

Leveraging the first mover advantage: proprietary technologies versus cost leadership

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Abstract

The main objective of this research is to develop the 'pioneer effect' view of a firm's market share. It provides and tests a model explaining that the efficiency of firms' strategic choices after entry is linked with the order of entry to gain market share. On a cross-sectional data set of French companies in the manufacturing industry, the results support the persistence of a first mover advantage among survivors. Furthermore, it is shown that the development of proprietary technologies, considered as the capability to protect knowledge in-house from competition, can have a leverage effect on the first mover advantage. Finally, if cost leadership is a relevant strategy to gain market share, it appears less profitable for pioneers and early followers than for late entrants.

KEY WORDS: Pioneer effect, proprietary technologies, cost leadership, and market share.

It is widely accepted that a company's market share is positively influenced by both early entry and cost leadership. These two strategic decisions, however, are generally considered separately and scarcely studied jointly, as if they were disconnected topics. In this paper, we first argue that the effect of a strategic orientation on market share depends on the order of entry into the business. Moreover, we contend that developing core proprietary technologies has a leverage effect on market share, even more powerful than cost leadership. Early entrants into a business earn the highest benefits in terms of market share from their risk taking when they manage to support their first mover advantage with proprietary technologies that competitors cannot imitate. By contrast, late followers appear more likely to increase their market share through cost leadership strategies. Evidence is given on a sample of 1050 French manufacturing companies.

The first section present the theoretical background and the hypotheses linking the order of entry with proprietary technologies and cost leadership to gain market share. The second section provides details about the database, the sample and the variables introduced in the empirical model. The third section is dedicated to the analysis of results. The final section discusses the implications of the findings.

1. Theoretical background and Hypotheses

1.1 First Mover Advantage and Market Share

Competitive models based on neo-classical microeconomics have shown that rivalry leads to the erosion of economic rents temporarily monopolized by first movers. Industries with high returns attract new entrants until the price of each firm falls to a normal profit level. Applied to business, this pattern has strongly influenced the way of describing business evolution.

From the Strategy-Conduct-Performance paradigm (Bain, 1951) to the analytical Porterian framework (Porter, 1980), rivalry analysis implies a four-phase evolutionary pattern depending on the number of entries over time. ‘First to market’ companies initiate the business. Then, ‘follow the leader’ enter into the business to compete against the few incumbents. A third wave of new entrants appears that consists of ‘application engineering companies’. They increase the competitive pressure and force the weakest competitors to exit the business. Finally late entrants producing ‘me too’ products move into the market (Ansoff and Stewart, 1967; Robinson et al., 1992).

An important issue concerns the capability of pioneers to stay ahead of rivals in the business despite these successive and competitive entries. Lieberman and Montgomery (1988; 1998) have developed the idea of a first mover advantage that protects pioneers from competition. According to their view, a pioneer is able to sustain its advantage over competition as a result of erecting resource barriers and economies of time. Resource barriers concern reputation, brand name, particular relationships with suppliers and experience –every factor enabling the first mover to build a resource barrier preventing competitors from effectively imitating or substituting the pioneer’s bundle of resources (Wernerfelt, 1984). The resulting pioneer effect diminishes over time as entrants increase the pressure on incumbents. Rivalry, competitors’ reactions, through imitation or innovation, erase the benefits generated by the first mover advantage (Makadok, 1998).

The idea of first mover advantage has been successfully tested at several levels. First, managers associate pioneering with market share advantages (Song, Di Benedetto, and Zhao, 1999). Second, studies have provided empirical evidence of a relationship between the order of entry and the market share; roughly, the market share of the i -th entrant divided by the first

mover's market share equals one divided by the square root of i (Kalyanaram, Robinson, and Urban, 1995). Thus, the fourth entrant's market share roughly equals one divided by the square root of 4, or one-half of the pioneer's share. Third, even though there appears to be a relationship between pioneering and market share, the relationship between pioneering and organizational performance is less obvious. Durand and Coeurderoy (2001) did not find such a link between first movers and organizational performance. Therefore, we limit our hypothesis to the association of early entry and market share.

Hypothesis 1.

The earlier a firm enters a market, the greater a firm's market share.

