A model for the economic determinants of entrepreneurship – obstacles for small trade enterprises in Poland

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Abstract

The aim of the presented research is to identify and evaluate external economic barriers to the functioning of small trade enterprises in Poland. The analyzed data are from *Badanie koniunktury gospodarczej [Study of Business Tendencies]* conducted by the *Central Statistical Office of Poland (GUS)*. An econometric model is used to evaluate the influence of a range of factors on enterprises functioning.

Key words

Economic barriers, entrepreneurship, small trade enterprises, econometric model.

JEL Classification: G31, C20

1. Introduction

Economic theories have offered various descriptions of entrepreneurship, but it is derived from the economic schools of thought. Main trends in the study of entrepreneurship, which lay foundations for modern scientific deliberations, have their origins, among others, in the Austrian school, represented by L. von Mises, I. Kirzner and J. Schumpeter, the German school, represented by J. H. von Thunen among others, and the Chicago school, with its main representative – F.H. Knight. Kirzner believed that the relationship between entrepreneurship and economic growth is a good indicator to identify and make use of market opportunities. He proposed two approaches to defining entrepreneurship. On the one hand, he emphasized the necessity to adapt to the needs of the environment, while on the other, the process of discovering new opportunities, which guarantee development. According to Schumpeter, entrepreneurship is the source of all dynamic changes in the economy. An entrepreneur is someone who introduces innovations (new products, new technologies and new solutions). Knight, as a continuator of J.H. von Thünen, focused on risk and uncertainty resulting from entrepreneurship. Referring to the advances in economic theories, J.K. Tanas and D.B. Audretsch defined the following characteristics of an entrepreneur²: a) a person who accepts the risk associated with uncertainty; b) an innovator, who undertakes to introduce on a commercial basis new products, new productive techniques, or new forms of businesses (c) a decision maker, who sets the course of the business; d) an industrial leader; e) a manager or superintendent; f) an organiser or coordinator, g) a proprietor of an enterprise, h) an employer of factors of production, i) a contractor, j) an arbitrageur, k) a person who directs resources to alternative uses; 1) a supplier of initial financial capital. Therefore, entrepreneurship can be identified with an entrepreneur – a person who possesses certain characteristics initiating

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² Tanas J.K., Audretsch D. B., (2011).

actions, undertakes risk and is a creator of business activity (classic approach)³. However, in many current studies entrepreneurship is identified with small and medium-sized enterprises⁴. Entrepreneurship is determined by a number of factors. Some of them are subject oriented (internal), related to the characteristics of people undertaking business activity, others refer to the environment in which an enterprise functions (external factors) – they determine the functioning scope of an enterprise and the dynamics of its development. The determinants of entrepreneurship refer to the factors both influencing the development of enterprises and curbing their activity.

2. Literature Review

Economics literature offers many theories and explanations of the determinants of entrepreneurship. They can be grouped by the above suggested criterion into internal and external theories and empirical verifications. Scientific studies connected with the first group of determinants look for the characteristics that distinguish entrepreneurs from other people⁵. Many a scientist proved in their studies that characteristics such as age, gender, education, earnings, capital assets, professional experience, marital status, professional status of parents, and other factors are important drivers. Contemporary studies provide evidence that men are more likely to be engaged in the entrepreneurship process than women⁶. Increased age has generally a negative influence on entrepreneurship⁷, but individuals between 25 and 45 years of age are most likely to be entrepreneurs⁸. The influence of education on entrepreneurship is under discussion in literature. Uhlaner and Thurik prove that higher education is related to a lower self-employment rate⁹. Davidsson and Honig, on the other hand, provide proofs of a positive relation between entrepreneurship and education¹⁰. Undoubtedly, entrepreneurship is influenced by risk aversion¹¹.

Another group of factors determining entrepreneurship refers to the environment. These factors influence both the process of establishing an enterprise and its further functioning. Yaghoobli, Salarzehi, Aramesh and Akbari provided a comprehensive list of environmental factors influencing entrepreneur activities at the start point. These factors include: bankers, competitors, customers, economy, social traditions, educational institutions, governments, media, religious and technological organizations, and unions. These are external factors that are extremely uncontrollable¹².

