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Entrepreneurial Resilience, Factor of Influence on the Function of Entrepreneur

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Abstract

The entrepreneurial spirit and its capacity of adapting is a current subject and it is still, quite simple, as the entrepreneurial resilience live to tell their story. It becomes difficult to believe, even tough, but reflecting on this subject, the whole world becomes a workplace. It is less known, though, what leads the entrepreneurs to make decisions in difficult periods. Our research, through this article, showed us that specific personal factors count a lot in doing the job of entrepreneur. It must be highlighted, that, after the analysis, we have to grow ecosystems for entrepreneurs, not to build them. We believe that there should be more gardeners than workers in constructions. All the actors involved in the entrepreneurial ecosystem in Romania should have as common elements the development of hubs of entrepreneurship, a civil society better shaped, partnerships based on sharing experience and resources in education. The recent economic evolutions claim the possibility of the apparition of a new science, anthropology, which judges the entrepreneurial motivations and attitudes in the new entrepreneurial ecosystem. Therefore, we analysed, in this article, a tool of measuring the entrepreneurial resilience under the form of an index. Based on this index, there can be taken certain early measures or interventions to help the sustainability of the business of the entrepreneurs. Maybe the results of this study will support the agencies, the directions to see measures for supporting not only the foundation but also the evolution of start-ups (performances, profits, business number, sales), at the level of the cognitive strong points but also social networking skills.

Keywords: *Entrepreneurial resilience, entrepreneurship, entrepreneurial ecosystem, education, start-up.*

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1. Introduction

The private enterprises became a major force in Romanian contemporary economy and the apparition of new entrepreneurs is seen as a new social class that attracts an enormous increasingly interest.

There are more and more challenges in the current business environment, such as bigger competition, time management, continuous development of technology, using participative management more often [11], but also a major uncertainty. In addition to these challenges it seems that the Romanian entrepreneurs have big chances to experiment a high level of stress due to the difficult work volume hardly associated with the behaviour in front of risks related to their business activities [1].

Moreover, it has been noticed that the levels of anxiety increased the pressures around the whole business through bad management of the: flow of cash, recruiting and requalifying staff, achieving objectives, bureaucracy. According to Robertson [21] the presence of stress among entrepreneurs is much higher compared to other jobs. Within this framework we can ask how some entrepreneurs managed to overcome such problems successfully and started also new projects and manage them in an optimal way.

2. Problem Statement

The concept of resilience appeared as a factor that protects entrepreneurs against the threats represented by the continuous challenges and changes in the business environment [3].

The first step in defining the concept of resilience in the context of entrepreneurship is based on the opinion formed from the literature of specialty. It has been noticed that there was no specific field regarding the capacity of entrepreneurial adaptation, except the term "business resilience", that was measured in terms of "business organizations' performance", such as the volume of sales, the source of incomes and the incomes. The word "capacity of emotional adaptability" is not appropriate to be used, as this is a common term used in Psychology and it focuses on a single dimension. The word "business resilience" was not proper, also, as it focuses on the organization in itself, rather than on human beings. The word "social resilience" was not appropriate, also, because it is a term often used in sociology and anthropology referring to the survival of a community in a population within a certain physical environment.

The concept of resilience came from ecology, and became a new concept for various domains [17], in economy, this being defined as a

process of coming again to a fix state of balance strictly defined or to multiple balance states [5] [13].

There must be highlighted the fact that the notion of resilience is a social construction, being about perception: the „ objective" data do not always correspond to the perception of the problem by the inhabitants [10] [4].

In his book, A. Zolli states that „the capacity of a system, enterprise or a person to maintain the basic aim and the integrity in front of circumstances changed dramatically [27].

The resilience is also used to characterize the people who are able to overcome the obstacles related to their aspirations of life and career [7]. When we talk about a person, the resilience is used in the sense of easy and fast recovery from this kind of failures [26]. For the entrepreneur, resistance is a key feature [7]. Entrepreneurial resistance can be raised through the consolidation of recipes and of forming of a new professional network of entrepreneurs and mentors, accepting that the change is a part of life, and avoiding some crises can be insurmountable [6].

In social research, the capacity of adaptation was mentioned as a positive capacity of a system or society to adapt to the consequences of a catastrophic failure caused by a power outage, a fire, a bomb, or a similar event [14]. Generally, the capacity of adaptation is best understood as a process. Initially, it is assumed to be a feature of an individual, an atypical idea called from now on "resilience" [15]. Most research shows that resistance is mainly the result of some people who interact with their ecosystem and the processes that either promote their welfare or protect them against the overpowering influence of risk factors [26]. Resilience in psychology has a social significance and it is, therefore, generally understood as something acquired [22].

Such processes can be individual strategies to adapt or can be supported over time by helping families, schools, communities, but also through social policies that cause resistance to have more chances to develop [12]. Resilience has proved to be more than the ability of individuals to cope well under adversity. The resilience can actually be better understood as both the ability of individuals to navigate on their way to psychological, social, cultural, and physical resources that support their welfare and their individual and collective ability to negotiate for these resources so as them to be provided [15; 25; 25].

Several factors are known to modify the negative effects of adverse life situations in general, and, therefore, related to the concept of resilience. A main factor is to have relationships that provide care and support, to create confidence and offer encouragement, both inside and outside the

family. Other factors, also, associated with resistance are the ability to make realistic plans, to have self-confidence and positive self-mage, possess communication skills, and have the ability to manage strong feelings and impulses.