1.2 First Mover Advantage and technological resources

The decision of entry is link with the possibility, evaluated by the company, to protect its sources of rents (Teece, 1986). For a firm, the best competitive positioning at each phase of market development proceeds from the trade-off between investments in exploration of a new market and profits in exploitation of its technological and productive assets (Levinthal and March, 1993; Roberts, 1999). Entry barriers include time economies, brand awareness and experience (Lieberman and Montgomery, 1988). In theory, these hurdles protect pioneering company from imitation, duplication, and replication of its competencies. Moreover, to be the first in the market means also to be the first to develop the technical resources and necessary capabilities, to deploy and appropriate the accruing rents. By contrast, in industries with high risks of information leakage, a follower may succeed in grasping the economic value of innovations. In general, the more protected and proprietary the technology (i.e. the less diffused), the higher the appropriability of the benefits from the use of this technology (Teece, 1986; Mitchell, 1991). Combining the first mover effect on

market share with an efficient protection of proprietary technologies gives an additional market share advantage to the pioneer.

Two testable hypotheses stem from the above arguments.

Hypothesis 2.

The more proprietary a firm's core technologies, the greater its market share.

Hypothesis 3.

The earlier a firm enters a market, the higher the benefits from proprietary technologies on its market share.

1.2 First Mover Advantage and Cost leadership

From a strategy perspective, a number of research works, following Porter's arguments (1985), have studied the impact of cost leadership on market share. The basic idea popularized in most handbooks is that a firm that manages to sustain a competitive advantage in cost structure can offer the lowest prices to customers and thus concentrate the highest volume of sales. In fact, in perfect markets, such logic should create contestable monopolies – i.e. markets with one firm operating as long as a new comer supplying with lower costs does not replace it. But as markets are more often imperfect, a number of competitors can survive and gain market share. Cost leadership is claimed to result in companies gaining higher market shares and dominant positions.

Hypothesis 4.

The more a firm follows a cost leadership strategy, the greater the likelihood for this firm to have a large market share.

The cost leadership advantage is claimed to be rooted within scale economies and experience curve (Makadok, 1998). This could involve an advantage for pioneering firms. Being the first on the market, they are the best positioned to achieve scale economies and to outperform future competitors. But, as suggested above, pioneers must also bear specific costs and risks derived from their innovative strategy. In case of quick and easy imitation, followers can economize on these sunk costs and bear less costs of market entry. More, as they can learn from pioneers possible mistakes in new markets without being committed into making identical investments, they are also likely to perform better on the experience curve (Zahra and Covin, 1993). Thus, pioneers that follow a cost leadership strategy may allow followers to understand the key determinant factors of competition. Followers are more likely to catch up pioneers when competition is engaged on costs than they are if pioneer's innovative position is sustainable and identified as a unique source of customers' satisfaction (Porter, 1996; Durand and Coeurderoy, 2001). Consequently, we believe that late followers benefit more from a cost strategy than pioneers and early followers do.

Hypothesis 5.

A cost leadership strategy is less profitable for pioneers and early followers than for late entrants.

2. Methodology

2.1 Database

The Bank of France, the French central bank, gathered the data used in this research in 1996. This information is gathered annually since 1993 in order to advance the corporate research carried out by the Bank of France on French companies. In particular, it serves to deepen the

links between the industrial organization, the firm's strategy and corporate finance. The data is collected in face-to-face interviews with CEOs on a voluntary basis. For this kind of survey, the top manager is considered the person with the most comprehensive knowledge about the firm and its strategy (Hambrick, 1981; Miller and Friesen, 1984). The questionnaire, largely inspired by the PIMS database, deals chiefly with the following topics: the business environment, the firm's strategy in each of its businesses, the firm's internal organization and management features.

Bank of France agents specially trained on survey techniques conducted these interviews. A user guide has been developed and implemented to foster homogeneity among the agents managing the questionnaire. Like in the PIMS database, CEOs define their business environment (Buzzel and Gale, 1987). Nevertheless, businesses are classified according to the European equivalent of the SIC classification (the NACE). Some criticisms may thus be addressed to such databases, pointing out their cross-sectional nature, the risks of misunderstandings, or problems with the measurement of variables (Manu and Sriram, 1992). But the importance of PIMS for research in strategy and management is also widely accepted among academics and practitioners (Venkatraman and Ramanudjan, 1987; Scherer and Ross, 1990). Despite its limitations, the qualitative database of the Bank of France has begun to be exploited by academics (Amburgey and Dacin, 1997; Cool and Henderson, 1998; Durand, 1999).