Reference books provide examples of studies of restrictions curbing entrepreneurship.¹³ The classification of business activity determinants in the context of potential barriers to the functioning of small and medium-sized enterprises is presented, among others, by H. Waniak-

⁶ Minniti, M., Arenius, P. and Langowitz, N., (2005). OECD (1998).

³ T. Piecuch, (2010).

⁴ Chitakornkijsil P., (2009); Schulz A., Borghoff T., Kraus S., (2009).

⁵ E.J. Douglas, D.A. Shepherd, (2002). D.G. Blanchflower (2000). I. Grilo, A.R. Thurik, (2004).

⁷ Blanchflower, D.G., Oswald, A. and Stutzer, A., (2001).

⁸ Reynolds, P.D., Camp, S.M., Bygrave, W.D., Autio, E. and Hay, M., (2001).

⁹ Uhlaner, L. and Thurik, A. R. (2004).

¹⁰ Davidsson, P. and Honig, B., (2003).

¹¹ Kihlstrom, R. and Laffont, J. J., (1979); Parker, S. C., (1997).

¹² Yaghoobi N.M., Salarzehi H., Aramesh H., Akbari H., (2010).

¹³ Cf. M.Fic, J. Jędrzejczak-Gas, (2004); K. Poznańska, (2004); D. Kobus-Ostrowska, (2006); M. Chrzanowski, (2006), R. Gabryszak, (2006), R. Borowiecki, B. Siuta-Tokarska, (2008). M. Pietrewicz, (2002). Raporty o stanie sektora małych i średnich przedsiębiorstw w Polsce.

Michalak: information, financial, technological, administrative, market, macroeconomic, social, fiscal, legal determinants.

The analysis of research results on the barriers to entrepreneurship indicated three basic factors conditioning the functioning of small and medium-sized enterprises. They include: lack of financial resources, insufficient demand in the local, regional, national, international market and the level of tax burden. The financial barrier to acquire foreign capital is related, among others, to:

- high price of bank credits, set by financial institutions on the basis of credit risk evaluation, which in the case of small entrepreneurs paying tax on recorded revenue without deductible costs or fixed amount tax and entrepreneurs having no credit history, is higher than in the case of the rest of enterprises,
- high collateral required by funding institutions,
- formal requirements to provide proof of an enterprise's good financial situation and high success rate of the planned investment as well as to complete the required documents¹⁴.

In addition, the Polish Confederation of Private Employers Lewiatan (PKPP Lewiatan) in the study *Czarna lista barier dla rozwoju przedsiębiorczości 2011* [The blacklist of barriers to entrepreneurship development 2011] distinguishes the barriers which refer to the use of structural funds as external sources of funding and are related to the lack of systemic information about the support possibilities for entrepreneurs¹⁵.

The studies pay special attention to tax barriers. For more than 70% of small and mediumsized enterprises lack of clarity and explicitness of indirect taxes and business income taxes is a significant barrier to development. The owners of small and medium-sized enterprises believe that the lack of clarity of tax regulations increases the risk of business activities and generates costs, which unreasonably burden their businesses, thus limiting competitiveness¹⁶.

One of the most significant barriers to the development of the SME sector are formal and legal determinants. Entrepreneurs complain about the lack of consistency and clarity of legal regulations. They think that there are too many formalities connected with running an enterprise and excessive bureaucracy prevents efficient resolution of many ongoing matters¹⁷. Inflexible law is another barrier to the development of small and medium sized enterprises. Enterprises build their position through specialization and adaptation of their offer to clients' individual needs. In order to attain that position, the application of diversified forms in the labour law and the possibility of using various employment solutions are necessary. The barrier of inflexible law limits the possibilities of companies to adapt to the changes of economic conditions and decreases their competitiveness. The grey zone - concealing revenues and employment - acts as a barrier to the majority of small and medium-sized enterprises, since it reduces the competitiveness of law-abiding entities. The grey zone results from changing business activity regulations and level of taxes. Furthermore, the influence of particular barriers on enterprises' growth depends on economic conditions. In the times of boom barriers relating to the labour market and qualifications are more acute, while in the times of economic slowdown and recession barriers concerning the finance of an enterprise and demand level¹⁸.