McClelland's theory of motivation of achievement [18] has been widely used to explain entrepreneurial behaviour. According to its traditional definition, the need for achievement is a boost that prevents a person to struggle for success and perfection [23]. The need for theory realised by McClleland was used on large scale to explain the entrepreneurial behaviour. According to its traditional definition, the need to achieve is an impulse that prevents the person to fight to have success and perfection.

People who have a strong need to achieve something must first solve problems, set goals and strive to achieve them through their own efforts, demonstrating a higher performance both in in difficult tasks and in those that require innovation. McClelland first established the importance of this construction in terms of entrepreneurial spirit by defining it in 1961, as being active and oriented towards profit, and after another 30 years, Stevenson says that an "entrepreneur has the ability to identify and develop opportunities of business".

Finally, we can say that entrepreneurial spirit requires personal knowledge of both the company's resources and of the competitive market. In the face of the faster and faster changes of the market, technology and competition, both individuals and organizations must continually identify new opportunities to maintain their competitiveness. In short, to be competitive in a rapidly changing world they need to adapt to take advantage of the change. A successful entrepreneur needs knowledge and skills to remain competitive.

The review of the literature above identified a number of links between entrepreneurial resistance and successful businesses. However, several studies have been undertaken between entrepreneurs and resilience but it was ignored the cultural-entrepreneurial Romanian context. Indeed, there are no comprehensive studies to examine the mechanisms of resilience among entrepreneurs in Romania, and trough this article we try to investigate this problem by trying to answer the following research question: What factors influence the capacity to adapt among Romanian entrepreneurs?

3. Aims of the research

The study was conducted in the South - Muntenia region from November 2016 to January 2017. It was used a cross-sectional study

(prevalence, cross-sectional) through which was checked a random sample of the reference population, entrepreneurs from five sectors which focuses almost 70% of total gross value added (manufacturing, trade, construction, professional activities and transport). A research direction towards which we focused is the empirical research based on questionnaire. This research primarily aims to demonstrate the need for quantification of interest on measuring the degree by which entrepreneurs directed to their own resources have a greater success with the companies they run. There were selected, randomly, a total number of 260 entrepreneurs from the South-Muntenia region, which agreed to participate, 196, representing a response rate of 75.4%. The survey instrument was divided into two parts, each helping to draw conclusions. The first part included demographic variables, age, sex, education, profession, marital status and entrepreneurial experience. The main independent variable was entrepreneurial, which was classified into seven categories:

The dreamer. It is the entrepreneur who knows what he wants from the beginning, more exactly knows what motivates him before launching a project on their own.

The Independent. The 100% autonomous entrepreneur is the one who believes that most of the business plans do not worth even the Excel that they are written in. He believes the business plan to be a collection of empty words and appreciates that the back of a napkin is enough to describe its business strategy. "The Independent" continually manifests an entrepreneurial mindset, not one of an employee.

The pro-failure entrepreneur. He encourages mistake as option, he is optimistic, i.e is part of the 50% of entrepreneurs who believe that society and Romanian culture is encouraging for them, but it is not found in the group of those who say that failure is perceived as a learning opportunity (12%).

The entrepreneur of Net Generation. The main feature of the present generation, made up of young people who are not more than 30 years, is the fact that she is the first who grew up digitally. Digital entrepreneurs are smarter, faster and more tolerant of diversity than their predecessors.

The Family man. Above all, entrepreneurs believe in their families. Although some crumbles, entrepreneurs' families form one of the foundations of professional success. Especially in the early phase of the business, the members of the family are the closest supporters of an entrepreneur.

The careerists with vocation. This entrepreneur leads a vocation entrepreneurial company type, built around a passion and through this

company the entrepreneur has found a way to finance and live the pleasant concerns. The key word is not growth, not profit, but is joy.

The designer entrepreneur. Unlike the craftsman type (who develops something already existing), the designer type entrepreneur thinks with consumer product or service centre.

The dependent variable was the resilience, which consisted of a combined score of scales measuring the need for learning (NI), creativity (C) and Innovation (I), flexibility (F) and continuous learning (CC). This part was made up of 39 items, with 7 items for learning needs (NI), with 6 items for creativity (C), with 5 items for Innovation (I), with 14 items for flexibility (F) and 7 items for continuous learning (CC). The respondents were asked to respond to each statement on a dichotomous scale. Some questions were reversed, coded and mixed with other questions, to minimize the bias answers. Each subscale, of the 39, was subjected to testing the validity (variability) and reliability (fidelity) of content through a psychological tool for measuring unidimensionality of items, these results being presented in Table 1. Without being the only static procedure used in such cases, for this article we used Cronbach's alpha (α) coefficient which is by far the best known of all. The calculation formula is based on the average of the correlation coefficients between items and the number of items:

$$\propto = \frac{N \cdot r_m}{1 + (N-1) \cdot r_m}$$

We know that this coefficient is questioned for many years, a number of authors like Bernardi [2] which comes since 1994 to validate as trustworthy research with Alpha value of less than 0.70. Others like Iacobucci and Duhachek [9] are more cautious in interpreting the result and suggests to take into account the likelihood of Alpha coefficient and consider this coefficient as part of its range of trust, not as fixed value.

But we all realize that the confidence estimation methods and the measurement tools have some limitations, however. Since the events that have occurred between the two moments of management can influence the emergence of different responses and contribute to an erroneous external validity [20].