2.2 *Sample*

In 1996, the Bank of France surveyed a sample of 2011 firms belonging to manufacturing businesses. The Bank of France database contains mostly small and medium-sized firms (from 30 to 2000 employees), but is representative of the industries studied (Cool and

Henderson, 1998). Responses with one or more missing observations were deleted. Surveyors are asked to record a blank rather than an uncertain answer during the face-to-face interviews. This method is prone to increase the number of missing responses but existing responses are considered more reliable. Furthermore, we decided to remove the firms who noted that they had no more than four competitors. It seems more relevant to study the impact of competitive decisions in competitive businesses only. This does not mean that a business with few rivals is not competitive but that the likelihood to include outliers is high.

After these operations, the final sample comprises 1050 firms. The 1993-1995 average size of the firms in our final sample is 181 employees. Table 1 provides details on the breakdown of our sample by industry. Diverse manufacturing industries are represented. Around one third of the total is operating in the food industry, a particularly developed activity in France. Both the car and the pharmaceutical industries provide a small number of cases, as they are very concentrated and dominated by large enterprises. Each other sector stands for more or less 15 % of the sample. This diversified sample provides the opportunity to study the entry strategies throughout a wide span of business situations.

< insert table 1 here >

2.3 *Measure of variables*

Pioneer effect

In the database, there is a question about the order of entry of a firm in its main business since the last major technological change. The scale of the variable consists of five items: first;

second; third-fifth; sixth-tenth; more than tenth¹. Generally, CEOs know correctly when their firm entered the business, but they are less likely to exactly remember their entry rank. In particular innovators who did not manage to survive are often overlooked as the ranking is more focused on the current competitors. For these reasons, we preferred to gather the five items into three categories: pioneers (first; second), early followers (third-fifth; sixth-tenth), and late entrants (more than tenth). Therefore, this codification is less detailed but more robust than the original variable.

Proprietary technologies

In the database, a question concerns the number of competitors owning a firm's core technologies. The scale of the variable consists of five items: none; one competitor; two-five; six-ten; more than ten. In this case too, CEOs know accurately whether their firm are able to compete with proprietary technologies or not, but they are less likely to exactly remember the number of competitors. In particular foreign competitors or new comers are often overlooked when their presence in the market is not permanent or very recent. For these reasons, we preferred once more to classify the five items into three categories: specific technologies (none; one), concentrated technologies (three-ten), and diffused technologies (more than ten). Again, such a codification is less detailed but more robust than the original variable.

Cost leadership

Strategic behavior is seldom directly observable. Strategic variables are thus measured by multiple scales whose internal reliability is controlled by the Cronbach alpha (Nunnally, 1978). Two items assessing the position of the firm in terms of cost and price vis-à-vis its

¹ In a given industry, to be a pioneer does not mean to have invented a product (like a shoe). It would be meaningless. It means to have entered first on the last major technological evolution the business has borne.

main competitors measure cost leadership. The Cronbach alpha reliability for the cost leadership variable is 0.68.

Other variables

Four other variables were included in the model in order to control for the effect of the previous ones. Since firm size is likely to be related to a firm' market share, we had to control for this effect. Firm size is measured by the logarithm of the 1993-1995 average number of employees in the firm (SIZE). At the business level, the growth of the market served by the firm might contribute to a firm's market share. We therefore introduce a market growth variable, expressed by the percentage of growth in the main business segment targeted by each firm in 1995-1996 (GROWTH) in four classes. A qualitative variable was used to differentiate businesses according to their stage of development: the CEO indicate whether his main business is emerging (EMERGING BUSINESS), growing (GROWING BUSINESS) or mature (potential cases of declining businesses were encapsulated into this last category in order to reduce possible biases in CEOs' responses – this last category is not introduced in the regression but is used as a reference). Finally, to control for industry specificities, we also introduced the industrial classification through a set of dummies based upon the official European classification. Such dummies enable to control for the concentration differentials among industrial sectors, and consequently differentials among average market shares.

