Entrepreneurial Morality: Some Indications from Greece

Bitros, George C. and Karayiannis, Anastassios D.

Athens University of Economics and Business, Department of Economics, University of Piraeus, Department of Economics

17 June 2008

Entrepreneurial Morality: Some Indications from Greece

By

George C. Bitros[1] and Anastassios D. Karayiannis[2]

Abstract

In countries with relatively small firms, entrepreneurial morality is determined by the influences that shape the values, the personality and the character of entrepreneurs as owners and managers of their enterprises. To shed some light on the processes involved we estimate an ordered probit model using data from 1643 enterprises, which were collected in Greece in the spring of 2006. We find that localized and generalized morality, the family and the educational environment, the level of education, the size of firms, and the moral factors that contribute to success in business, determine entrepreneurial morality in a statistically significant way. By contrast, even though we experimented with such other influences as the age of enterprises, the gender of entrepreneurs, the location of schools where they grew up, etc., none of them turned out to exert perceptible impacts.

[1] *Professor, Department of Economics, Athens University of Economics and Business, 76 Patission St, 10434, Athens, Greece.*

[2] *Associate Professor, Department of Economics, University of Piraeus, 80, Karaoli & Dimitriou, 18534, Piraeus, Greece.*

Corresponding Author:
George C. Bitros
Department of Economics
Athens University of Economics and Business
Tel.-Fax: 210-8203740
E-mail: bitros@aueb.gr

1. Introduction

The contribution of large multi-product enterprises to the introduction and diffusion of innovations, the growth in productivity via economies of scale and scope, the expansion of employment opportunities, etc., at least from the beginning of 1980s began to show signs of severe deceleration. In this light many researchers turned their attention to small-scale enterprises, since they appeared to be exceptionally dynamic. But at the same time their newfound vitality was accompanied by many problems that ought to be confronted, if national economies were to benefit significantly. The study of these problems and the policy approaches to alleviate them in general and in particular country environments gave rise to a new field, i.e. the field that focuses on the economics of Small and Medium-scale Enterprises or SMEs.

To understand the diversity of issues that are associated with the size of enterprises it is convenient to recall the fundamental distinction between ownership and control. In large multi-product enterprises, for reasons that need not occupy us here, ownership has separated from everyday administration and control, in the sense that others are the owners and others are those who take the decisions and manage their affairs. In turn, this separation, in conjunction with the observation that decisions in such enterprises affect large groups of stakeholders like employees, suppliers, banks, stockholders, etc., brought into the forefront of public interest a large array of problems that required the attention of economists, lawyers, politicians, regulatory and other public agencies, sociologists, etc. Thus, from their efforts emerged an area of research and educational activities, as well as applications, which has come to be known in practice and referred to in the literature as Corporate Governance.[1]

One subject that has attracted particular attention in this field concerns the influences and the processes through which they shape the moral conduct of managers and administrators. An indication of the keen interest it has attracted is the huge number of papers published in specialized journals like *The Journal of Business Ethics*, *The Electronic Journal of Business Ethics and Organization Studies*, *The Journal of Markets and Morality*, etc. Another is the number and the variety of relevant academic courses offered in the majority of universities; and still a third manifestation is the vast amount of laws and institutional arrangements that have been adopted locally and internationally in order to safeguard the moral conduct of professional managers.

---

[1] The emphasis we give below to Corporate Governance does not imply that the effects of the nature and structure of ownership in large corporations have been ignored in the literature. For a sample from this bibliography, see Bitros (2003).

On the contrary, in the field of small and medium size enterprises, in which the operations of ownership and control coincide as a rule in the same person, i.e. the entrepreneur,[2] our knowledge is scanty. The reason is that, while researchers have conducted extensive inquiries regarding the motives, the personality, the objectives, and the strategies of entrepreneurs, the influences and the channels through which they shape their moral values have not received attention. To corroborate this claim, it suffices to note the following. As evidenced by the survey paper by Quinn (1997, p. 123), the literature that investigates the ethical attitudes of entrepreneurs in relation to their gender, age, working environment, and various personality traits is voluminous. Vyakarnam, Bailey, Myers, Burnett (1997) examined the ethical dilemmas faced by entrepreneurs and the morality of their decisions in the light of their working circumstances, values and views about social responsibility. Solymossy, Masters (2002, pp. 228-9) researched the differences between the entrepreneur's own values and his behavior in confronting various ethical questions in decision making. Morris, Schindehutte, Walton, Allen (2002) focused on the relationship between the ethical environment in a firm and the mechanisms in place to safeguard ethical standards. Several studies have stressed the differences that characterize the behavior of entrepreneurs relative to that of managers in large enterprises (i.e. Teal, Carroll, 1999; Solymossy, Masters, 2002; Hanaffey, 2003; Bucar, Glas, Hisrich, 2003, pp. 266-9). Moreover, Trevino (1992) and Elm, Nichols (1993) looked into the ethical conduct of entrepreneurs and managers in relation to the organization of the firm, the nature of the work environment, the existence of moral training programs, etc., while Fassin (2005) describes various unethical practices of managers and entrepreneurs and the reasons behind such behavior. From this brief survey it emerges that there are few studies regarding the formation of entrepreneurial values and those that exist stress mainly the influence of religion (i.e. Gay, 2002; Cornwall, Naughton, 2003, Dodd-Drakopoulou, Gotsis, 2007, Noble et all. 2007).

The lack of interest in the determinants of entrepreneurial morality in large countries would not be unexpected, since the moral behavior of managers there is shaped by the codes of ethics that have been put in place and the institutions of corporate governance to which the responsibility for their monitoring and enforcement has been assigned. But in countries like Greece, where the size of productive and commercial units is predominantly small, the factors and the channels through which they determine the moral values of entrepreneurs constitute important is-

---

[2] Many studies establish that entrepreneurship constitutes the driving force in small enterprises. For details, see for example Brock, Evans (1989).

sues. This is so because the morality of entrepreneurs: a) influences their behavior toward consumers, employers, other entrepreneurs and the public sector; b) influences the level of morality that prevails in society, and c) determines the cost of transactions, tax evasion, corruption and other adverse conditions in business (see e.g. Yaffey, 1998, Gossling, 2003).[3] Hence, the more the relevant literature links economic growth to the transparent functioning of markets and institutions, the more the governments in small countries should be interested in the factors and processes that shape entrepreneurial morality in order to design and implement effective economic and social policies.

In light of the preceding remarks, our objective in the present paper is to shed some light on the probable forces and processes through which they determine entrepreneurial morality. To this end, in the next section we do two things. First, we develop several hypotheses regarding the formation of moral norms by individuals in general and entrepreneurs in particular. Given that at present there is not a single unified framework for the analysis of the issues involved, we adopt an interdisciplinary approach by drawing on related theories from psychology, sociology and economics. Secondly, we propose an econometric model, which expectedly upon estimation will enable us to test empirically these hypotheses. Section 3 describes the nature of our data as well as the definitions and the measurement of the variables that enter into the model in the stage of its estimation. As the data derive from a questionnaire addressed to entrepreneurs in Greece, in the same section we take considerable pains to explain our choices regarding the design of the questionnaire, the procedures for selecting the subjects of our study, and the conventions used for translating categorical into measurable variables. Then, in Section 4, we describe the estimating methodology and the various tests that we performed, taking into consideration that the dependent variable in the model is measured on a Likert scale. In Section 5 we present the results from alternative specifications of the model and then go on to comment on their statistical properties and interpretations. Finally, in Section 6, we summarize our findings and make a few suggestions for further research.

2. Towards a theory of entrepreneurial morality

Economists have worked out theories that are very helpful in understanding the process of decision making by economic agents. Unfortunately for entrepreneurial morality no such framework of analysis exists. Consequently, for the time being the only alternative approach consists of

---

[3] Anderson, Smith (2007) provide an interesting discussion regarding the importance of entrepreneurial morality in the economy and the society.

four tasks. That is, first, to develop certain hypotheses by drawing on the views that have been expressed regarding the processes by which human beings form their moral values; second, to embed these hypotheses into a model capable of confirming or refuting their validity; third, to estimate the model with the help of pertinent data and methods; and, lastly, to employ the estimated model to conduct a series of tests in the expectation that from their results we will be able to highlight the issues under consideration. Here we turn to the first two of these tasks.

2.1 Views and hypotheses about the formation of moral values

Over the ages the importance of morality in society has been highly contested. But to our minds there has been no better sum-up of where the debate stands than the following passage from a fictitious dialogue between Voltaire and Pope Benedict XIV, which according to Durant, Durant (1967, IX, p. 791) took place somewhere in the grateful memory of mankind:

> *Voltaire*: I still think that philosophers can dispense with morality.
> *Pope Benedict XIV*: How naïve you are. Are children capable of philosophy? Can children reason? Society is based upon morality; morality is based upon character; character is formed in childhood and youth long before reason can be a guide. We must infuse morality into the individual when he is young and malleable; then it may be strong enough to withstand his individualistic impulses, even his individualistic reasoning. I am afraid you began to think too soon. The intellect is constitutional individualist, and when it is uncontrolled by morality it can tear society to pieces."

From this it follows unequivocally that morality is an indispensable ingredient for the well being of society and that the only open question is to understand and, if possible, identify the processes by which it takes roots and flourishes.