Table 1. Measuring the reliability of resilience

Entrepreneurial capacities	Need for achievement	Creativity	Innovation	Flexibility	Continuous knowledge
Number of items	7	6	5	14	7

Mean	22,85	19,40	15,16	44,74	23,39
Reliability (Cronbach alfa)	0,912	0,960	0,936	0,968	0,968
Variance	47,306	53,247	36,021	26,744	52,003
Std. Deviation	6,878	7,297	6,002	16,354	7,211
F	6,484	2,986	2,622	1,314	6,815
The understanding of the score	High score indicates a high level regarding the need for achievement	High score indicates a high level regarding Creativity	High score indicates a high level regarding Innovation	High score indicates a high level regarding Flexibility	High score indicates a high level regarding Knowledge

The reliability of instruments used in the investigation undertaken is satisfactory using the Cronbach alpha version and Guttman split half Coefficients relatively high for the five factors of resilience. The level of coefficients is high for the five factors of resilience, at the need to achieve this reaching to 0.912, creativity to 0.960, to innovation 0.936, flexibility to 0.968, and the continuous knowledge to 0.968. Overall reliability was 0.968 while the total variance explained by the study was fairly high at 53.24.

4. Research Methods

The use of descriptive analysis was needed to describe the characteristics of the entrepreneurs in the South Muntenia Region. These characteristics included Age, Sex, Residential status of the entrepreneur, Entrepreneurial experience, Education, Status, Entrepreneurial type and resilience. The effect of variables, such as demographic variables regarding the relationship between resilience and type of entrepreneur identified in the Romanian economy was examined using a multi-level evaluation. The multi-level model considered shows a hierarchical structure with two levels, the first level is given to entrepreneurs while the second level is assigned to the sample connected to the residential status (urban/rural).

Table 2. Demographic characteristics

Variables	Level of measure	N%
Age		
19 – 25 years	Numerical	11 (5,6)
26 – 35 years		63 (32,14)

– 45 years		43 (21,93)
> 45 years		79 (40,30)
Sex		
Feminine	Dichotomous	55 (28,06)
Masculine		141 (71,93)
The residential statute of the entrepreneur		
Rural	Dichotomous	66 (33,68)
Urban		130 (66,32)
Entrepreneurial experience		
Yes	Dichotomous	77 (39,28)
No		119 (60,71)
Education		
High school		18 (9,18)
Faculty	Numerical	75 (38,26)
Bachelor		82 (41,84)
Doctorate		21 (10,71)
Statute		
Married	Dichotomous	111 (56,63)
Unmarried		85 (43,37)
Entrepreneurial type		
The dreamer		10 (5,10)
The independent		24 (12,24)
The pro-failure entrepreneur		20 (10,20)
The entrepreneur from the Net Generation	Numerical	38 (19,39)
The family man		48 (24,49)
The Careerist with vocation		33 (16,84)
The designer entrepreneur		23 (11,73)

From the table above it can be seen that 71.93% of entrepreneurs were male and 28.06% were female. The average age of entrepreneurs is over 35 years (62.23%), but should not be overlooked the young people either who begin to take courage from year to year (37.74%). Approximately 59.67% of entrepreneurs have less than 45 years and most of the entrepreneurs are married (56.63%). Regarding the residential status of the entrepreneur we can see that 66.32% of respondents develop their businesses in urban areas. What is gratifying is that most of the entrepreneurs have realized the importance of schooling, 80.1% of them deciding to pursue a university and master.

Multi-level modeling was preferred for entrepreneurs and residential status, because there is the likelihood that some environmental factors to change the perception of thinking in terms of business development in

urban versus rural areas. Thus, the effect of grouping the entrepreneurs in the urban environment, which may generate incorrect estimates of a standard error was adjusted. The second level was assessed through a hierarchical linear model of regression using the statistical analysis package Eviews, ver. 8.

Estimation Equation:

==========

RESILIENCE = C(1) + C(2)x AGE + C(3)*SEX + C(4)*RESIDENTIAL_STATUS + C(5)*ENTREP_EXPER + C(6)*EDUCATION + C(7)*STATUS + C(8)*ENTREP_TYPE

Using the package of programs Eviews 8 in order to estimate the parameters of the model were obtained the following results:

Dependent Variable: RESILIENCE
Method: Least Squares
Date: 02/22/17 Time: 17:16
Sample: 1 196
Included observations: 196

Variable	Coefficient	Indicator meaning	Std. Error	t-Statistic	Indicator meaning	Prob.
C	2.705111	$\hat{a}$	0.310143	8.722136	$t_{\hat{a}}$	0.0000
AGE	0.028356	$\hat{b}_1$	0.050999	0.556010	$t_{\hat{b}_1}$	0.5789
SEX	0.147573	$\hat{b}_2$	0.091396	1.614653	$t_{\hat{b}_2}$	0.1081
RESIDENTIAL _STATUS	-0.034326	$\hat{b}_3$	0.085241	-0.402688	$t_{\hat{b}_3}$	0.6876
ENTREP_EXPER	-0.054676	$\hat{b}_4$	0.089390	-0.611653	$t_{\hat{b}_4}$	0.5415
EDUCATION	0.090185	$\hat{b}_5$	0.057129	1.578619	$t_{\hat{b}_5}$	0.1161
STATUS	-0.143699	$\hat{b}_6$	0.083202	-1.727106	$t_{\hat{b}_6}$	0.0858
ENTREP_TYPE	-0.018996	$\hat{b}_7$	0.024723	-0.768357	$t_{\hat{b}_7}$	0.4432
R-squared	0.063458	R^2	Mean dependent va		$\bar{y}$	2.836990
Adjusted R-squared	0.028587	R_c^2	S.D. dependent var		s_y	0.560956
S.E. of regression	0.552880	$s_{\hat{u}}$	Akaike info criterio			1.692607

		$\sum(y_i - \hat{y}_i)^2 = \sum \hat{u}_i^2$ =		AIC	
Sum squared resid	57.46706		Schwarz criterion		1.826408
Log likelihood	-157.8755	L	Hannan-Quinn criter.	SC	1.746776
F-statistic	1.819793	Fc	Durbin-Watson stat	d	1.421536
Prob(F-statistic)	0.085613	p(F)			

The significance of the unknown indicators that the package of programs calculate is the following:

$p(\hat{a})$, $p(\hat{b})$= probability associated to the â parameter, respectively $\hat{b}$. A value closer to zero of this probability will indicate a high significance of the namely parameter, otherwise, this confirming, together with t test, the fact that the namely parameter is insignificant.