3. Results

3.1 Descriptive analysis of the sample

Tables 2 and 3 provide interesting insights about the structure of our sample. In the sample, 20% of the firms entered their business as pioneers, and one-third as early followers. One may suspect a bias of selection over-representing the innovators, supposedly more open to surveys than followers. But opposite arguments can be raised arguing that innovators are likely to be more secretive than others because they are more exposed to information leakage. Besides, the sample selection is random. Consequently a selection bias in favor of early entrants is not impossible but certainly not obvious. The distribution of firms according to the level of proprietary knowledge is not surprising: only 13% own specific technologies, one third have concentrated technologies and the others have diffused technologies. This balanced distribution concurs with an absence of a selection bias. Most of the firms are involved in growing businesses, which means for a CEO a business with perspectives of development.

Evaluated on 5-point scale, the cost leadership measure exhibits an average value of 2.95. The median being at 3.00 (indicating a balanced position with competitors), it follows that the sample is rather homogeneously distributed across companies both with and without a cost advantage.

Last, concerning market share, the cases vary on a broad span, from 1% to 100%. On average the firms have around 12% in their business but the median is at 6%. The mean is naturally inflated by the extreme cases with the highest values. For these reasons, we choose to run the regressions on the logarithms of the market share to normalize the distribution. We do the same thing with the SIZE variable.

< insert tables 2 and 3 here >

3.2 *Regression analysis*

As the sample is cross-sectional and gathers firms with various sizes, we decided to correct risks of heteroscedasticity by using a weighted least square estimation (WLS). We used the number of employees as weight in the generalized linear models.

< insert table 4 here >

Table 4 presents five WLS models. Model 1 includes the control variables only. Model 2 presents all the variables together but without any interaction. Model 3 assesses the co-impact of proprietary technology and order of entry on market share (test of hypothesis 3). Model 4 tests the interaction between entry order and cost leadership strategy (test of hypothesis 5). Model 5 exhibits a complete regression with all the variables and interactions.

Model 1 shows that our control variables alone explain 11 % of market share variance. All of them are significant except the two proxies standing for the stage of development of the business. In this model, the life cycle of the business does not seem to have direct impact on a firm's market share. Furthermore, complementary tests were also run with the age of the firm without any more success. In our sample, the individual market share is not directly related with any time dimension, at both business and firm levels. However, we must keep in mind that the sample is cross-sectional, and not a panel. Consequently, the time dimension is necessarily poorly addressed in such a sample. By contrast, the relation between corporate size and market share is logically confirmed. It supports the idea that, in manufacturing sectors, a strong presence in business setting up substantial human as well as capital investments. Finally, all industry dummies are significant, the base case being the car

industry. Each sector has a specific industrial structure and the individual analysis of a firm's market share should thus be interpreted in consequence.

Model 2 shows that each three strategic variable - entry order, proprietary technology and cost leadership strategy - has an impact on market share with the expected positive sign. Moreover, as regards the two first ones, the coefficients by category are decreasing (0.26 for Pioneer versus 0.19 for Early Follower; 0.36 for High Level of Proprietary Technology versus 0.25 for Medium Level of Proprietary Technology). This gives evidence on the ordered structure of these two categorical variables exhibiting a substantial effect on the market share. By contrast, measured on a 5 items scale, the impact of the cost leadership, with a maximum value of 0.15 (i.e. 5×0.03), appears comparatively less influential.

Models 3 and 4 test separately the two interactions (hypotheses 3 and 5) Model 3 explores the interaction between a firm's order of entry and its proprietary technologies. A leverage effect clearly appears: the direct impact of pioneering decreases (coefficient 0.14) as early followers (coefficient 0.30) seem to take more advantage of their entry position than pioneers. But the interaction effect shows that the pioneers can enhance their market share when profiting from proprietary technologies too. By contrast, the benefit of entry is cancelled for early followers, especially if they do not manage to exploit specific technologies. Given that the late followers stand for category of reference, this model suggests that pioneers really enjoy a first mover advantage when they manage to protect their core technologies from imitation. Otherwise, they are likely to be outperformed by early followers.

Model 4 tests the interaction between the order of entry and the cost leadership strategy. By comparison with the model 3, the explained variance is limited (21 % versus 31 %). The

interaction brings an interesting insight. The pioneers' advantage is more limited and even smaller than the early followers' advantage (coefficients are 0.45 for pioneers versus 0.62 for early followers). Furthermore, in the interaction, the pioneers' coefficient is negative. This means that early followers are in fact at disadvantage by comparison with late entrants when they get involved in cost leadership strategy. The argument is similar for early followers but to a lesser extent.