Most informative in the regard are the contributions by Kohlberg (1969, 1973). For they highlight the processes by which individuals acquire cognitive skills that help them resolve moral dilemmas. In particular, drawing on Elm, Nichols (1993, p. 819), Kohlberg's theory maintains that individuals develop such skill through exposure to education and socialization in levels and stages as follows:

Preconventional level: Stage 1: punishment and obedience orientation (will I be caught?).

Stage 2: instrumental relativist orientation (what will I get out of it?).

Conventional level: Stage 3: good boy/nice girl orientation (be a good person).

Stage 4: law and order orientation (laws promote social welfare).

Postconventional level: Stage 5: social contact legalism orientation (societal standards

apply through consensus).

Stage 6: universal ethical principle orientation (ethical principles chosen regardless of society).

Presumably the first three stages cover the years of childhood and adolescence. In these years individuals form their character by interacting early on with their parents and siblings, and subsequently with their friends and fellow students in the school, which is also a period of learning how to assimilate in groups pursuing various objectives. That is why researchers agree unanimously that the environments of family and school, where youngsters spend their formative years, are very crucial in acquiring ethical norms to balance their individualistic choices with family and group interests.[4] Hence, on account of these considerations, we can state the following hypotheses with respect to individuals as entrepreneurs:

H.1: Entrepreneurial morality should be positively related to the ethical values that prevail in the family environment in which entrepreneurs spend their formative years.

H.2: Entrepreneurial morality should be positively related to the ethical values taught and practiced in the schools where entrepreneurs receive their primary and secondary education.

In other words, given that it is the family and the school to which society entrusts the supreme responsibility for providing moral guidance to youngsters, what these hypotheses stake is that the morality of those who pursue entrepreneurial activities should be related positively to the moral norms that are promoted and enforced by the respective institutions.[5]

Stages 4 and 5 in Kohlberg's schema coincide with the years over which individuals leave the protected environments of the family and the school and integrate into the wider society by taking hold of their responsibilities and destinies. According to the so-called Integrative Social Contract Theory (ISCT), as summarized, for example, in Bucar, Glas, Hisrich (2003), during this period individuals come to face with the prevailing social or generalized morality, which is embodied in the laws and institutions of society. From this encounter they are bound to develop some degree of respect for social arrangements and to determine their behavior accordingly. By implication, this analysis leads us to the following hypotheses:

---

[4] A detailed and thorough analysis of this proposition may be found, for example, in McClelland (1961).
[5] Hannafey (2003, p.106) provides qualitative evidence according to which the core values implanted by family members, teachers, and mentors early in life may influence or even determine an entrepreneur's ethical standards. For more evidence on this point, see Teal, Carroll (1999, p. 231), Solymossy, Masters (2002, pp. 228-9).

H.3: For entrepreneurs the state of morality that counts most is the morality that characterizes their close business environment. Therefore, the degree of morality that prevails in their enterprises and the particular markets in which they deal would be expected to influence entrepreneurial morality perceptively and in the same direction.

H.4: Since entrepreneurs exercise their activities within markets and sectors that are embedded in a wider economic and social environment, our expectation is that the level of social morality affects entrepreneurial morality significantly.[6] But we are uncertain regarding the direction of this influence, because of the confounding effects of the factors involved.

To explain the last point, it suffices to give an example. According to Bucar, Glas, Hisrich (2003) the level of entrepreneurial morality is inversely related to the cost of government because the latter aggravates regulation and corruption. On the other hand, Spence, Rutherford (2001) and Daly, Mattila (2004) have found that when entrepreneurial morality is in line with social morality the rates of survival and growth of enterprises increase. Now assume that in the model it is impossible to control for the cost of government. Then the latter's negative effect would be confounded with the positive effect of generalized morality and the net effect on entrepreneurial morality would depend on which of the two influences would be stronger. But this is an empirical question about which nothing can be said on an ex-ante basis.[7]

Aside from the preceding, a plethora of other subsidiary factors may influence entrepreneurial morality. For example, one may be the age of entrepreneurs, so it would be quite interesting to test for the commonly held view that the level of morality from older to younger entrepreneurs declines. Another is the gender of entrepreneurs because, if it were true that female entrepreneurs are characterized by higher morality than male entrepreneurs, there would be one additional and indeed good reason for the recent policy initiatives in favor of female entrepreneurship. And still a third factor may be the nature of structural policies pursued by governments, since from the available evidence it transpires that such policies lead to corrupt business practices. In short, in addition to providing the apparatus for testing the four core hypotheses, the model should allow enough flexibility to experiment

---

[6] From Gossling (2003) we know that the morality of entrepreneurs is conditioned by formal and informal structures of rules and sanctions, which, as applied by the institutions of society, define the level of social or generalized morality. Thus this hypothesis is in line with the available literature. But all evidence that corroborates it is qualitative, whereas our objective is to test it empirically.

[7] In addition there is another difficulty. This has to do with the possibility that the influence from generalized to entrepreneurial morality may run in both directions. For if, as Payne, Joyner (2006) find, the morality recognized and practiced by entrepreneurs is consistent with the generalized morality of their times, then the influence between entrepreneurial and generalized morality should be by-directional.

with other less important determinants of entrepreneurial morality.

2.2 The theoretical model

To distinguish on a statistical basis the important from the unimportant determinants of entrepreneurial morality, we start by postulating that the morality that characterizes every entrepreneur i in our data derives from a model of the following general form:

$$EM_i = f(LM_i, GM_i; EE_i, FE_i, \cdots),\tag{1}$$

where the various symbols stand as follows:

EM_i = An index of entrepreneurial morality.

LM_i = An index of localized morality, i.e. of morality in the enterprise

and its immediate market environment.

GM_i = An index of generalized morality, i.e. of morality that prevails in

society in general.

EE_i = An index of educational environment in the primary and secondary school.

FE_i = An index of family environment.

$\cdots$ = Other determinants to be specified later on.

The question mark in the parenthesis splits the set of explanatory variables into two subsets. The one on the left includes variables that are considered endogenous in the sense that they are explained by some other equation in the system, whereas the other on the right comprises all variables that are exogenous and/or predetermined.

The mathematical form of (1) is unknown. Hence it requires further specifications. To this end we hypothesize that f can be approximated by a linear relation, thus leading to the form:

$$EM_i = a_0 + a_1 LM_i^* + a_2 GM_i^* + a_3 EE_i + a_4 FE_i + \cdots + e_i,\tag{2}$$

in which the revised symbols have the following meanings. First, the variables marked by an asterisk are endogenous in the above sense. Second, the vector $a_0, a_1, a_3, a_4, \cdots$ denotes the parameters of the model. Third, the three full stops imply that there are more independent variables with which we will experiment later on in the estimation stage. Finally, the term e_i represents random

disturbances caused by a multitude of unknown but less significant influences that are omitted.

The completion of the model at this point would require the specification of predictions regarding the direction of influence of the independent variables. This implies that, by drawing on the hypotheses that were developed in sub-section 2.1 above, we would impose some *a priori* restrictions on the signs of the parameters $a_0, a_1, a_3, a_4, \cdots$. However, depending on the way that EM_i is defined and measured, the interpretation of the parameters in (2) may differ from that in a normal regression. This is so because, as we shall argue later on, when the observed values of the dependent variable are discrete, the parameters in question do not correspond to the derivatives of EM_i with respect to the independent variables. For this reason, the discussion of the issues regarding the meaning and the direction of influence of independent variables on entrepreneurial morality is postponed until the empirical section of the paper.

Thus, having specified the theoretical model, we are ready to describe the set of our data, the procedures that we employed to collect them, and the definition and the measurement of the variables that enter into the empirical model in the stage of its estimation.

3. Data, definitions and measurement of variables

Soon after we conceived of the idea for this paper we became aware from the excellent review of behavioral research by Podsakoff, MacKensie, Lee, Podsakoff (2003) that the certainty of whatever evidence we obtained regarding the determinants of entrepreneurial morality would depend on the quality of the data that we would be able to collect and on the methods by which we would estimate and experiment with the model. For this reason, in every step on the way from the design of the questionnaire, to carrying out the interviews and controlling the selection of the respondents and finally compiling the data and estimating the model, we calibrated our research efforts as closely as possible to the best practices. In this section we explain how we collected the data and how we define and measure the variables that enter into the estimated model.

3.1 Questionnaire design and implementation

Our target group was the small and medium-size enterprises in Greece that are managed by their owners. Over 170 university students, who attended an undergraduate course in entrepreneurship in the spring of 2006, and whom we trained specifically for this task, were involved in collecting the data. Each student selected at least 10 enterprises operating mainly in the regions of

their origin and described in a term paper how many enterprises were contacted, how many of them declined to participate, etc. Our instructions called for the students to select enterprises with which they were familiar and had some degree of access to entrepreneurs. Moreover, the enterprises that they selected ought to conform, to the extent possible, to the following general criteria: a) they preserved the sectoral proportions that prevail in the Gross National Product; (b) at least 1/3 of the enterprises were established before 1980 ("old" enterprises); (c) the enterprises employed at least 3 but not more than 100 employees; and (d) at least 1/3 of the enterprises were located outside the region of Attica.