R_c^2 = coefficient of determination corrected or adjusted. This is used to reflect the number of factorial variables included in the model, and the number of observations on which the parameters of the model were estimated. In case of a multifactorial model this will record values inferior to the coefficient of determination. The expression of this indicator is as follows:

$$R_c^2 = 1 - \frac{n-1}{n-k} \cdot \left(1 - R^2\right) \quad (1)$$

L= the logarithm of the verisimilitude function (assuming that errors are normally distributed), function that is determined taking into account the estimated values of the parameters, depending on what is determined taking into account the estimated values of parameters. The relationship for calculating this indicator, used by the software package EViews is the next one:

$$L = \frac{n}{2}\left(1 + \ln(2\pi) + \ln\left(\frac{\sum \hat{u}_t^2}{n}\right)\right) \quad (2)$$

where: $\sum \hat{u}_t^2$ = the amount of the squares of errors;

k =the number of the exogenous variables;

n = the number of observations.

This indicator is used to develop some statistical tests for detecting the variables omitted from an econometric model, as well as some other tests for detecting redundant variables in an econometric model, as for example, the LR test or the report of verisimilitudes (Likelihood Ratio).

$\bar{y}$ = the average of the dependent variable or the endogenous one, having the following calculation relationship:

$$\bar{y} = \frac{\sum_{i=1}^{n} y_i}{n} \tag{3}$$

s_y = the average squared deviation (standard) corresponding to the dependent variable, whose relationship calculation is as follows:

$$s_y = \sqrt{\frac{\sum_{i=1}^{n} \left(y_i - \bar{y}\right)^2}{n-1}} \tag{4}$$

AIC = the Akaike criteria is used in case of comparing two or more econometric models, his calculation relationship, used by the package of programs, is the following:

$$AIC = -\frac{2L}{n} + \frac{2k}{n} \tag{5}$$

The decision rule used in case of applying this test is the one according to which is chosen that econometric model for which the lowest value corresponding to this indicator was obtained.

SC = the Schwartz criteria is, also, used to compare two or more econometric models. His calculation relationship, used by the package of EViews programs, is the following:

$$SC = -\frac{2L}{n} + \frac{k \ln n}{n} \tag{6}$$

And in this case, it is chosen that econometric model for which the lowest value corresponding to this indicator was obtained.

p(F) = the probability associated to the statistic F. A value closer to zero of this probability will indicate a high signification of the results of estimation.

Based on the estimates of parameters were calculated the estimated values of the y variable,

$\hat{y}_i = 2{,}705 + 0{,}028x_1 + 0{,}147x_2 - 0{,}034x_3 - 0{,}054x_4 + 0{,}090x_5 - 0{,}143x_6 - 0{,}018x_7$ and of the residual variable, $\hat{u}_i = y_i - \hat{y}_i$. Their values are presented within the table 3 (using the package of Eviews 8)

- dispersion of residual variable

$$s_{\hat{u}}^2 = \frac{\sum \left(y_i - \hat{y}_i\right)^2}{n-k-1} = \frac{57{,}467}{196-6} = \frac{57{,}467}{190} = 0{,}302$$

where: k = number of exogenous variables.

(see the table shown by the Eviews 8 program)

- the average squared deviation of the residual variable, $s_{\hat{u}}$:

$$s_{\hat{u}} = \sqrt{\frac{\sum(y_i - \hat{y}_i)^2}{n-k-1}} = \sqrt{0{,}302} = 0{,}552$$

(see the table shown by the Eviews 8 program)

- the average squared deviations of the two estimators:

Table 3*.

	Actual y_i	Fitted $\hat{y}_i$	Residual $\hat{u}_i = y_i - \hat{y}_i$	Residual chart
1	1.00000	2.71953	-1.71953	
2	1.80000	2.82414	-1.02414	
3	2.59000	2.72025	-0.13025	
4	3.20000	3.07674	0.12326	
5	4.00000	3.05774	0.94226	
6	3.03000	2.84082	0.18918	
7	3.05000	2.62893	0.42107	
8	3.14000	3.05408	0.08592	
9	2.64000	2.96756	-0.32756	
10	2.51000	2.51039	-0.00039	
11	2.84000	2.64793	0.19207	
12	3.57000	2.98655	0.58345	
13	3.70000	2.89393	0.80607	
14	2.40000	2.69844	-0.29844	
15	3.22000	2.92250	0.29750	
16	3.50000	2.98085	0.51915	
17	2.99000	3.00188	-0.01188	
18	2.47000	2.98655	-0.51655	
19	2.19000	2.88451	-0.69451	
20	1.95000	2.80283	-0.85283	
21	3.65000	3.00437	0.64563	
22	3.84000	2.93436	0.90564	
23	3.28000	2.88451	0.39549	
24	2.71000	2.64376	0.06624	
25	3.07000	2.90350	0.16650	

Source: calculations made with the help of the Eviews 8 program.