Model 5 provides the complete model. It confirms the conclusions drawn from previous models. It appears that pioneers actually benefit from a first mover advantage as long as they are able to protect efficiently their core technologies. The early followers, with a coefficient of 0.57, seem to have the best timing to maximize the market share. But this advantage is substantially reduced when they exploit diffused technologies. As regards late entrants, they appear to benefit mostly from the development of a cost leadership strategy. This strategy helps them to catch up their competitors. This concerns mainly the early followers but the gap with pioneers seems rather irreducible.

4. Discussion

4.1 Contributions

The research in this paper not only supports arguments for the first mover advantage but also brings new insights on the competitive moves following the entry on a cross-sectional sample. It appears at first that entry order plays a durable influence on market share. Entry order appears to be in favor of early followers more than any other group of firms. Early followers seem to benefit from both the pioneer's freshness and errors. The first mover advantage is

likely to last longer when companies can impede technology diffusion into the industry. In this case, as their core technologies are proprietary, their technological standards enable a larger market share in the business. One of the main advantages of the pioneers is that they create the market more than they enter it. As long as they keep undisclosed the technological settings they set up, they keep on their own the keys opening the business' doors to potential rivals.

The cost leadership strategy has also often been presented as the best solution to gain market share. The results of this research suggest that the assumption should have more nuances as the impact significantly depends upon the order of entry. In particular it appears that pioneers and early followers –relative to late followers- do not leverage their first mover advantage when they sustain a cost leadership strategy. By contrast, late entrants mainly earn the benefits of this strategy. As cost leadership tends to imply a standardization of products and processes in business, the late entrants face lower barriers to enter and gain market share. Especially, late movers have the possibility to select their investments and resources to pursue the objective of cost minimization. They do not bear any switch costs that pioneers are likely to experience when moving towards a cost strategy.

These results can lead to draw up several strategic implications. Firstly, the benefits of cost leadership should be nuanced. This strategy is often illustrated by examples extracted from the small number of very large companies. Because of their size and the key economic role they have in sectors like car, telecommunications, energy, their examples cannot be overlooked. But, compared with the overall population of companies, they could be considered as “outliers” (for instance, in Europe, 0.2 % of companies are classified as large enterprises – more than 250 employees -, according to Eurostat 1999). This means that it is

risky to infer general precepts on cost leadership from these special cases. At least, our results show that the implementation of this strategy should be considered relatively to the entry order. . Secondly, the innovators must take care to protection of their know-how from competitors' imitations. They are facing the risks of loosing the benefits of their risk taking strategy. In many cases, pioneers should contemplate the respective benefits of cost strategy relative to differentiation strategy since a premier focus on cost leadership may not bring as many returns as expected in terms of market share.

The entry decision in itself is a highly critical decision, at both organizational and industry levels. Indeed, , it is influential on subsequent strategic decisions made by companies. Pioneers are able to leverage their first mover advantage through efficient protection of the key technologies that enabled them to initiate the business., Their followers are more prone to offer alternative products at lower costs. Pioneers and followers do not own similar resources; they do not pursue similar goals, even within the same business.

Limitations

← **Mise en forme** : Puces et numéros

The first limitation of our study concerns the use of secondary data. We did not collect the data for this study, but instead used data already available from the Bank of France. This is undoubtedly a constraint, in comparison with specialist surveys. However, our study benefits from the high quality of the Bank of France studies inspired by the PIMS' legacy, the pluri-annual plan of survey initiated by the Bank of France, as well as a broader scope in terms of targeted firms than we could have gathered by ourselves.

Another limitation could be a self-selection bias in the sample selection. This is a problem in the PIMS data (Scherer and Ross, 1990, p. 419). Nevertheless, studies on sample

representativeness undertaken by the Bank of France have not revealed the existence of the same problem. We must point out, however, that the largest companies are not in the database as it is mainly dedicated to the study of SMEs. This can explain partly the mitigated impact of cost leadership as the most cost efficient firms are supposedly the larger ones.

Finally, we have to question our study for the presence of a survivor selection bias. Because we do not have data for a longitudinal study (including entries and exits), only survivors are present in our sample. Had we had a longitudinal data set we could have controlled for this time-dependent bias. Although this survivor bias is critical for survival analysis, it is slightly less important for the present study –but still remains a limitation.