The questionnaire was not administered anonymously because we wished to retain the option to validate the participation of the entrepreneurs who were interviewed. However, to encourage participation and honesty in the responses, we supplied all respondents with a letter in which we pledged our unequivocal commitment to safeguard their identity secret under any circumstances. Thus, after making sure by random cross-checking that the sampled entrepreneurs had been interviewed precisely as reported by the students involved, and after eliminating 85 questionnaires that came from enterprises employing less than 3 and more than 99 employees, we ended up with 1643 questionnaires that satisfied roughly the above mentioned criteria. However despite the large size of the sample and the meticulous attention we paid to detail, a word of caution is in order. This is that we may have escaped the bias of self-selection, but perhaps not of common method, because all our data come from a uniform questionnaire and a uniform interviewing process across all sampled entrepreneurs.

Next, with respect to the structure of the questionnaire, we realized that the studies of morality in large enterprises follow two approaches. On the one hand, there are those that investigate the ethics of applied policies, which are *action-based* in the sense that they are concerned with the ethical nature of the activities of managers, whereas on the other there are the studies which are *agent-based* in the sense that they investigate the moral attitudes and behavior of managers themselves. At an early stage we adopted the first approach because we believed that it would provide us with relatively objective information. Thus, we constructed a questionnaire with questions intended to trace the effect of entrepreneurial actions on such variables as advertising, the pricing of goods and services, the relations with workers and employees, the relations with suppliers and banks, and other similar activities. But after applying it to a small sample of entrepreneurs, we concluded that their responses involved seri-

ous gaps and contradictions and switched to the second approach. In doing so we were encouraged also by the thought that this approach links with the philosophical foundations of ethical theory, according to which individuals tend to respond favorably when the behavior by others is in line with such virtues as fairness, integrity, consistency, wisdom, temperance and courage, and loyalty (see Dobson, 2004).

To conclude, given that: a) the sample covers a large number of enterprises dispersed throughout Greece; b) the interviews were conducted by a large number of students trained for this task; and c) the interviewing process was implemented as planned, we trust that the quality of the collected data is sufficiently good to support the estimation of the model and the tests of the hypotheses to be performed with it.

3.2 Basic characteristics of the sample

According to provisional data, 3,3% of the Gross Domestic Product in Greece in 2006 was contributed by the primary sector, 20,7% by the secondary sector, and 76% by the tertiary sector. The corresponding structure of our sample is as shown in Table 1. Comparing the latter

Table 1

Sectors of economic activity	Answers	%
Primary	187	11,4
Secondary	523	31.8
Tertiary	933	56,8
Total	1663	100,0

data with the ones from the national income accounts, we observe that they coincide with regard to the relative contributions by the three sectors. In particular, the sector of services ranks first, followed by manufacturing and agriculture in the same order. However, the absolute percentages of the contributions differ as our sample is biased towards the small and medium-size enterprises, which are more numerous in agriculture and manufacturing than in services, but due to their limited size they do not contribute as much to the Gross National Product.

The regional distribution of the enterprises in the sample is shown in Table 2. From this it turns out that 65,3% of them comes from the region of Attica, 31% from other regions of the country, and the remaining 3,7% originates in Cyprus. This particular variation in the sample is important because it may enable us to trace the effects of independent variables on entrepreneu-

Table 2

Regional distribution	Answers	%
Village	125	7,6
Small city	140	8,5
City	161	9,8
Athens	1072	65,3
Crete	84	5,1
Cyprus	61	3,7
Total	1643	100,0

rial morality in three regional economies that have a high rate of growth and considerable economic independence, i.e. those of Athens, Crete and Cyprus.

How the enterprises in the sample are distributed on the basis of the year they were established is shown in Table 3. From this it turns out that 35,9% was founded in the decade 1995-2006, 30,5% in the decade 1994-1985, and 12,6% in the decade 1984-1975. Moreover, in order

Table 3

Distribution by year of establishment	Answers	%
2000-2006	297	18,1
1995-1999	292	17,8
1990-1994	250	15,2
1985-1989	251	15,3
1980-1984	174	10,6
1975-1979	133	8,1
1970-1974	74	4,5
1965-1969	53	3,2
1960-1964	48	2,9
1955-1959	21	1,3
1950-1954	20	1,2
1945-1949	13	0,8
1940-1944	2	0,1
<1940	15	0,9
Total	1643	100,0

to discriminate between "old" and "new" entrepreneurs, we assumed that 1980 was a reasonable cut-off year, because it was close to 30 years of working life, after which normally entrepreneurs withdraw. On this basis, 371 enterprises (22,6%) were deemed to belong to "old" entrepreneurs, whereas the 1272 (77,4%) were presumed to represent "new" entrepreneurs.

Table 4 depicts the composition of the sample from the point of view of the educational level of the entrepreneurs. From this we surmised that their education was significantly above

Table 4

Distribution by educational level	Answers	%
Gymnasium	255	15,5
Lyceum	430	26,2
Technical School	232	14,1
Technical University	215	13,1
University	511	31,1
Total	1643	100,0

average in comparison to total population. In particular, whereas 44,2% held university level degrees and 14,1% had finished technical schools, according to the national statistics of 2001 in the total population only 10,1% had obtained university level education (3, 10% technical university and 8,3% university). Moreover, it is interesting to note that the sample comprises 1231 men (74,9%) and 412 (25,1%) women. This indicates that, contrary to the low percentages of women that are active as managers in larger firms and corporations, female entrepreneurship in small to medium-size firms is rather high in Greece.

For reasons that will become obvious shortly and have to do with the values of the entrepreneurs, it is also of interest to display their distribution on the basis of the location in which they spent their formative years. As we observe from Table 5, 32,8% of them grew up in villages and small cities, while the rest 67,2% were raised in the region of Attica or in large cities.

Table 5

Grew-up in:	Answers	%
Village	387	23,5
Small city	152	9,3
Large city	481	29,3
Attica	623	37,9
Total	1643	100,0

Finally, in Table 6 it is seen that half of the entrepreneurs in the sample grew up in regions that had commerce as their basic wealth-producing activity, whereas the percentages of entrepreneurs from rural areas and regions with manufacturing activities were 30,5% and 7,1%, respectively.

Table 6

Distribution by sector of activity	Answers	%
Tourism	157	9,6
Manufacture	116	7,1
Agricultural	500	30,4
Merchant marine	45	2,7
Commercial	825	50,2
Total	1643	100,0

From the above it follows that our sample is composed of entrepreneurs with the following characteristics: (a) They are active mostly in the sector of services with emphasis on commerce; (b) they exercise their entrepreneurial activities mainly in the region of Athens; (c) they are relatively young in the sense that they started their enterprises after 1980; (d) they have to a large extent university level education; (e) they grew up in Athens or in large urban centers; and, finally, (f) although male entrepreneurs dominate the sample, the percentage of female entrepreneurs is by no means low.

3.3 A methodological note

The questionnaire provided us with two types of information. The first was information that could be quantified using the scale of absolute numbers. Such was, for example, the number of workers employed. This could be measured by reference to the scale of absolute numbers because, if enterprises A and B employ 5 and 10 workers, respectively, we can say not only that B employs more workers than A, but also that B employs two times as many workers as A. On the contrary, the second type of information related to the views that entrepreneurs hold with regard to moral judgments and other non-quantifiable attributes. In behavioral research the latter are measured with the help of various scales. In our analysis we shall use the Likert scale. To define it, consider the responses that can be categorized as: very successful-moderately successful-not successful-moderately unsuccessful-very unsuccessful. A Likert scale would amount to associating with these categories the numbers 5 4 3 2 1. This clarification is of importance for at least the following two reasons.

First, observe that the numbers 5 4 3 2 1 represent an *ordinal level of measurement*, i.e.

they are inherently ordered, because they imply that a respondent ranks a characteristic in higher or lower order than another. But the numbers in this series do not measure the extent of differences from one category to another. More specifically, while the numbers 5 and 4 would show that one entrepreneur is more successful than another, their difference does not indicate how much more successful is the former entrepreneur in comparison to the latter. Thus, given that econometricians have developed special methods for the estimation of models where the measurement of the dependent variable receives discrete values, in the present paper we will use the method of Ordered Probit, the properties of which will be explained in Section 4.

The second reason that makes the adoption of a Likert scale useful for the measurement of categorical variables is that it allows the flexibility of grouping several Likert indices that measure various aspects of the same variable into a single index. For an example, consider the measurement of entrepreneurial morality and assume that its level is reflected in the views of entrepreneurs with regard to taxation as well as the behavior of their competitors and customers. If through the questionnaire we obtain the responses of entrepreneurs to three relevant questions, there will result three Likert scales, which may be grouped to derive a composite index of entrepreneurial morality. A usual mechanism of grouping Likert scales is summation and this explains why frequently they are called summative scales. Another mechanism of grouping such scales is the method of Factor Analysis, which is applied as follows. Let the index of entrepreneurial morality M_i take on values that depend on the responses of entrepreneur i to three relevant questions. If these responses correspond to the Likert scales, X_t, Y_t and Z_t, then we may postulate that:

$$\hat{M}_i = g(X_i, Y_i, Z_i). \tag{3}$$

This equation gives the value of the variable $\hat{M}_t$ as a function of the variables X_i, Y_i and Z_i. But the former variable is unobserved. Hence, the problem is to find an index of the variable $\hat{M}_i$ that would explain in the best possible way the combined influence of the three variables. This problem constitutes a case in variable reduction and is carried out in two steps. In the first step we apply Factor Analysis on the variables X_i, Y_i and Z_i to calculate the so-called Load Factors. Let us assume that the latter are depicted by the parameters a_X, a_Y και a_Z. In the second stage, using the three variables in combination with the Load Factors we compute the expression:

$$M_t = a_X X_t + a_Y Y_t + a_Z Z_t, \tag{4}$$

where M_t is an observable index of the unobservable variable $\hat{M}_t$.