** due to the high volume of information until 196) these could not be presented in this article.*

$$s_{\hat{a}} = \sqrt{s_{\hat{u}}^2 \left[\frac{1}{n} + \frac{\bar{x}^2}{\sum (x_i - \bar{x})^2} \right]} = 0{,}310$$

$$s_{\hat{b}} = \sqrt{\frac{s_{\hat{u}}^2}{\sum (x_i - \bar{x})^2}} = 209{,}277$$

(see the table shown by the Eviews 8 program)

- the report of correlation:

$$R = \sqrt{R^2} = \sqrt{\frac{\sum_{i=1}^{196} (\hat{y}_i - \bar{y})^2}{\sum_{i=1}^{196} (y_i - \bar{y})^2}} = \sqrt{1 - \frac{\sum_{i=1}^{196} (y_i - \hat{y}_i)^2}{\sum_{i=1}^{196} (y_i - \bar{y})^2}} = \sqrt{1 - \frac{\sum_{i=1}^{196} (y_i - \hat{y}_i)^2}{s_y^2 \cdot (n-1)}}$$

$$R = \sqrt{1 - \frac{57{,}467}{61{,}361}} = \sqrt{0{,}0634} = 0{,}2517$$

(see the table shown by the Eviews 8 program)

- Durbin-Watson variable, d:

$$d = \frac{\sum_{i=7}^{196} (\hat{u}_i - \hat{u}_{i-1})^2}{\sum_{i=7}^{196} \hat{u}_i^2} = \frac{81{,}718}{57{,}467} = 1{,}422$$

(see the table shown by the Eviews 8 program)

The verification of the hypothesis of homoscedasticity of errors in the case of this model will be done with the help of the White test. The application of the White involves the following steps:

- estimation of the parameters of the initial model and the calculation of the estimated values of the residual variable, u;

- building an auxiliary regression, based on the assumption of the existence of a relationship of dependence between the square of values of the error, the exogenous variable included in the initial model and its squared values:

$$\hat{u}_i^2 = \alpha_0 + \alpha_1 x_i + \alpha_2 x_i^2 + \alpha_3 x_i^2 + \alpha_4 x_i^2 + \alpha_5 x_i^2 + \alpha_6 x_i^2 + \alpha_7 x_i^2 + \omega_i$$

And the calculation of the coefficient of determination, R2, corresponding to this auxiliary regression;

- verify the significance of the parameters of the new built model, and if one of them is insignificant, then the hypothesis of heteroskedasticity of errors is accepted.

There are two ways of applying the White test:

- using the classical Fisher –Snedecor test, based on the hypothesis of nullity of parameters, namely:

$$H_0 \quad \alpha_0 = \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = 0$$

If the null hypothesis, according to which the results of the estimation are insignificant ($F_c < F_{\alpha;v_1;v_2}$), is accepted, then the hypothesis of homoscedasticity is checked, the other case meaning the presence of heteroskedasticity of errors.

- using the LM test, calculated as product between the number of observations corresponding to the model, n, and the coefficient of determination, R2, corresponding to this auxiliary regression. Generally, the LM test is asymptotic distributed under the form of an $\chi^2_{\alpha;v}$, for which the number of the degrees of freedom is equal to: $v = k$, where k = the number of exogenous, respectively :

$$LM = n \cdot R^2 \sim \chi^2_{\alpha;v}$$

If $LM > \chi^2_{\alpha;v}$, errors are heteroskedastical, otherwise, are homoscedastic, respectively the hypothesis of nullity of parameters, $\alpha_0 = \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = 0$, is accepted.

Applying the White test was done using the Eviews 8 package of programs:

Table 4.

Heteroskedasticity Test: White

F-statistic	2.14917	Prob. F(31,164)	0.001
Obs*R-squared	56.6219	Prob. Chi-Square(31)	0.003
Scaled explained SS	47.6454	Prob. Chi-Square(31)	0.028

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 02/24/17 Time: 15:38
Sample: 1 196
Included observations: 196
Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.86355	0.54582	5.24629	0.000
AGE^2	0.12506	0.06281	1.99119	0.048
AGE*SEX	-0.13952	0.09340	-1.49374	0.137

AGE*RESIDENTIAL_STATUS	-0.00258	0.07404	-0.03487	0.972
AGE*ENTREP_EXPER	0.03383	0.08887	0.38063	0.704
AGE*EDUCATION	-0.01923	0.05920	-0.32480	0.745
AGE*STATUS	0.05862	0.08292	0.70689	0.480
AGE*ENTREP_TYPE	0.03581	0.02405	1.48889	0.138
AGE	-0.85255	0.36918	-2.30931	0.022
SEX^2	0.18117	0.15994	1.13275	0.259
SEX*RESIDENTIAL_STATUS	0.05386	0.14075	0.38266	0.702
SEX*ENTREP_EXPER	-0.02587	0.17486	-0.14799	0.882
SEX*EDUCATION	0.02911	0.09724	0.29938	0.765
SEX*STATUS	-0.03538	0.13936	-0.25391	0.799
SEX*ENTREP_TYPE	-0.04442	0.04277	-1.03847	0.300
RESIDENTIAL_STATUS^2	-0.34056	0.13957	-2.44012	0.015
RESIDENTIAL_STATUS*ENTREI _EXPER	0.10704	0.13019	0.82222	0.412
RESIDENTIAL_STATUS*EDUCA TION	0.17205	0.08417	2.04411	0.042
RESIDENTIAL_STATUS*STATUS	0.00433	0.13077	0.03311	0.973
RESIDENTIAL_STATUS*ENTREI _TYPE	0.04087	0.03648	1.12044	0.264
ENTREP_EXPER^2	-0.03830	0.18591	-0.20603	0.837
ENTREP_EXPER*EDUCATION	0.01790	0.09499	0.18845	0.850
ENTREP_EXPER*STATUS	-0.07000	0.15135	-0.46254	0.644
ENTREP_EXPER*ENTREP	-0.01388	0.04097	-0.33884	0.735
EDUCATION2	-0.04528	0.05944	-0.76166	0.447
EDUCATION*STATUS	-0.08407	0.09558	-0.87961	0.380
EDUCATION*ENTREP_TYPE	0.00996	0.02624	0.37981	0.704
EDUCATION	-0.01214	0.38581	-0.03146	0.974
STATUS^2	-0.18682	0.14752	-1.26633	0.207
STATUS*ENTREP_TYPE	0.13770	0.03779	3.64393	0.000
ENTREP_TYPE^2	0.00648	0.00995	0.65161	0.515
ENTREP_TYPE	-0.37564	0.14011	-2.68092	0.008

