0.00157]***	0.04585 [0.00071]***	0.06633 [0.00116]***	0.0376 [0.00065]***
Employees w/degree	2.87292 [0.12802]***	2.24449 [0.09426]***	0.87335 [0.10189]***	3.17945 [0.08971]***
Employees w/degree (square)	-2.52515 [0.15536]***	-2.09559 [0.10614]***	-0.72836 [0.14692]***	-2.96026 [0.10773]***
Family	-0.30637 [0.01692]***	-0.25415 [0.00980]***	-0.07805 [0.01380]***	-0.29875 [0.00835]***
Age	0.05334 [0.00357]***	-0.02983 [0.00144]***	0.10918 [0.01586]***	-0.00862 [0.00367]**
Age (square)	-0.00048 [0.00003]***	0.00021 [0.00001]***	-0.0018 [0.00022]***	0.00001 [0.00003]
management	-5.36577 [0.26124]***	-1.48777 [0.11060]***	-3.44406 [0.24823]***	-1.82401 [0.12394]***
management (square)	11.03866 [0.89837]***	1.86211 [0.39357]***	8.45569 [1.01578]***	2.74366 [0.38171]***
Self Financing	0.00021 [0.00019]	-0.00362 [0.00010]***	-0.00657 [0.00016]***	-0.00144 [0.00008]***
Acquisitions	0.55312 [0.02014]***	0.63254 [0.01243]***	0.8841 [0.01379]***	0.51413 [0.01165]***
Breaking Down	0.56655 [0.03521]***	0.46731 [0.02994]***	0.50253 [0.04635]***	0.44883 [0.02470]***
Export	0.10441 [0.02717]***	0.45631 [0.00959]***	0.36023 [0.01815]***	0.29401 [0.00841]***
Fdi Makers	0.70436 [0.01847]***	0.75323 [0.01025]***	0.48256 [0.01665]***	0.8294 [0.01413]***
Constant	12.75769 [0.11895]***	15.17054 [0.05352]***	12.46255 [0.28664]***	14.51064 [0.12161]***
Observations	2735	5997	2285	6447
Number of groups	913	2002	827	2212

Note: Standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: firms' managerial strategies and Sales (2001-2003)

	Non-Exporter	Exporter	Non FDI	FDI Makers	Exporter/NO-FDI	EXP>60% in EU25
Investments	0.08626 [0.00397]***	0.15726 [0.00206]***	0.13395 [0.00206]***	0.13339 [0.00664]***	0.14479 [0.00246]***	0.18678 [0.00293]***
R&D	0.06455 [0.00131]***	0.0381 [0.00063]***	0.05129 [0.00067]***	0.00435 [0.00171]**	0.04454 [0.00071]***	0.04796 [0.00087]***
Employees w/degree	4.20381 [0.49372]***	2.43161 [0.05884]***	2.87146 [0.09129]***	1.60645 [0.13399]***	2.56864 [0.09105]***	1.96902 [0.10938]***
Employees w/degree (square)	-3.80487 [0.51091]***	-2.23223 [0.07926]***	-2.60023 [0.10758]***	-1.9015 [0.21181]***	-2.21328 [0.10865]***	-1.78795 [0.12633]***
Family	-0.53089 [0.01593]***	-0.14048 [0.00897]***	-0.25885 [0.00929]***	-0.07133 [0.02169]***	-0.1817 [0.01150]***	-0.15784 [0.01096]***
Age	-0.01059 [0.00424]**	0.00833 [0.00178]***	-0.00292 [0.00175]*	0.04349 [0.00610]***	0.00946 [0.00197]***	-0.01817 [0.00254]***
Age (square)	0.0002 [0.00004]***	-0.00017 [0.00002]***	-0.00002 [0.00002]	-0.00044 [0.00006]***	-0.00018 [0.00002]***	0.00008 [0.00002]***
management	0.00934 [0.21339]	-2.96009 [0.12743]***	-2.36657 [0.13003]***	-4.39752 [0.54568]***	-3.18603 [0.14177]***	-4.81737 [0.17087]***
management (square)	1.28477 [0.64953]**	3.94555 [0.39080]***	3.99328 [0.38089]***	5.21874 [2.33850]**	4.49217 [0.40233]***	7.68438 [0.52000]***
Self Financing	-0.00615 [0.00017]***	-0.00164 [0.00009]***	-0.00311 [0.00009]***	0.00322 [0.00027]***	-0.00239 [0.00011]***	-0.00312 [0.00013]***
Acquisitions	1.03436 [0.05621]***	0.57208 [0.01193]***	0.66001 [0.01376]***	0.58084 [0.02347]***	0.56054 [0.01177]***	0.64148 [0.01636]***
Breaking Down	0.73575 [0.07183]***	0.4939 [0.02566]***	0.61546 [0.02453]***	0.19001 [0.03881]***	0.62579 [0.02449]***	0.32024 [0.03304]***
Export			0.27538 [0.00890]***	0.54636 [0.13959]***		
FDI Makers	1.09268 [0.12355]***	0.69665 [0.00844]***	7823 [0.05623]***	909 [0.21676]***	5863 [0.06505]***	4223 [0.08614]***
Constant	14.5889 [0.13357]***	14.20927 [0.05812]***	14.34135 [0.05623]***	13.78098 [0.21676]***	14.37702 [0.06505]***	14.72321 [0.08614]***
Observations	1987	6745	7823	909	5863	4223
Number of groups	663	2252	1957	1410	2611	304

Note: Standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: firms' managerial strategies and Internationalization Mode (2001-2003)

	employees w/degree		management	
	Effect (0.043)	Turning point (%)	Effect (0.077)	Turning point (%)
whole sample	2.25	54.50	-1.81	30.2
young	0.81	59.95	-2.14	20.37
mature	2.92	53.70	-1.40	33.24
high tech	2.66	56.89	-3.67	24.3
low tech	2.06	53.55	-1.20	39.95
non-exp	3.88	55.24		
exp	2.24	54.47	-2.35	37.51
non-fdi	2.65	55.22	-1.75	29.63
fdi	1.44	42.24	-3.67	42.13
exp/no fdi	2.38	58.03	-2.49	35.46
exp>60	1.82	55.06	-3.74	31.35

Note: composite effects are worked out using the equation (5) where z is the sample average, 0.04 and 0.077 for employees with degree and management respectively. We do not report the calculation for age, available on request.

Table 6: Composite Effects and Turning Points of Non Linearities