In the next section we shall explain how the above technique is employed to derive indices for the latent variables in the model. But before turning to this task, an important remark is in order. In Section 2 we postulated that by drawing on various strands of relevant literature it is possible to test the hypotheses H.1-H.4 by setting up a framework of analysis like equation (2). By the standards of Confirmatory Factor Analysis (CFA), as described, say, by Stevens (1996, p.389), this would be methodologically sound if there existed a strong theoretical and/or empirical foundation that allowed us to specify in advance an exact model of the processes and the elementary forces that shape entrepreneurial morality. But as we argued in the introduction and it turned out from the ensuing presentation this is hardly the case, and hence, the grounds for adopting equation (2) are feeble. Moreover, since our prior knowledge regarding the factors that load onto EM_i, LM_i, GM_i, EE_i and FE_i is weak, the same limitation applies by postulating equation (3) in order to derive indices for the latent variables in the model. The only difference in this case being that, by combining equations (3) and (4) we can apply Exploratory Factor Analysis (EFA) to test for the degree to which the measured variables used in the estimations represent the hypothesized constructs that appear in equation (2). These are the methodological uncertainties that explain why in the title of the paper we refer to the results not as evidence, but as indications about entrepreneurial morality in Greece.

3.4 Definition and measurement of variables.

As indicated above, the dependent and most of the independent variables in equation (2) are unobserved. Hence, they must be approximated with the help of relevant information from the responses of the entrepreneurs in the sample. But for each of these variables relevant information can be extracted from more than one response, because some questions were structured so as to highlight different aspects of the same variable. Hence, unless stated otherwise, in order to measure the latent variables EM_i, LM_i, GM_i, EE_i and FE_i, we applied Factor Analysis by combining expressions (3) and (4) in an exploratory fashion. The results are presented below.

The variable of entrepreneurial morality, EM_i

The level of entrepreneurial morality EM_i is determined by two indices that spring from the

responses to two separate questions. In the first of them we asked the respondents to describe the attitude of Greek entrepreneurs regarding tax evasion. More specifically, we asked them to characterize it from an ethical standpoint as: a) clever, b) defensive and justified, and c) absolutely reprehensible. As the question was indirect and did not aim to trace the view about tax evasion of the respondents themselves, we expected that we would be able to construct a rather accurate measure of the moral stance of entrepreneurs in Greece. This index, labeled X_{32}, receives the values 1 (clever), 2 (defensive and justified) and 3 (absolutely reprehensible).

In the second question we asked the entrepreneurs to rate A (high), B (medium), and C (low) several behavioral characteristics for their contribution to success in business. The characteristics were: X_{271}-honesty, X_{272}-diligence, X_{273}-morality, X_{274}-good relations with employees and customers, X_{275}-trustworthiness, X_{276}-party connections, X_{277}-social connections, X_{278}-accountability, and X_{279}-opportunistic behavior. Then, we associated with the above rankings the scale 2 (high), 1 (medium) and 0 (low); and, finally, by excluding the indices X_{274}, X_{276}, and X_{277} on the grounds that they did not represent characterizations of distinct ethical values, we summed the remaining indices and obtained X_{27} as a second proxy of entrepreneurial morality.[8]

To test the robustness of the results to the definition and measurement of this critical variables, in the estimation we experimented with two specifications. In the first one we set $EM_i = X_{27} + X_{32}$ and in the second we merged X_{27} and X_{32} into a single index following the above technique. Both gave roughly the same results. But on statistical grounds the results from the former specification were slightly better. For this reason, we report the estimates only from the first specification.

The variable of localized morality, LM_i

The morality that prevails in the immediate or local business environment is approximated by two indices. The first of them, labeled X_{29}, is based on the cost in terms of the time that entrepreneurs in small and medium scale enterprises devote for monitoring the ethical behavior of their employees, suppliers and customers, as well as for enforcing sanctions in case of transgressions.

---

[8] It should be noted that the two- and three-digit subscripts of variables correspond respectively to the number of questions in the questionnaire and the order of items included in them. The questionnaire is available on request by the authors.

To construct it, we asked the sampled entrepreneurs to rate the time they spend in these functions as: a) very high, b) quite high, and c) low, and then associated with them the scale 1, 2, 3.

As for the second index, labeled X_{30}, this was built from the answers to a question whether the respondents were more or less willing to pay their taxes when they founded their enterprises relative to the time of the survey. Since the question addressed directly the tax-paying attitudes of the entrepreneurs themselves, but referred to how these attitudes had evolved since past times, this index is a lagged proxy of the index X_{32}, and as such it could be viewed as a particularly dynamic determinant of localized morality.

The variable of generalized morality, GM_i

To capture the influences on entrepreneurial morality of generalized morality, we constructed five indices, labeled $X_{21}, X_{23}, X_{24}, X_{34}$ and X_{35}. The rationale for adopting the index X_{21} is found in the literature where it is argued that the society and its institutions influence entrepreneurial morality.[9] To construct it we asked the respondents to tell us what they thought about the view of the general public regarding unethical economic transactions. In particular, we asked them to express their opinion by selecting one of the following alternatives: a) the society is strongly opposed; a) the society is moderately tolerant; and c) the society is quite tolerant. Thus, we built X_{21} by making use of the scale: 3, for strongly opposed, 2, for moderately tolerant, and 1, for quite tolerant.

Next, to gain some insight into the status of entrepreneurs in their communities, we asked the ones in the sample to describe how people in their immediate business and family environments perceived them as individuals. More specifically, we asked them to select one from the following characterizations: a) X_{241}-suspect; b) X_{242}-exploiters; c) X_{243}-creative; d) X_{245}-individuals who contribute to economic development, and e) X_{245}-tax dodgers. To these five categories we assigned the values: 0, for suspect, exploiters and tax dodgers, and 1, for creative individuals and individuals who contribute to economic growth. So, this index is defined as $X_{24} = 0*(X_{241} + X_{242} + X_{245}) + 1*(X_{243} + X_{244})$ and takes the values 0 and 1.

To get a glimpse into the status of entrepreneurs in Greek society, we asked two questions. In the first we asked them to tell us how they believe they are viewed as individuals by se-

---

[9] Cf., as an example, Clarke, Aram (1997), Machan (1999), Buchholz, Rosenthal (2005).

lecting three out of the following seven characterizations: a) X_{351} - swindlers; b) X_{352} - intelligent; c) X_{353} - progressive; d) X_{354} - exploiters; e) X_{355} - hard-working; f) X_{356} - lazy, and g) X_{357} - authoritarian; Thus, by adopting the scale: 2, for intelligent, progressive and hard-working, 1, for exploiters and authoritarian, and 0, for swindlers and lazy, we derived this index as $X_{35} = 2*(X_{352} + X_{353} + X_{345}) + 1*(X_{354} + X_{357}) + 0*(X_{351} + X_{356})$. As for second question, this was intended to measure the degree of approval by society of the entrepreneurial profession. For this reason we asked the respondents to select one from the following choices: a) high approval; b) moderate approval; c) low approval; and d) no approval whatsoever. So, by associating with the latter choices the numerical scale 3, 2, 1, 0, we arrived at index X_{23}.

Lastly, the index X_{34} was designed to capture the influence on entrepreneurial morality of public policies and emanates from a question that we put to the respondents to characterize those whom they think that benefit from state subsidies. The items from which they chose were: a) X_{341} - the active and innovating entrepreneurs; b) X_{342} -the dishonest; c) X_{343} - those with party connections; d) X_{344} - those with social connections; e) X_{345} -those who employ corruptive means. In turn, by adopting the scale: 2, for active and innovative entrepreneurs, 1, for entrepreneurs with party and social connections, and 0, for those entrepreneurs that are dishonest and get involved in corruptive activities, we defined this index as $X_{34} = 2*X_{341} + 1*(X_{343} + X_{344}) + 0*(X_{342} + X_{345})$.

The variable of educational environment, EE_i

In order to trace the influence of primary and secondary education on entrepreneurial morality, we asked the respondents to answer several related questions. In one we asked them to characterize the nature of the place where they grew up. The choices were: a) X_{131} -Village; b) X_{132} -Small urban center; c) X_{133} -Large urban center, and d) X_{132} -Capital. From the answers we defined the index $X_{13} = 3*X_{131} + 2*(X_{133} + X_{134}) + 1*X_{134}$ in the expectation that it might represent adequately the influences on the character of the entrepreneurs of the closeness or openness of the social environment where they spent their formative years. In another question we asked whether the entrepreneurs had received adequate moral guidance during their elementary and high school education. From the answers we built index X_{16}, which takes the values 3, for strong moral guidance; 2, for moderate moral guidance; and 1, for no moral guidance at all. Last, but not least, we asked the sampled entrepreneurs

to rank the severity of disciplinary practices they had been subjected to in the schools they had attended for moral transgressions. The choices were 1 (none), 2 (moderate), and 3 (very stiff) and from their answers we constructed index X_{19}.