4.3 *Research agenda*

The study highlights several possibilities for future empirical research. First, it would be interesting to refine the notion of proprietary technologies. Defining how protecting technology from imitation would help managers to define and refine a differentiation strategy instead of relying on a cost leadership strategy. A second stream of research could be to determine the consequences of both orders of entry and proprietary technologies on a firm's overall performance. Pioneer effect has always been related to market share. However, its long-term effect on performance is still controversial. Associated with proprietary technologies, it would be possible to disentangle the 'portions' of performance due to first mover advantage or proprietary technologies.

Finally, longitudinal studies on a specific industry would provide interesting information on how firms modify their behavior so as to change the selective pressures represented by late

mover pressure and technology diffusion. It would be worthwhile to study other possible strategic moves (as for instance innovative or marketing differentiation) enabling followers to cancel first mover advantages. At the industry level, an event analysis carefully investigating moves and competitors' reactions -especially in firm's innovation and marketing policy- would help to determine when to compete and how to differentiate.

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Table 1
Sample structure by industry

Industries	Number of cases	Percentage (%)
FOOD	364	34.67
TEXTILE	136	12.95
CLOTHING	139	13.24
PAPER	125	11.90
PHARMACY	40	3.81
HOUSING EQUIPMENT	183	17.43
CAR	63	6.00
Total	1050	100

Table 2
Main descriptive statistics (categorical variables)

Variables	Number of cases	Percentage (%)
Entry Order		
PIONEER	220	20.95
EARLY FOLLOWERS	353	33.62
LATE ENTRANTS	477	45.43
Proprietary Knowledge		
SPECIFIC TECHNOLOGIES	139	13.24
CONCENTRATED TECHNOLOGIES	344	32.76
DIFFUSED TECHNOLOGIES	567	54.00
Business Life Cycle		
EMERGING BUSINESS	215	20.48
GROWING BUSINESS	643	61.24
MATURE BUSINESS	192	18.29

Table 3
Main descriptive statistics (numeric variables)

Variables	Mean	Median	Minimum	Maximum
COST LEADERSHIP	2.95	3.00	1	5
SIZE	180.81	86.33	28.33	5362.33
GROWTH	2.21	2.00	1	4
MARKET SHARE	12.21	6.00	0	100

Table 4
Multiple regression analysis for market share (log)

	(1)	(2)	(3)	(4)	(5)
CONSTANT	0,78***	0,56***	0,61***	0,45***	0,41***
PIONEER (P)	--	0,26***	0,14**	0,45**	0,26*
EARLY FOLLOWER (EF)	--	0,19***	0,30***	0,62***	0,57***
SPECIFIC TECHNOLOGIES (ST)	--	0,36***	0,32***	--	0,29***
CONCENTRATED TECHNOLOGIES (CT)	--	0,25***	0,30***	--	0,29***
P * ST	--	--	0,24*	--	0,26**
P * CT	--	--	0,14*	--	0,14*
EF * ST	--	--	-0,14	--	-0,11
EF * CT	--	--	-0,24***	--	-0,23***
COST LEADERSHIP (CL)	--	0,03*	--	0,09**	0,07**
CL * P	--	--	--	-0,11**	-0,04
CL * EF	--	--	--	-0,08*	-0,09*
SIZE (log)	0,06***	0,03**	0,04***	0,03*	0,03**
GROWTH	0,01	0,03*	0,04**	0,02	0,04**
EMERGING BUSINESS	0,09	0,01	0,02	0,06	0,02
GROWING BUSINESS	0,01	-0,05	-0,04	-0,02	-0,05
FOOD	-0,19***	-0,18***	-0,20***	-0,14**	-0,19***
TEXTILE	-0,23***	-0,21***	-0,21***	-0,21***	-0,21***
CLOTHING	-0,34***	-0,24***	-0,27***	-0,27***	-0,26***
PAPER	-0,25*	-0,18**	-0,20**	-0,20**	-0,20**
PHARMACY	-0,32***	-0,30***	-0,32***	-0,31***	-0,33***
HOUSING EQUIPMENT	-0,29***	-0,28***	-0,29***	-0,26***	-0,28***
R²	10.91 %	29.08 %	31.25 %	20.98 %	32.22 %
F	12.73	28.10	26.04	18.20	23.14

N = 1050.

Significance levels: * < 0.05, ** < 0.01, *** < 0.001.