R-squared	0.28888	Mean dependent var	0.29319
Adjusted R-squared	0.15447	S.D. dependent var	0.39756
S.E. of regression	0.36557	Akaike info criterion	0.97356
Sum squared resid	21.9171	Schwarz criterion	1.50876
Log likelihood	-63.4091	Hannan-Quinn criter.	1.19023
F-statistic	2.14917	Durbin-Watson stat	1.94276
Prob(F-statistic)	0.00113		

Analyzing the results shown in the Eviews 8 program is found that $F_c = 2{,}149177 < F_{0{,}05;2;7} = 4{,}74$ and $LM = 56{,}62191 > X^2_{0{,}05;7} = 14{,}07$ the estimators of the parameters of the model are significant for a significance

threshold $\alpha = 0,05$ ($t_{0,05;30} = 43,77$), so the hypothesis of homoscedasticity is checked.

The values of the residual variable $(\hat{u}_i)$ are independent, respectively there is no phenomenon of self-correlation of errors. Checking the hypothesis of independence of errors in the case of this model will be done with the help of the Durbin-Watson test and it means calculating the empirical term:

$$d = \frac{\sum_{i=2}^{n}(\hat{u}_i - \hat{u}_{i-1})^2}{\sum_{i=1}^{n}\hat{u}_i^2}$$

And comparing this size „d" with two theoretical values d1 şi d2, taken from the Durbin-Watson table according to a significance threshold α, randomly chosen, by the number of exogenous variables (k) and the observed values (n, $n \geq 20$).

Based on the data of the problem, the empirical value of the Durbin-Watson variable is:

$$d = \frac{\sum_{i=7}^{196}(\hat{u}_i - \hat{u}_{i-1})^2}{\sum_{i=7}^{196}\hat{u}_i^2} = \frac{81,718}{57,467} = 1,422$$

Working with a significance threshold $\alpha = 0,05$, the number of exogenous variables being $k = 1$, and the number of observations n=196 from the Durbin-Watson distribution table are read the values (for the case n=20), d1 = 1,20 and d2 = 1,41.

As d2 = 1,41 < d = 1,42 < 4 – d2 = 2,59, it can be accepted the hypothesis of independence of the values of residual variable.

Verifying the hypothesis of normality of the values of residual variable. It is known that, if errors follow the normal law of average zero and average squared deviation $s_{\hat{u}}$, then the relationship takes place:

$$P(|\hat{u}_i| \leq t_\alpha s_{\hat{u}}) = 1 - \alpha .$$

Checking the hypothesis of normality o errors will be done with the help of the Jarque-Berra test [8], which is an asymptotic test (valid in the case of a sample of large volume like ours), that follows a distribution hi square with a number of the degrees of freedom equal with 2, having the following form:

$$JB = n\left[\frac{S^2}{6} + \frac{(K-3)^2}{24}\right] \sim \chi^2_{\alpha;2}$$

where: n = the number of observations;

S= coefficient of asymmetry (skewness), which measures the symmetry of the distribution of errors around their average, which is null, having the following calculation relationship:

$$S = \frac{\frac{1}{n}\sum_{i=1}^{n}\left(y_i - \bar{y}\right)^3}{\sigma^3}$$

K = the coefficient of flattening calculated by Pearson (kurtosis), which measures the vaulting of distribution (how "sharp" or flatted is the distribution compared to normal distribution), having the following relation of calculation:

$$K = \frac{\frac{1}{n}\sum_{i=1}^{n}\left(y_i - \bar{y}\right)^4}{\sigma^4}$$

The Jarque-Berra test is based on the hypothesis that normal distribution has a coefficient of asymmetry equal to zero, S = 0, and a coefficient of flattening equal with three, K = 3.

If the probability p(JB) corresponding to the value calculated of the test is quite low, then the hypothesis of normality of errors is rejected, while, otherwise, for a high enough level of probability the hypothesis of normality of errors is accepted, or if $JB > \chi^2_{\alpha;7}$, then the hypothesis of normality of errors was rejected.

Using the Eviews 8 package of programs in order to calculate the Jarque-Berra test (figure 3) is found that $JB = 0{,}30108 < \chi^2_{0,05;2} = 5{,}9915$ and that p(JB) = 0,860. As the calculated value of the J-B test is smaller than the table value of $\chi^2_{\alpha;2}$, and the probability for the J-B test not to exceed the value in the table is big enough, the hypothesis of normality of errors can be accepted.