The variable of family environment FE_i

In the pilot application we realized that it was rather impossible to obtain good quality information regarding the family environment of entrepreneurs. For this reason in the main application we concentrated exclusively on questions regarding the assistance entrepreneurs received from their families, how they had acquired their enterprises, which were their plans for the future, etc. From their responses to this group of questions we composed several indices. Two of them, labeled X_{16} and X_{25}, were selected as determinants of the family influence. The former indexes the nature of the assistance entrepreneurs received from their families, with choices from the scale: a) material, b) moral, c) both, and d) none at all, whereas the latter addresses the encouragement entrepreneurs were prepared to offer to their children to become entrepreneurs.

Other relevant variables

In the estimation we investigated also the impact of several other factors. For example, we experimented with the age of the enterprises, the number of employees as a measure of enterprise size, the gender of entrepreneurs, etc. Our grounds for introducing these variables into the model could be traced to various stands of relevant literature documenting their importance as determinants of entrepreneurial morality. But as most of them failed to meet the standard criteria for statistical significance, it is unnecessary to describe their construction in more details.

4. The empirical model and its estimation

To find out whether the data confirm hypotheses H.1-H.4 or not, model (2) required some further specifications. In particular, in order to obtain reliable estimates of its parameters, it was necessary to ascertain that the error terms e_i are distributed according to the standard normal distribution, which implies that the error terms must not be correlated with the independent variables. But in studies like ours, which are based on data extracted from questionnaires, the risk is ever present that this condition may be violated, because of possible biases from such anomalies

as self-selection, common method variance, and other sources. Hence, aside from the precautions in the data collection stage, we were on guard during estimation to apply appropriate remedies. The objective here is to explain how we confronted these concerns.

4.1 The estimated model

Since entrepreneurial morality is measured on a Likert scale, following Green (1997, pp. 927-930), the appropriate econometric method of estimation is the Ordered Probit (OP). For model (2) this method is based on a regression of the type:

$$\hat{EM}_i = a_0 + a_1 LM_i^* + a_2 GM_i^* + a_3 EE_i + a_4 FE_i + \cdots + e_i = \boldsymbol{\theta}' \mathbf{X}_i + e_i, \tag{5}$$

where $\boldsymbol{\theta}'$ is a line vector of parameters a_i, $\mathbf{X}_i$ is a column vector of independent variables for entrepreneur i, and for the random errors it holds that $e_i \sim N(0,1)$; Moreover, while the value of $\hat{EM}_t$ is unobservable, from the sample we observe the following values:

$$
\begin{aligned}
EM_i &= 2 \text{ if } \hat{EM}_i \leq \mu_1 &\quad (1) \\
EM_i &= 3 \text{ if } \mu_1 < \hat{EM}_i \leq \mu_2 &\quad (2) \\
&\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \\
EM_i &= 13 \text{ if } \mu_{11} \leq \hat{EM}_i, &\quad (12)
\end{aligned}
\tag{6}
$$

where the variables $\mu_1, \mu_2, ..., \mu_{11}$ stand for certain unknown limits of change (thresholds) of the dependent variable,[10] the factors of which are to be estimated simultaneously with the parameters of the model. In particular, by applying the estimating technique of maximum likelihood, we obtain the model:

$$
\begin{aligned}
EM_i &= a_0 + a_1 LM_i^* + a_2 GM_i^* + a_3 EE_i + a_4 FE_i + \cdots + \beta_1 \mu_1 + \beta_2 \mu_2 + \cdots + \beta_n \mu_{11} + e_i \\
&= \boldsymbol{\theta}' \mathbf{X}_i + \mathbf{I}' \mathbf{M}_i + e_i.
\end{aligned}
\tag{7}
$$

In this $\mathbf{I}'$ is a line vector of parameters β_i and $\mathbf{M}_i$ is a column vector of variables μ_i. Then, with the estimates of the slope coefficients for the variables $\mathbf{X}_i$ and $\mathbf{M}_i$ in hand, it is relatively easy to

---

[10] The subscripts of the threshold variables index the number of discrete values assumed by EM_i. In particular, as shown in expression (6), this variable receives integer values from 2 to 13.

calculate the probabilities for the index of entrepreneurial morality to receive given values. Since the cumulative normal distribution is given by $\phi(-\boldsymbol{\theta}'_i\mathbf{X}_i)$, the probabilities for various values of the dependent variable are obtained as follows:

$$
\begin{aligned}
\text{Prob}[EM_i = 2] &= \phi(\mu_1 - \boldsymbol{\theta}'\mathbf{X}_i) \\
\text{Prob}[EM_i = 3] &= \phi(\mu_2 - \boldsymbol{\theta}'\mathbf{X}_i) - \phi(\mu_1 - \boldsymbol{\theta}'\mathbf{X}_i) \\
\text{Prob}[EM_i = 4] &= \phi(\mu_3 - \boldsymbol{\theta}'\mathbf{X}_i) - \phi(\mu_2 - \boldsymbol{\theta}'\mathbf{X}_i) \\
&\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots \\
\text{Prob}[EM_i = 13] &= 1 - \phi(\mu_{11} - \boldsymbol{\theta}'\mathbf{X}_i).
\end{aligned}
\tag{8}
$$

Finally, in the light of the above specifications, the following remarks are in order.

(1) Model (5) is deduced from model (2) in which the variables LM_i^* and GM_i^* may be endogenous. Thus proper estimation requires the adoption of an instrumental variables approach. In doing so LM_i^* and GM_i^* were regressed on several exogenous variables, and then, their fitted values LM_i^f and GM_i^f were inserted back into (5) and the latter was estimated anew by applying the ordered probit estimator.

(2) The interpretation of the slope coefficients in equation (5) is different than that of the slope coefficients in Ordinary Least Squares (OLS). The reason is that in the probit model the effect of a change in an independent variable on the probability of the dependent variable to assume a given value is not represented by the corresponding slope coefficient, but by the expression:

$$
\frac{\partial \text{Prob}(EM_i = j)}{\partial LM_i^*} = [\varphi(\mu_j - \boldsymbol{\theta}'\mathbf{X}_i) - \varphi(\mu_{j+1} - \boldsymbol{\theta}'\mathbf{X}_i)] * a_1 \, ,
\tag{9}
$$

where φ is the density of the normal distribution. From this it can be observed that the effect depends not only on the value of LM_i^* but also on all other independent variables. This explains why Hoetker (2007, p.334) suggested that in computing equation (7) the best practice is to identify meaningful values for all other independent variables. However, since in the present case any such values might be considered arbitrary, we shall adopt the common practice by setting the other independent variables at their mean values.

(3) Unlike OLS, in the context of probit the marginal effect on EM_i of an interaction be-

tween, say, EE_i and FE_i is not the coefficient of a variable composed by their cross product. To see it, observe from the following mathematical expression of the interaction that the magnitude and even the sign of the marginal effect can differ across observations.

$$\frac{\partial^2 \text{Prob}(EM_i = j)}{\partial EE_i \partial FE_i} = \varphi(\theta' \mathbf{X}_i) \bullet \frac{\partial^2 (\theta' \mathbf{X}_i)}{\partial EE_i \partial FE_i} - \varphi(\theta' \mathbf{X}_i) \bullet (\theta' \mathbf{X}_i) . \qquad (10)$$

(4) The goodness-of-fit statistic in the probit model is not analogous to the coefficient of determination in the OLS. In the context of the probit model the literature offers a wide range of pseudo-R^2 measures, based on different formulae and resulting in different values for the same model. Consequently, the results will be reported and the inferences will be derived subject to the formula reported for this statistic by the econometric package STATA.

In short, equation (5) is estimated with the help of consistent systems techniques using the ordered probit estimator. Moreover, to make sure that the results are free from the customary biases that beset such types of research, we carry out the following tests.

4.2 Testing for selectivity

As we indicated in the previous section, the enterprises that participated in the survey were chosen by a large body of students from various regions in Greece and had to conform to certain general criteria. By implication, the magnitude of self-selection would be reflected in the percentage of enterprises that were contacted but declined to take part in the survey. To get an indication of this percentage, we looked in the term papers where the students were required to report all enterprises that they had contacted. From this investigation it turned out that the fraction of decliners was very small and that the sample might be free of self-selection bias. But this was only an indicative test and hence hardly reassuring. For this reason, in order to determine the presence of and to correct for self-selection bias, we perform a test based on Heckman's (1979) two-step procedure, as it was extended by Greene (1998) to allow for an ordered probit in the second stage. More specifically, this is how we proceeded.

In the spring semester of 2008 we repeated the sampling procedure anew, using essentially the same questionnaire, but with a different group of students. This time we collected 644 responses from owners-entrepreneurs of SMEs that had not been included in the 2006 sample.

Thus, assuming that the 2008 sample is representative of the enterprises that were omitted from the 2006 sample, in the first step we estimate a binary probit model for survey participation using the observations from both samples. This model takes the form:

$$\hat{S}_i = \gamma' \mathbf{Z}_i + u_i \; , \tag{11}$$

where $S_i = 1$ if a firm participated and 0 otherwise; γ' is a line vector of parameters γ_i; $\mathbf{Z}_i$ is a column vector of exogenous variables for entrepreneur i, and u_i stands for random errors having the standard normal distribution. In addition, we adopted the following assumptions: a) the variable EM_i satisfies the ordered probit specification of equation (5) and is observed if and only if $S_i = 1$; b) the variables in the column vectors $\mathbf{X}_i$ and $\mathbf{Z}_i$ are always observed; c) the error terms u_i are independent of the variables in $\mathbf{X}_i$ and $\mathbf{Z}_i$ and follow the standard normal distribution. From these assumptions it can be shown that, when $S_i = 1$, the expectation $\mathrm{E}(u_i / \mathbf{Z}_i)$ is the inverse Mills ratio, $\tilde{\lambda}(-\tilde{\gamma}'\mathbf{Z}_i)$. In turn, this leads to the following outcome equation using the data from the 1643 questionnaires:

$$\mathrm{E}(EM_i / \mathbf{Z}_i, \mathbf{S}_i = 1) = \theta' \mathbf{X}_i + \mathbf{I}' \mathbf{M}_i + \tilde{\lambda}(-\tilde{\gamma}'\mathbf{Z}_i)\delta_\lambda . \tag{12}$$

To determine if there is evidence of selection bias we conduct a t-test of the coefficient of the inverse Mills ratio. If $\delta_\lambda \neq 0$, there is evidence of sample selection bias, and hence, the presence of the Mills ratio in the estimated model captures the impact of this bias in the results.