¹⁴ H. Waniak-Michalak (2007).

¹⁵ Czarna lista barier dla rozwoju przedsiębiorczości 2011.

¹⁶ M. Starczewska-Krzysztoszek, (2008).

¹⁷ T. Piecuch,(2010).

¹⁸ N. Daszkiewicz,(2004).

3. Research objectives and source of data

The article focuses on external economic determinants of entrepreneurship with respect to the functioning of small trade enterprises in Poland. The research presented in the article intends to identify and evaluate factors constituting barriers to the functioning of small enterprises with reference to their financial situation as perceived by the management of the enterprises. The main emphasis of the study was on entrepreneurship barriers in trade. The article complements scientific literature on this subject and is a part of wider research on entrepreneurship barriers in Poland.

The subjective data referring to the ability of small enterprises in Poland to settle current liabilities and to their financial situation comes from the *Badanie Koniunktury Gospodarczej* [Study of Business Tendencies] conducted by the Central Statistical Office (GUS).

The study of business tendencies in trade encompasses the population of retail trade (5000 enterprises), i.e. units classified in section G (division 45 and 47) of the Polish Classification of Activities¹⁹ (PKD 2007). The units being studied are divided into four size classes: small (number of employees up to 49, subdivided into micro – up to 9 and properly small – the rest)²⁰, medium (number of employees from 50 to 249) and big (number of employees 250 and more). The units were selected by the stratified sampling method, without replacement, proportionally. The study of business tendencies in trade is conducted at a monthly frequency. The survey addressed to the entrepreneurs can be divided into two parts – diagnostic and prognostic²¹ with the data coming from the former part. Owing to data accessibility, 79 quarterly observations of small enterprises (10-49 employees) from the fourth quarter of 1993 to the second quarter of 2013 were used. In order to achieve the compatibility between the length of time periods, monthly data were adjusted to quarterly periods (according to the last month of a quarter) from 2005 onwards.

4. The Models and Variables

Linear econometric model was used to evaluate the financial situation of a small trade enterprise.

 $SytFin_t = c + \mathbf{\beta}\mathbf{x}_t + \varepsilon_t,$

where the *SytFin* variable is the dependent variable of the model. It results from averaging entrepreneurs' subjective responses to the question about "the ability to settle financial liabilities when due". Vector \mathbf{x} is the vector of the independent variables described in Table 1, $\boldsymbol{\beta}$ is the vector of the variables' coefficients. The legitimacy of the use of models without lagged variables was investigated for similar data in Zawadzka D., Ardan R, (2011).

¹⁹ The Ordinance of the Council of Ministers of 24 December 2007 (Dz. U. 251, item 1885).

 $^{^{20}}$ The smallest units were included in the study due to their significant share in the whole retail trade (they generate around 32% of sales revenues).

²¹ The diagnostic part is concerned with the entrepreneurs' evaluation of: the unit's general economic situation, number of sold products, sale of products in the past three months, the level of held stock of products, predominant sources of purchase of products, ability to settle financial liabilities, predominant sources of current assets financing, prices of products, barriers encountered in economic activities. The prognostic part is concerned with: the general economic situation, demand for products, the number of sold products, total financial situation, including financial liabilities, employment, prices of products, orders with suppliers, capital expenditure. *Badanie koniunktury gospodarczej. Zeszyt metodologiczny zaopiniowany przez Komisję Metodologiczną GUS*, (2010).

Variable	Variable description
InsuffDem	Insufficient demand
SellSpace	Selling space
EmplCosts	Costs of Labour
DiffCredit	Difficulties in obtaining credit
HighInterests	High bank interests
HighBudget	High payments to state revenue
HighDuties	High level of customs duties and imports charges
MarketComp	Competition on market.
DiffContractors	Difficulties in settling accounts with contractors.

Table 1. Variables influencing the ability to settle financial liabilities when due in the opinion of small trade enterprises' management

Source: own work.

Table 2 presents descriptive statistics of the variables.