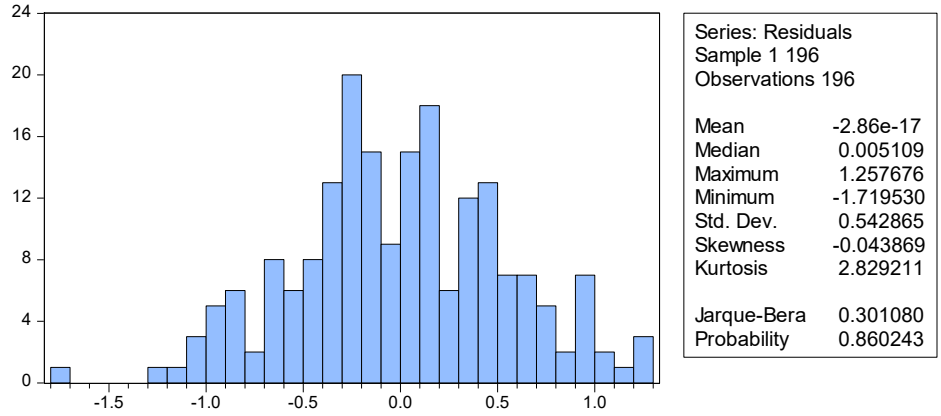


Figure 3.

d) Estimators of the significant model are different from zero if:

$$t_{\hat{a}} = \frac{|\hat{a}|}{s_{\hat{a}}} \geq t_{\alpha;n-k-1}, \qquad t_{\hat{a}} = \frac{2,705}{0,310} = 8,752, \; t_{\hat{b}} = \frac{|\hat{b}|}{s_{\hat{b}}} \geq t_{\alpha;n-k-1}$$

AGE $t_{\hat{b}1}$	SEX $t_{\hat{b}2}$	RESIDENTIAL _STATUS $t_{\hat{b}3}$	ENTREP_ EXPER $t_{\hat{b}4}$	EDUCA TION $t_{\hat{b}5}$	STA TUS $t_{\hat{b}6}$	ENTREP_ TYPE $t_{\hat{b}7}$
0,556 011	1,614 655	-0,40269	-0,61166	1,57862	- 1,727 11	-0,76835

Working with a significance threshold α $(\alpha = 0,05)$, from the table of distribution Student is taken the value $t_{0,05;7} = 2,365$. Comparing this value with the values calculated for the two estimators, is found that:

- $t_{\hat{a}} = 8,752 > t_{0,05;7} = 2,365 \Rightarrow$ parameter $\hat{a}$ is significantly different from zero;

AGE $t_{\hat{b}1}$	SEX $t_{\hat{b}2}$	RESIDENTIAL _STATUS $t_{\hat{b}3}$	ENTREP_ EXPER $t_{\hat{b}4}$	EDUCA TION $t_{\hat{b}5}$	STA TUS $t_{\hat{b}6}$	ANTREP _TYPE $t_{\hat{b}7}$
0,556 011	1,614 655	-0,40269	-0,61166	1,57862	- 1,727 11	-0,76835
$t_{\hat{b}1} <$ $t_{0,05;7}$	$t_{\hat{b}1} <$ $t_{0,05;7}$	$t_{\hat{b}1} < t_{0,05;7}$	$t_{\hat{b}1} < t_{0,05;7}$	$t_{\hat{b}1} <$ $t_{0,05;7}$	$t_{\hat{b}1} <$ $t_{0,05;7}$	$t_{\hat{b}1} <$ $t_{0,05;7}$
$\hat{b}$ is significantly different from zero.						

The report of correlation is significantly different from zero if is checked the inequality: $F_c \geq F_{\alpha;v_1;v_2}$, where the empirical value of the Fisher-Snedecor table is:

$$F_c = (n-2)\cdot\frac{R^2}{1-R^2} = 194 * \frac{0,0634}{0,94} = 194 * 0,07 = 13,58$$

The analysis of the capacity of forecasting of the model regarding the demonstration of necessity of a quantification in the interest on measuring the degree through which the entrepreneurs aimed to their own resources have a bigger success with the firms they manage structurally, the demographic variables, age, sex, education, profession,, entrepreneurial experience and the civil status can be done based on the statistical indicators proposed by H. Theil [19]. These indicators, adapted to the model analysed were calculated based on the following relations.

- Theil coefficient

$$T = \frac{\sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - y_i\right)^2}}{\sqrt{\frac{1}{n}\sum_{i=1}^{n}\hat{y}_i^{\,2}} + \sqrt{\frac{1}{n}\sum_{i=1}^{n}y_i^{\,2}}}$$

- Whose values are between [0, 1].

The significance of this indicator is inversely proportional to its size, respectively with how much its value is lower, tending to zero, the forecasting ability of the model is better.

- The percentage of deviation

$$T^A = \frac{\left(\bar{\hat{y}} - \bar{y}\right)^2}{\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - y_i\right)^2} = \frac{\left(\bar{\hat{y}} - \bar{y}\right)^2}{\sigma_z^2}$$

where:

$\bar{\hat{y}} =$ the average of the theoretical values of the endogenous variable;

$\bar{y} =$ the average of the real values of the endogenous variable;

$\sigma_z^2 =$ the dispersion of residual variable not corrected with the number of degrees of freedom.

The interpretation of this indicator, which highlights the existence of some systematic errors, is that in the ideal case (worthy to mention is the fact that, in the case of the estimation of the parameters of a statistical model with the help of the method of the smallest squares, the value of this indicator is equal to zero, this being discriminated only in the case of using

other ways of estimation such as, the graphic method, the method of the empirical points or the method of medium points), its value is equal to zero, this tending to one in case of some errors of estimation done through the whole series of time.