4.3 Controlling for common method bias

The best practice in this front recommends various procedural and statistical remedies. In line with the former, we adopted four different approaches. First, in our letter we assured the respondents about our commitment to safeguard their identity and invited them to answer the questions as honestly as possible. Second, to minimize the likelihood that the respondents might fall into a pattern linked to Likert or semantic differential scales, we interspersed the open-ended questions throughout the questionnaire. Third, a few questions were purposely expressed in positive and negative ways and the answers were checked for consistency by reverse coding. Finally, in the measurement of variables, we varied the anchors and the endpoints of the Likert scales and

avoided using bipolar numerical scale values (e.g. -2 to +2). However, given that we could not gauge with confidence the effectiveness of these precautionary procedures, in addition we conducted Harman's single-factor test.

The results of the tests regarding self-selection bias and common method variance are presented in the next section together with the coefficient estimates of the model and other test statistics. In the same place we comment on the robustness of the results and their implications for entrepreneurial morality in small countries like Greece.

5. Results and interpretations

According to Harman's test, if common method variance were a serious problem, we would observe either a single factor to emerge from factor analysis or one general factor to account for the most of the covariance in the dependent and independent variables. To this end, we performed factor analysis on all variables, extracting six factors with eigenvalues greater than one. Moreover, from this analysis it turned out that no general factor was apparent in the unrotated factor structure, with Factor 1 accounting for less than 11%. Therefore, in the light of these findings we were encouraged to conclude that our procedures before collecting the data, i.e. during the phases of the design and implementation of the questionnaire, as well as after collecting the data, have not introduced common method biases that would be of major concern.

Next, with regard to the selectivity test, we proceeded as follows. First, we formed the **Z** vector by excluding from the right-hand side of equation (5) the variables LM_i^* and GM_i^* that may be endogenous. Then, using the entire 2287 observations in the 2006 and 2008 samples we estimated the binary probit model (11) for the purpose of computing the inverse Mills ratio. This was our selection equation and we retained in it only those exogenous variables that performed best on

(Please insert Table 7 about here)

the basis of statistical significance. Finally, with the inverse Mills ratio in hand, we estimated the outcome equation by applying the ordered probit estimator to the 1643 observations of the 2006 sample, while replacing the endogenous variables with their fitted values LM_i^f and GM_i^f. The results are exhibited in Table 7. From the last row in the coefficient section of the outcome equation we observe that the coefficient of *Lambda* is not different from zero, thus implying that there is no evidence of selection bias in our 2006 sample. Hence, on the above grounds, we went ahead and esti-

mated model (12) without the last term.

Table 8 presents two sets of results. The first was obtained by replacing the variables in question with their fitted values, LM_i^f and GM_i^f, whereas in the second set the same variables were treated as exogenous. On observation it turns out that the estimates of equation (12.1) in the top-half of Table 8 have significantly higher explanatory power than those of equation (12.2) in the

<div style="border:1px solid;">

(Please insert Table 8 about here)

</div>

bottom-half of the table. But when we move from equation (12.1) to equation (12.2) the coefficients of the variables for localized morality and family environment turn from negative to positive. With the exception of this instability, both equations indicate that the main determinants of entrepreneurial morality are in line with the hypotheses H.1-H.4. More specifically, in addition to the level of education and the social esteem for the entrepreneurial profession, both equations show that localized morality, generalized morality and the environments of education and family influence significantly entrepreneurial morality. On the contrary, such variables as the size of the enterprise, the age and the gender of the entrepreneurs, the role of government policies, etc, did not appear to exert significant impact. These are among the major findings of this paper.

Now, if we select (12.1) as the estimates of choice for (12), the next task is to highlight the inferences to which they lead. To this end the expressions in (8) provide a convenient means to compute the probabilities with which the dependent variable assumes various values. The calculation of these probabilities is based on the values of the threshold variables $\mu_1,\ _2,...\ _{11}$ and the value of the cumulative normal distribution $\phi(\theta'X)$ for a typical entrepreneur. Let the latter be characterized by the mean values of the variables:

$$L\overline{M}_i^f \quad 1.17406 \quad G\overline{M}_i^f \quad 2.29187 \quad E\overline{E}_i \quad 1.440764 \quad F\overline{E}_i \quad .3744276$$

$$L\overline{ED}_i \quad 3.180767 \quad PE\overline{P}_i \quad 1.601948 \quad FP\overline{S}_i \quad 7.437614$$

Using them in conjunction with the coefficients from equation (12.1), we find $\theta'X = .61622632$. Finally, since EM_i assumes integer values between 2 and 13, applying (8) yields the probabilities shown in Figure 1 below. From them, in conjunction with the observation that the weighted average index of morality for the typical or representative entrepreneur in our sample is 10 (see the vertical

arrowed line), we find that this entrepreneur: a) has a probability of 26.9% to be characterized by average morality; b) has only a 4.1% probability to be characterized by an index of morality higher than 10, and c) the probability that he may be characterized by morality lower than 10 is 70%. There-
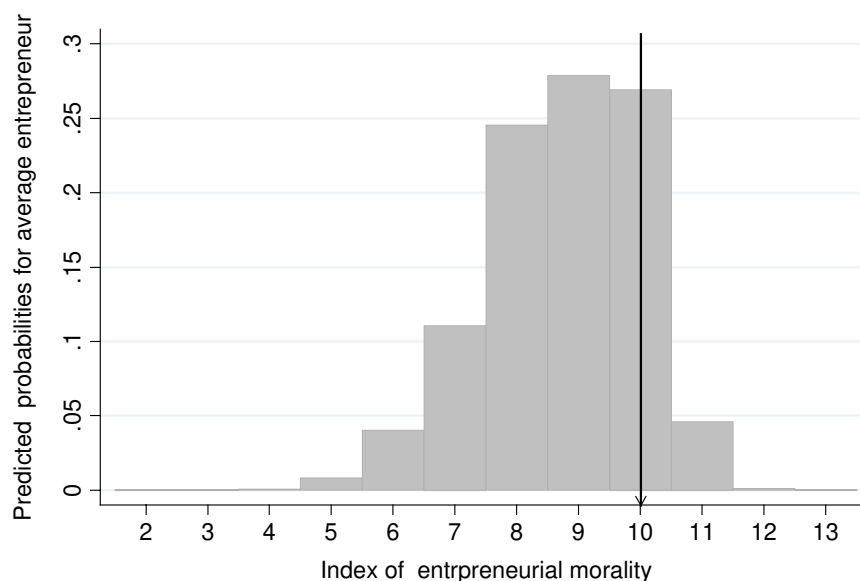

Figure 1

fore, the feeling that prevails among citizens that entrepreneurial morality in Greece is very low is remarkably consistent with the results from the estimated model.

Next, let us turn to the interpretation of the slope coefficients, which as was hinted to previously, do not correspond to the derivative of the dependent with respect to each of independent variables. To this effect, consider the influence on entrepreneurial morality of the generalized morality and the educational and family environments. If with the help of expression (9) we calculate in the mean values given above the marginal effects of GM_i^f, EE_i, and FE_i, we obtain the results shown in Table 9. From them it turns out that an increase by 10% in the index of generalized morality decreases the probability of the average entrepreneur to be characterized by an index of morality equal, say, to 7 by about 3.68%. On the contrary, the same percentage increase in generalized morality raises the probability of this entrepreneur to have an index of morality equal, say, to 8 by 3.77%. This finding suggests that, when the index of morality of the average entrepreneur is relatively low, improvements in generalized morality reduce the probability of the index to remain at the given level, perhaps because then typical entrepreneurs tend to view such improvements as occasions for resorting to opportunistic behavior. On the other hand, when the index of mo-

Table 9

Index of morality EM_i	Marginal effects of independent variables					
	GM_i^f	EE_i	FE_i	LED_i	PEP_i	FPS_i
2	-.00019	.00000	-.00002	.00000	-.00003	.00004
3	-.00015	.00000	-.00001	.00000	-.00002	.00003
4	-.00622	.00022	-.00053	.00014	-.00111	.00139
5	-.05635	.00195	-.00482	.00129	-.01009	.01259
6	-.20286	.00702	-.01735	.00465	-.03632	.04534
7	-.36875	.01277	-.03154	.00845	-.06602	.08242
8	.37691	.01305	-.03223	.00864	-.06748	.08425
9	.08272	-.00286	.00707	-.00189	.01481	-.01849
10	.67230	-.02328	.05750	-.01548	.12036	-.15027
11	.24644	-.00853	.02108	-.00564	.04412	-.05508
12	.00946	-.00033	.00081	-.00021	.00169	-.00211
13	.00036	-.00001	.00003	-.00000	.00006	-.00008

rality for the average entrepreneur is relatively high, improvements in generalized morality raise the probability of the index to remain at the given level, perhaps because of the increased pressure on entrepreneurs to behave in morally transparent manners. Therefore the dilemma that emerges is how a society might switch from a regime of low to a regime of high entrepreneurial morality, since by themselves improvements in generalized morality may not be sufficient. In this regard, we consider the advice that Pope Benedict the XIV gave to Voltaire in their captioned dialogue exceedingly sound, because eventually the root of all morality has to do with the character of people.