Table 2. Descriptive statistics of the variables adopted in the model of financial situation barriers to small trade enterprises

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
SytFin	-13.96	-13.3	11.0	-37.4	10.47
InsufDem	48.00	46.8	66.3	32.2	8.72
SellSpace	9.57	9.1	17.2	5.0	2.97
EmplCosts	48.51	57.3	67.3	17.0	15.10
DiffCredit	10.12	9.9	18.4	5.2	2.74
HighInterests	23.14	21.5	40.1	12.7	6.37
HighBudget	55.12	55.2	65.1	46.0	4.22
HighDuties	4.65	3.6	22.6	1.0	3.76
MarketComp	62.77	65.5	73.5	47.5	8.02
DiffContractors	18.78	20.0	31.0	3.1	7.34

Source: own work.

The study of the business tendencies has a qualitative nature and refers to the subjective evaluations of the management of trade enterprises. A typical question is formed in such a manner that a respondent has to indicate weather his/her situation in a particular respect improved, did not change or deteriorated in comparison with the subsequent period. The data is aggregated separately for each question, and the stages of this process provide data for the sections adopted in the study assumptions. In the case of a qualitative single choice question with three options, the first stage of the calculation consists in adding up the number of answers for each option – positive (situation improved), neutral (situation did not change) and negative (situation deteriorated) given by the subjects comprising a particular stratum (e.g. small enterprises manufacturing food products). The next stage consists in calculating the breakdown of the three responses, which add up to 100% (e.g. 50% positive responses, 30% neutral, 20% negative). This breakdown is the so-called business tendency mirror. The simple business tendency indicator for this type of question is calculated as the difference between the percentage of positive and negative responses, which creates the so-called balance of

answers for a given question. It means that the balance of answers does not include the middle answer, i.e. the neutral answer²².

Variables representing barriers to the enterprise's activity are highly correlated: 21 out of 36 pairs of variables have significant coefficient of correlation at 5% significance level, with the highest correlation between *SellSpace* and *DiffContractors* variables (-0,877). Nine of significant coefficients are negative. The *SellSpace* variable has 4 negative coefficients of correlations with other variables out of 5 significant ones, while the *EmplCosts* variable has 3 negative out of 5 significant. The *SellSpace* is the only variable with significant positive coefficient of correlation with *SytFin*. There is significant negative correlations between *SytFin* and such explanatory variables: *InsufDem, EmplCosts, HighInterests* and *DiffContractors*.

5. Results and Discussion

One of the key problems encountered by small trade enterprises is creating product range and suitable sales policy.²³ It is reflected in the structuring of current assets, thus, among others, in inventory management and trade credit offer addressed to consumers, that is in current receivables management and attention to cash flows, which ensure an enterprise's ability to settle due and payable liabilities (business stability), including payments to the suppliers of products and services. Out of all PKD units, trade enterprises have the highest share of financing by trade credit²⁴. Therefore, current assets of trade enterprises are predominantly financed from current liabilities. The already mentioned values demonstrate similar variation, nevertheless, there is a noticeable trend to increase the share of fixed capital in the financing of current assets.

Table 3 presents the estimation results of the linear model using the method of least squares.

Variable	Coefficient	Standard Error	t-Statistic	Probability
InsufDem	-0.8025	0.1598	-5.0222	0.0000
SellSpace	0.5593	0.5287	1.0579	0.2938
EmplCosts	-0.0677	0.1230	-0.5502	0.5840
DiffCredit	-0.0857	0.3250	-0.2636	0.7929
HighInterests	-0.0275	0.1739	-0.1582	0.8747
HighBudget	0.2631	0.2638	0.9973	0.3221
HighDuties	0.6172	0.3126	1.9744	0.0523
MarketComp	0.2395	0.1375	1.7414	0.0861
DiffContractors	-0.2982	0.2694	-1.1066	0.2723
C	-2.8185	12.9354	-0.2179	0.8282
\mathbb{R}^2	0.7242		F-statistic	20.1313
Adjusted R ²	0.6882	Prob (F-statistic)		0.0000
DW Statistic	1.7928			
Source: our work				

Table 3. Parameters' estimation results of the initial model of liquidity barriers to small trade enterprises

Source: own work.