- The percentage of dispersion

$$T^D = \frac{\left(\sigma_{\hat{y}_i} - \sigma_{y_i}\right)^2}{\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - y_i\right)^2} = \frac{\left[\sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - \bar{\hat{y}}\right)^2} - \sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(y_i - \bar{y}\right)^2}\right]^2}{\sigma_z^2}$$

- That is defined also between [0, 1], this measuring the oscillating evolution of the two series, respectively the series adjusted and the empirical series of the endogenous variable. This indicator has the same meaning as the previous ones, respectively a low value indicates a good capacity of forecasting, while a value closer to one expresses an error of specification of the model.
- The percentage of covariance

$$T^C = \frac{2(1-r)\sigma_{\hat{y}_i}\sigma_{y_i}}{\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - y_i\right)^2}$$

where:

r = coefficient of linear correlation between the estimated value of the endogenous variable $\hat{y}_i$, and the real one, y_i :

$$r = \frac{\sum_{i=1}^{n}\left(\hat{y}_i - \bar{\hat{y}}\right)\left(y_i - \bar{y}\right)}{n\sigma_{\hat{y}_i}\sigma_{y_i}}$$

It can be easily noticed that the significance of this indicators is analogue with the one of those mentioned previously.

Besides the four indicators are found in the following equation proposed by Theil:

$$\frac{1}{n}\sum_{i=1}^{n}\left(\hat{y}_i - y_i\right)^2 = \left(\bar{\hat{y}} - \bar{y}\right)^2 + \left(\sigma_{\hat{y}_i} - \sigma_{y_i}\right)^2 + 2(1-r)\sigma_{\hat{y}_i}\sigma_{y_i}$$

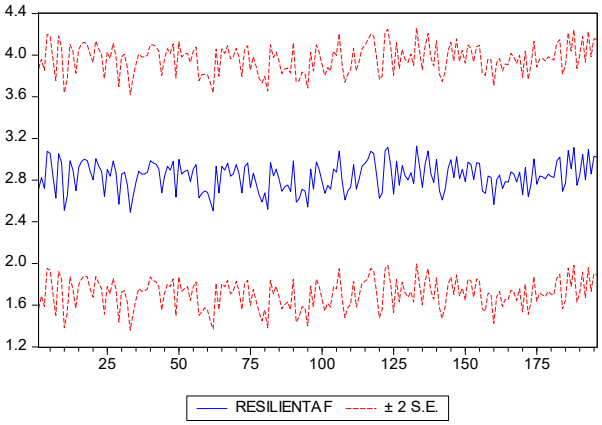
whose interpretation is made through the significance of these indicators.

6. Discussions

The results of the testing of forecasting capacity of the model regarding the dependence of entrepreneurial resilience towards the dependent variables proposed.

Table 5.

The name of the indicator	The symbol of the indicator	The value of the indicator
0	1	2
Theil coefficient	T	0,0944
Percentage of deviation	T^A	0,0000
Percentage of dispersion	T^D	0,5975
Percentage of covariance	T^C	0,4024



Forecast: RESILIENTAF
Actual: RESILIENTA
Forecast sample: 1 196
Included observations: 196

Root Mean Squared Error	0.541479
Mean Absolute Error	0.437287
Mean Abs. Percent Error	16.91354
Theil Inequality Coefficient	0.094464
Bias Proportion	0.000000
Variance Proportion	0.597560
Covariance Proportion	0.402440

After the calculations done with the help of the Eviews 8 package of programs in order to test the forecasting capacity of the model regarding the dependence between the characteristics Age, Sex, Residential status of the entrepreneur, entrepreneurial experience, education, status, entrepreneurial type, and resilience results that the entrepreneurs investigated that are focused to their own resources have a bigger success with the firms they manage.

7. Conclusions

The current understanding of the concept of entrepreneurial spirit and the characteristics of the entrepreneur largely comes from three sources.

The first comes from the contributions of economic writers and researchers on the role of the entrepreneur in economic development and in applying the economic theory. The second approach is linked to the entrepreneurial spirit as a psychological trait based on personality characteristics of the entrepreneur. The third is a social behavioural approach, which emphasizes the influence of the social environment as well as the traits of personality in shaping the entrepreneur.

The core competencies of the entrepreneurs behind the scores obtained suggests that the resilience factors are important to the success of entrepreneurs based on skills and business terms. We recognize that further investigations should be developed for discovering new facets between strength and performance of entrepreneurs.

In essence, it can be said that the Romanian entrepreneur changed his profile gradually over the past 27 years amid the increasingly visible trends of the economic globalization within the European community. Specific personality traits and profile of the entrepreneur in the South Muntenia Region, as is clear from our research is convergent to the characteristics identified by Romanian studies throughout the country. This occurs naturally as specific rules and common mindset (Entrepreneurial resilience) causes similar market behaviours. It is true that in the last 27 years have evolved a lot the entrepreneurial mindsets and the progress of the entrepreneurial behaviour led in the case of the elaborated study spectacular developments.

In the current business environment, however, remain significant gender differences, although some signs of change in mentality are being felt. Anyway the psychological profile of the entrepreneur contains features normally associated with masculinity and male behaviour (inclination for risk, boldness, even aggression), while the level of education is generally lower than in Europe and worldwide.

Given the lack of sound business models and the absence of a professional network should come out of the area of theoretical dialogue and to start from the statistical realities. Personality profile of the entrepreneur is one of the fundamental realities that must underpin these debates.

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