Equally enlightening with the above, but somewhat puzzling, are also the results with respect to the next two variables in Table 9. From them it emerges that the effects of changes in the schools and in the family on the probability of entrepreneurial morality run in directions that depend on the prevailing level of entrepreneurial morality. In particular, at low levels of the index EM_i improvements in the educational (family) environment contribute positively (negatively) to the probability that this index may remain at the given level, whereas at high levels the marginal effects are reversed. This finding contradicts partly our hypotheses H.1-H.2, because the indices of schooling and family environments were expected to influence the probability of the index of morality of the average entrepreneur in the same direction. But as we argued above, our model is not robust with respect to the signs of these variables since, had we chosen the estimates in which

the variables LM_i^* and GM_i^* were treated as exogenous, the effects in question would run in unison over similar values of EM_i. Moreover, in the last three decades the environments of education and family in Greece have experienced so significant departures from traditional values, that it would be too demanding of the model to unscramble in a clear cut way the complexity of the influences that these two institutions exert on entrepreneurial morality. For this reason, in the expectation that at least their combined marginal effect might be uniform, we introduced in the estimations a variable composed of the product of variables EE_i and FE_i. Its coefficient though did not prove to be statistically different from zero and this explains its absence from the estimated model.

Lastly, a few comments are in order regarding the remaining variables in Table 9. Referring first to LED_i, observe that, as the index of morality of the typical entrepreneur increases, the marginal effects of the level of education turn from positive to negative. This implies that, whereas at a low level of entrepreneurial morality an improvement in education would influence positively the probability of EM_i for the average entrepreneur to retain its value, at a high level of entrepreneurial morality what transpires is exactly the opposite. Hence, after a certain level of entrepreneurial morality, education may be characterized by decreasing returns as a process for raising the probability of EM_i to attain higher threshold values. Next, notice from the column under PEP_i that the marginal effects of the size of firm, as measured by the number of its employees five years ago, turn from negative to positive as the values of the index of entrepreneurial morality increase. What this implies is that, in small countries with low entrepreneurial morality like Greece, gains in the average size of enterprises can not be expected to lead through increased transparency to gains in entrepreneurial morality, because the probabilities of EM_i decline throughout the range from $EM_i = 2$ to $EM_i = 8$. Finally, observe from the last column of Table 9 that the view of entrepreneurs regarding the factors that contribute to success in business, FPS_i, influence entrepreneurial morality much like schooling, EE_i, and the level of education, LED_i, but with considerably stronger marginal effects. Hence, in countries with low entrepreneurial morality, one promising approach is to introduce arrangements through which entrepreneurs would be induced to shift the emphasis for their success in favor of such moral values as honesty, diligence, trustworthiness, accountability, etc.

In conclusion, localized and generalized morality, the schooling and the family environments,

the level of education, the size of the firm and the moral factors for success in business have emerged as significant determinants of entrepreneurial morality. Also, for small countries like Greece we found that the morality of the average entrepreneur: a) is far more likely to be low than high; b) may not be expected to improve with improvements in generalized morality and the size of enterprises, because at low levels of EM_i the marginal effects of these determinants would be negative and c) may be expected to improve with improvements in the level of education and particularly in the moral factors for success in business, because at low levels of EM_i their marginal effects would be positive. However, with regard to the marginal effects of schooling and family, our findings are uncertain mainly because the estimated model lacks robustness with respect to the signs of the respective variables.

6. Synopsis, conclusions and suggestions for further research

The bibliography that refers to the level and evolution of entrepreneurial morality focuses mainly on the behavior of managers in large enterprises. This is justified because in the developed countries a high percentage of GNP is produced by multi-product enterprises, in which groups such as employees, suppliers, bankers, shareholders, etc. hold significant economic stakes On the other hand, in many small countries the economies are dominated by enterprises in which ownership and control coincide in the same person, the entrepreneur. In such countries entrepreneurial morality is determined not by the provisions and institutions of Corporate Governance, but by the processes that shape the character and the behavior of entrepreneurs. Unfortunately in this case the relevant bibliography is poor. This realization explains why we undertook this study, even though we knew from the very beginning that we would face many difficulties.

To shed some light on the factors that determine entrepreneurial morality in small countries we employed the responses to a questionnaire from 1643 entrepreneurs in Greece. In the light of the well-known methodological difficulties that accompany such studies, we paid attention to procedures both before and after collecting the data. We trained and guided our university students to follow closely the criteria for selecting their samples of entrepreneurs and completing the questionnaire. In a pilot phase we tested and revised the structure of the questionnaire and the language used in the questions. When extracting from the questionnaires the variables we were careful with their definition and measurement. And last but not least, before estimating the model, we run tests for selectivity bias and common methods variance. Fortunately no remedies were required because these test showed that our data are free from such biases. However, in

view of the methodological uncertainties that beset studies based on questionnaires, we have considered it pertinent to offer our results not as evidence, but as indications about the determinants of entrepreneurial morality in small countries.

In particular, our results showed that entrepreneurial morality is influenced significantly by localized and generalized morality, the educational and the family environments, the level of education of entrepreneurs, the size of firms and the moral factors that contribute to success in business. These findings confirm to a large extent the hypotheses H.1-H.4 and are in line with the perceptions that prevail among experts regarding the determinants of entrepreneurial morality. But by virtue of the estimates obtained from the model and the tests performed with it, we were able to quantify their independence and carry out analyses that have escaped so far the reach of researchers. More specifically, drawing on the calculations with the preferred model, we were able to conclude that for the average entrepreneur the probability of entrepreneurial morality to improve through changes in its determinants depend on the level of EM_i. For, if this index were low, improvements in generalized morality and the level of education would increase its probability to improve, whereas if entrepreneurial morality were high, the marginal impact of such factors would be in the opposite direction.

Finally, we should like to point out that our approach might be extended in various directions. One would be to investigate the evolution of entrepreneurial morality over time. Another, and very interesting one, would be to include entrepreneurs from countries with different languages, cultures, religions and entrepreneurial orientations, since in this way it would possible to differentiate their impact in entrepreneurial morality. Still another would be to investigate the role that the family plays in the conception and realization of entrepreneurial ideas.

References

Anderson, A., Smith, R. (2007) "The moral space in entrepreneurship: an exploration of ethical imperatives and the moral legitimacy of being enterprising", *Entrepreneurship & Regional Development*, 19, 479-497.

Bitros, G. C. (2003) "Firm Ownership and Economic Efficiency," *The Icfai Journal of Managerial Economics*, Icfai Press, 7-32.

Brock, W., Evans D., (1989) "Small Business Economics," *Small Business Economics*, 1, 7-20.

Bucar, B. Glas, M., Hisrich, R., (2003) "Ethics and entrepreneurs: An international comparative study," *Journal of Business Venturing*, 18, 261-281.

Buchholz, R., Rosenthal, S., (2005), "The Spirit of Entrepreneurship and the Qualities of Moral Decision Making: Toward A Unifying Framework," *Journal of Business Ethics*, 60, 307-315.

Clarke, R., Aram, J., (1997) "Universal Values, Behavioral Ethics and Entrepreneurship," *Journal of Business Ethics*, 16, 561-572.

Cornwall, J., Naughton, M., (2003) "Who is the Good Entrepreneur: An exploration within the Catholic Social Tradition," *Journal of Business Ethics*, 44, 61-75.

Daly, S., Mattila, M., (2004) "Darwin and Ethics: Using Natural Selection to Understand Ethical Business and Organizational Behavior," *Business and Organization Ethics Network*, 9, 1-8.

Dobson, J. (2004) "Applying virtue ethics to business: The agent-based approach," *Electronic Journal of Business Ethics and Organization Studies*, 9, 1-11.

Dodd-Drakopoulou, S., Gotsis, G. (2007) "The interrelationships between entrepreneurship and religion", *International Journal of Entrepreneurship and Innovation*, 8, 93-104.

Durant, W., Durant, A. (1967) *The Story of Civilization: Part IX: The Age of Voltaire*, New York: Simon and Schuster.

Elm, D., Nichols, M. (1993) "An Investigation of the Moral Reasoning of Managers", *Journal of Business Ethics*, 12, 817-833.

Fassin, Y. (2005) "The Reasons behind Non-ethical Behaviour in Business and Entrepreneurship", *Journal of Business Ethics*, 60, 265-279.

Hannafey, F. (2003) "Entrepreneurship and Ethics: A Literature Review," *Journal of Business Ethics*, 46, 99-110.

Heckman, J. (1979) "Sample Selection Bias as a Specification Error," *Econometrica*, 47, 153-162.

Hoetker, G. (2007) "The Use of Logit and Probit Models in Strategic Management Research:

Critical Issues" *Strategic Management Journal*, 28, 331-343.