²² Badanie koniunktury gospodarczej. Zeszyt metodologiczny zaopiniowany przez Komisję Metodologiczną GUS, (2010).

²³ Cf. Sławińska M., (2002).

²⁴ Cf. D. Zawadzka, (2009).

The analysis of parameters' estimation results of the initial model of liquidity barriers to small trade enterprises shows the statistical significance of one variable – *InsufDem* (insufficient demand). Insufficient demand adversely affects the liquidity of small trade enterprises. The tested model is significant at 1% level of significance (the value of F-statistic of 20.131). The model describes 72.42% of the statistical variability of the phenomenon. Durbin-Watson statistic lies in the inconclusive range²⁵, but it is much closer to its higher limit, which justifies with substantial reliability the application of the least squares method to estimate the model.

Next, optimal set of regressors was determined using adjusted coefficient of determination $\overline{R^2}$ as criterion.²⁶ For this purpose, regressors with smallest value of absolute value of the tratio were consequently eliminated until all tratios became greater than 1 in absolute value.

As a result, the estimation of the model was performed on the basis of five variables (Table 4).

Variable	Coefficient	Standard Error	t-Statistic	Probability
InsufDem	-0.7252	0.0997	-7.2728	0.0000
SellSpace	0.7135	0.4695	1.5197	0.1329
HighDuties	0.5944	0.2735	2.1734	0.0330
MarketComp	0.2921	0.0985	2.9643	0.0041
DiffContractors	-0.3914	0.1955	-2.0020	0.0490
С	0.2692	11.0041	0.0245	0.9806
\mathbb{R}^2	0.7202		F-statistic	37.5832
Adjusted R ²	0.7011	Prob (F-statistic)		0.0000
DW Statistic	1.8442			

Table 4. Parameters' estimation results of the final model of liquidity barriers to small trade enterprises

Source: own work.

The research procedure applied enabled parameters' estimation of the final model of liquidity barriers to small trade enterprises, showing the statistical significance of four barriers/variables, *InsufDem* (insufficient demand), *HighDuties* (high customs duties and import liabilities), *MarketComp* (market competion) and *DiffContractors* (difficulties in settlements with contractors). Variables *InsufDem* and *MarketComp* are significant at 1% level, while the other two – at 5% level. There is no statistical evidence of first order autocorrelation of residuals.²⁷ The model is statistically significant.

²⁵ The inconclusive range occurs when the test $d_l \le DW \le d_u$ or $4 - d_u \le DW \le 4 - d_l$ gives no answer as to the existence of autocorrelation. The critical values of Durbin-Watson's test are accepted: lower d_l and upper d_u of the distribution depending on the number of estimated parameters (*k*+1) and the size of the sample *T*. The critical values of Durbin – Watson's test for 79 observations and 9 explanatory variables amount to respectively d_L =1.391, d_U =1.894. In: Savin N.E. and White K.J. (1977).

²⁶ Greene W.H., (2000), p.306.

²⁷ Upper critical value of DW statistics $d_U=1.771$ for 79 observations and 5 explanatory variables.

6. Conclusion

The research presented in this chapter allowed the identification of external economic barriers to the functioning of small trade enterprises in Poland. The data was provided by *Badanie koniunktury gospodarczej [Study of Business Tendencies]* conducted by the *Central Statistical Office (GUS)*. The evaluation of the identified barriers to entrepreneurship was performed by means of statistical tools. The conducted studies allowed to formulate the following general conclusions:

- 1. The barrier of difficulties in settlements with contractors has a statistically significant influence on the liquidity of trade enterprises. Its importance in this group stems from the fact that sale terms and conditions together with trade credit are indispensable while preparing sale offer.
- 2. As the entrepreneurship barriers at small trade enterprises should be treated primarily insufficient demand and difficulty in settlements with contractors that have a statistically significant negative impact on the financial situation of enterprises.
- 3. Perceptions of customs and import duty and of the market competition as obstacles in activity are concomitant with the improvement of the financial situation of enterprises.
- 4. Comparing with the study of all trading enterprises (see Zawadzka D., Ardan R, (2011)), a new significant factor for small enterprises is the market competition..

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