Gay, C. (2002) "Is Entrepreneurial activity necessarily pleasing to God?" Journal of Markets & Morality, 5, 127-134.

Gossling, T. (2003) "The Price of Morality. An Analysis of Personality, Moral Behaviour, and Social Rules in Economic Terms", *Journal of Business Ethics*, 45, 121-131.

Greene, W. H. (1998) *LIMDEP Version 7.0 User's Manual, Revised Edition*, Plainview, NY: Econometric Software, Inc.

Greene, W. H. (1997) *Econometric Analysis*, New Jersey: Prentice Hall, 3rd Ed.

Kohlberg, L. (1969) "Stage and sequence: The Cognitive-Developmental Approach to Socialization", in D. Goslin (ed) *Handbook of Socialization Theory and Research*, Chicago IL: Rand McNally, pp. 347-480.

Kohlberg, L. (1973) *Collected Papers on Moral Development and Moral Education*, Cambidge, MA: Harvard University Press.

McClelland, D. (1961) *The Achieving Society*, New York: D. van Nostrand Company, Inc.

Machan, T. (1999) "Entrepreneurship and ethics," *International Journal of Social Economics*, 26, 596-608.

Morris, M., Schindehutte, M., Walton, J., Allen, J., (2002) "The Ethical Context of Entrepreneurship: proposing and testing a development framework," *Journal of Business Ethics*, 40, 331-361.

Noble, A., Galbraith, C., Singh, G., Stiles, C. (2007) "Market justice, religious orientation, and entrepreneurial attitude: An empirical study", *Journal of Enterprising Communities: People and Places in the Global Economy*, 1, 121-134.

Payne, D. Joyner, B. (2006) "Successful U.S. Entrepreneurs: Identifying Ethical Decision-making and Social responsibility Behaviors", *Journal of Business Ethics,* 65, 203-217.

Podsakoff, P. M., MacKenzie, S. B., Lee, J-Y, Podsakoff, N. P. (2003) "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, 88, 879-903.

Quinn, J. (1997) "Personal Ethics and Business Ethics: The Ethical Attitudes of Owner/Managers of Small Business", *Journal of Business Ethics*, 16, 119-127.

Solymossy, E., Masters, J., (2002) "Ethics Through an Entrepreneurial Lens: Theory and Observation", *Journal of Business Ethics*, 38, 27-241.

Spence, L., Rutherfoord, R., (2001) "Social responsibility, profit maximization and the small firm owner-manager," *Journal of Small Business and Enterprise Development*, 8, 126-139.

Stevens, J., (1996), Applied multivariate statistics for the social sciences (3rd ed.).Mahwah, NJ: Lawrence Erlbaum Associates.

Teal, E., Carroll, A., (1999) "Moral Reasoning Skills: Are Entrepreneurs Different?" *Journal of Business Ethics*, 19, 29-240.

Trevino, L.K. (1992) "Moral Reasoning and Business Ethics: Implications for Research, Education, and Management", *Journal of Business Ethics*, 11, 445-459.

Vyakarnam, S., Bailey, A., Myers, A., Burnett, D. (1997) "Towards an Understanding of Ethical Behaviour in Small Firms", *Journal of Business Ethics*, 16, 1625-1636.

Yaffey, M. (1998) "Moral standards and transaction costs: long-term effects", in   K. Nilsen, and B. Johnson (eds.) *Institutions and Economic Change: New Perspectives on Markets, Firms and Technology*, Cheltenham: Edward Elgar, 258-290.

Table 7
Estimates of selection and outcome equations[1]

Selection equation:

Probit regression					Number of obs	=	2287
					LR chi2(4)	=	31.77
					Prob > chi2	=	0.0000
Log likelihood = -1343.6228					Pseudo R2	=	0.0117

Participation	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
LED_i	.0550206	.0191762	2.87	0.004	.0174359	.0926053
PEM_i	.016815	.0048144	3.49	0.000	.007379	.0262509
CEM_i	-.0077261	.0041366	-1.87	0.062	-.0158337	.0003815
MES_i	.0813582	.0406278	2.00	0.045	.0017292	.1609871
Constant	.2136374	.0959474	2.23	0.026	.0255839	.401691

Outcome Equation:

Ordered probit regression					Number of obs	=	1643
					LR chi2(8)	=	1423.20
					Prob > chi2	=	0.0000
Log likelihood = -2308.8269					Pseudo R2	=	0.2356

EM_i	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
LM_i^f	-.3162398	.149593	-2.11	0.035	-.6094367	-.0230428
GM_i^f	2.605012	.1579064	16.50	0.000	2.295521	2.914503
EE_i	-.0736688	.0475433	-1.55	0.121	-.1668519	.0195144
FE_i	.2259096	.0739049	3.06	0.002	.0810586	.3707606
LED_i	-.0464788	.0224013	-2.07	0.038	-.0903845	-.0025731
PEP_i	.4646447	.0431825	10.76	0.000	.3800085	.5492808
FPS_i	-.5824393	.0252575	-23.06	0.000	-.6319431	-.5329355
Lambda	.6917041	.6862886	1.01	0.314	-.6533969	2.036805
/cut1	-3.67584	.7172997			-5.081722	-2.269959
/cut2	-3.298136	.6448925			-4.562102	-2.03417
/cut3	-2.334132	.5617162			-3.435075	-1.233188
/cut4	-1.512267	.5392982			-2.569272	-.4552619
/cut5	-.7921198	.5320731			-1.834964	.2507243
/cut6	-.1326225	.5290416			-1.169525	.90428
/cut7	.6233857	.5279375			-.4113528	1.658124
/cut8	1.341318	.5272251			.3079762	.374661
/cut9	2.537206	.5299624			1.498499	3.575913
/cut10	3.917245	.5346242			2.869401	4.965089
/cut11	4.854838	.5384722			3.799451	5.910224

Notes: 1.The new symbols appearing in this table have the following meanings: LED_i =Level of education; PEM_i =Employment 5 years ago; CEM_i =Current employment; MES_i = Moral encouragement in schools; PEP_i = Professional esteem when started; FPS_i =Moral factors for professional success.

Table 8
Estimates of model (12) with LM_i^* and GM_i^* treated as endogenous and exogenous

(12.1) LM_i^* and GM_i^* treated as endogenous

Ordered probit regression

				Number of obs	=	1643
				LR chi2(7)	=	1422.18
				Prob > chi2	=	0.0000
Log likelihood = -2309.3348				Pseudo R2	=	0.2354

EM_i	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
LM_i^f	-.3119064	.14953	-2.09	0.037	-.6049798	-.018833
GM_i^f	2.609054	.1578496	16.53	0.000	2.299674	2.918433
EE_i	-.0903315	.0445771	-2.03	0.043	-.177701	-.002962
FE_i	.223136	.0738529	3.02	0.003	.0783871	.367885
LED_i	-.0597959	.0180907	-3.31	0.001	-.0952531	-.0243388
PEP_i	.4671248	.0431118	10.84	0.000	.3826272	.5516225
FPS_i	-.5831686	.0252439	-23.10	0.000	-.6326456	-.5336916
/cut1	-3.92178	.6764464			-5.247591	-2.59597
/cut2	-3.539074	.5991198			-4.713327	-2.364821
/cut3	-2.574551	.5085026			-3.571198	-1.577904
/cut4	-1.753824	.4830386			-2.700562	-.8070858
/cut5	-1.036492	.4735736			-1.964679	-.1083046
/cut6	-.3789334	.4691843			-1.298518	.5406509
/cut7	.3761158	.4674395			-.5400489	1.29228
/cut8	1.094065	.4666426			.1794626	2.008668
/cut9	2.290495	.4699912			1.369329	3.21166
/cut10	3.67006	.4749581			2.739159	4.600961
/cut11	4.607133	.479014			3.668283	5.545984

(12.2) LM_i^* and GM_i^* treated as exogenous

Ordered probit regression

				Number of obs	=	1643
				LR chi2(7)	=	1168.65
				Prob > chi2	=	0.0000
Log likelihood = -2436.102				Pseudo R2	=	0.1935

EM_i	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
LM_i	.3674512	.0936273	3.92	0.000	.1839451	.5509574
GM_i	.2444616	.0351523	6.95	0.000	.1755643	.3133589
EE_i	-.1567948	.0440441	-3.56	0.000	-.2431196	-.0704699
FE_i	-.1358638	.0694933	-1.96	0.051	-.2720683	.0003406
LED_i	-.039621	.0179172	-2.21	0.027	-.074738	-.0045041
PEP_i	.072531	.0348004	2.08	0.037	.0043235	.1407385
FPS_i	-.7213238	.0234793	-30.72	0.000	-.7673425	-.6753051
/cut1	-9.922086	.5283556			-10.95764	-8.886528
/cut2	-9.589491	.4436353			-10.459	-8.719982
/cut3	-8.728449	.3306226			-9.376457	-8.08044
/cut4	-7.983007	2915492			-8.554433	-7.411581
/cut5	-7.279243	.2735564			-7.815404	-6.743083
/cut6	-6.654828	.2627575			-7.169823	-6.139833
/cut7	-5.955311	.2542143			-6.453562	-5.45706
/cut8	-5.289811	.2475721			-5.775043	-4.804579
/cut9	-4.211597	.2409489			-4.683848	-3.739346
/cut10	-2.937776	.2371442			-3.40257	-2.472982
/cut11	-2.04861	.2392557			-2.517543	-1.579678