

Ptak-Chmielewska, Aneta

**Article**

## Entrepreneurs: Demographic profile, who has higher chances of survival?

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## Entrepreneurs - demographic profile, who has higher chances of survival?

**Aneta Ptak-Chmielewska**  
**Warsaw School of Economics**  
**Poland**  
**aptak@sgh.waw.pl**

**Abstract:** The scope of this paper is to construct the demographic profile of the entrepreneur. The basic question is: who has higher chances of survival? Recently the interest in firms survival in Poland has increased significantly. To cover the need for more detailed data there was panel database used. The survey covers the five-year history of enterprises' activity and the sample covers only enterprises employing initially fewer than 50 workers. In this paper only the sample of 1518 enterprises established in 2004 was selected. Only enterprises that initially did not employ any worker were selected. Cox regression semiparametric model with time constant and time varying variables was applied. Regarding demographic characteristics of the main owner a conclusion may be drawn, that an enterprise with a highly educated owner experienced in management had a lower liquidation risk. Opposite to other studies a male owner had higher risk of failure comparing to a female owner. Also an older owner (35 years and more) had higher chances to be liquidated, which is in opposite direction than expected. However this effect is time varying. The entrepreneur with management experience increases chances of survival. If a manager succeeded in acquiring the loan for a start the success is more probable. First-year investments increased the survival chances. The first year was the most important because at that time the main drive for being on the market was observed.

**Keywords:** enterprises survival, Cox model, entrepreneurship

### 1. Introduction

In a specific situation in countries like Poland where the economy is still in the transition period, the institutional setting plays a significant role in rapidly changing environment. All aspects discussed in the literature give some conclusions and recommendations for a policy makers. However the deeper insight is still needed.

The initial papers regarding the survival of enterprises have appeared in recent years in Poland. In her paper dedicated to survival of enterprises Markowicz (2012) applies Cox model for the analysis of enterprises from Szczecin region (only one city region) based on REGON register (not adjusted for non-active enterprises). Dehnel (2010) applies small area estimation techniques for basic business demography ratios for SMEs in Poland (active before 2001). Some works of Ptak-Chmielewska (2011, 2012) apply non-parametric (Kaplan-Meier) and semi-parametric

(Cox regression) methods for retrospective data for one of regions (sample of 1000 enterprises) in Poland.

In recent years we noted a dynamic growth in using statistical and econometric models and analysis in the area of firm survival. Both cross-sectional and longitudinal models and analysis are applied. Such areas as discrete time, unobserved heterogeneity or competitive risks were addressed. The characteristics which are specific for the company and for the sector of economy are used. A very detailed and exhaustive review of literature and research results was presented in the paper: "Firm survival: methods and evidence" by M.C. Manjon-Antolin and J-M Arauzo-Carod (*Empirica* (2008) 35; pp. 1–24). Authors state that the basic framework for the analysis of firm survival are ideas from industrial organization, organizational ecology, regional and urban economics. Authors also divide basic factors influencing the firms survival into: internal factors specific for an enterprise and external factors connected with macroeconomic situation and the enterprises' surrounding environment. External factors are connected with sector, geographical space and business cycle.

The main question of the paper is: who has higher chances of survival? To answer this question internal and external factors influencing enterprises survival were analysed. The paper addresses also aspects of demographic profile of the entrepreneur as internal factor.

## 2. Theoretical background

The influence of the external factors (environment) is connected with the concept of market "pull" factors and market "push" factors which affect the entry and exit of the enterprises from the market. The hypothesis of the market pull factors states that greater demand creates more opportunities for starting new companies due to greater market absorption. The growth in the number of newly established companies can be triggered by the access to new production technologies, the development of the service sector, IT technologies and using outsourcing. Apart from the formerly mentioned, also the good physical and social infrastructure is of importance. A good stimulus will be also such factors as the existence of the sector with cost advantages for the small companies in comparison with large companies, the existence of the sectors which are developing due to demand, the sectors of the low level of technological advancement (the small enterprises are not able to compete with the large ones as far as the development of technology is concerned), domestic demand for goods which are not traded internationally, market niches of a local dimension, access to research and development results for SME (*Business demography ...* 2002). Market push hypothesis assumes that high unemployment level may contribute to self-employment and opening own business activity as an alternative to being jobless. A variety of research shows that the importance of this factor in creating new enterprises is variable. Also the threat of unemployment can be a significant motivation for self-employment.

The freedom to enter and exit the market constitutes the main mechanism of functioning a competitive market economy (Balcerowicz, 1999). If there is no such a freedom or when this freedom is limited, the economy starts to be uncompetitive, which leads to inefficient allocation of resources. Due to competitiveness the inefficient enterprises can become more disciplined. To

ensure that the scale of creating new companies is big enough one must also ensure that there is enough freedom to enter and exit the market. The obstacles can be generated by the government or can be in the form of capital barriers or investment barriers.

Individual factors at the level of entrepreneur's decision making process constitute the separate group of factors which influence the level of birth and death ratios in the population of enterprises. This group consists of personal reasons affecting the creation or death of an enterprise. The key factors which stimulate the decision to become self-employed are: drive for independence, dissatisfaction with current job, wish to increase standard of living, self-fulfilment. Five basic groups of entrepreneurs are distinguished in the literature (Pereira 2001, Business demography... 2002):

1. pragmatic entrepreneurs: creating an enterprise on the basis of previous experience as a worker or, more frequently, a manager,
2. risk-taking entrepreneurs: creating a company in order to achieve autonomy and gain independence; it is a challenge for them, they think highly of their skills,
3. unsure entrepreneurs: creating a company as a way to avoid unemployment, self-fulfilment; mainly young women are found in this category,
4. dedicated entrepreneurs: continuing family business, providing necessary family maintenance, high standard of living,
5. ambitious entrepreneurs: social acceptance and promotion, personal reasons and environmental considerations.

According to the group of theories connected with management in an enterprise (Poznańska, 2008): "Liability of Smallness", "Liability of Newness" and "Ecological Economy", the position of a small enterprise (as far as the number of employees and turnover is concerned) on the competitive market is much weaker in comparison with large enterprises. The reasons can be traced to the fact that small enterprises are put at a disadvantage with regard to economy of scale, distribution chains, market research. They employ managers with lower skills. On the other hand, according to the market niche theory, a small size can create many opportunities (Caves, Porter, 1979). Such enterprises will retain their size at a given level in order to be able to reach the market niches which are not accessible for large companies.

Liability of Newness links the success of an enterprise with the time it functions on the market. The probability of exiting the market is much higher for new enterprises than for those with at least one year history. Ecological economy refers to biological theories (Hannan, Freeman, 1989, and Carroll, Hannan, 2000) focusing on three groups of enterprises: new, developing and shrinking (end of life). The ecological theory is focused then on the life cycle of an enterprise: determinants of birth, survival and death. In this context "the business demography" serves as a tool to measure life cycle, the length of the subsequent stages of existence and their determinants on the micro level, i.e. treats an enterprise as a basic unit of population and considers determinants, both external and internal, which affect its life cycle. The growing interest in the theories connected with institutional aspect of enterprise development is also quite important (Gruszecki 2008).

In popular economic theories, quite often in papers dedicated to "business demography" (Scarpetta et al. 2000) and the enterprise life cycle, the theory of creative destruction by Schumpeter can be found (Schumpeter, 1934). In line with this theory, creating new enterprises

and liquidating the existing ones is the key element of general dynamics of the economy. Reallocating resources from low-productive units to high-productive units by means of creating new enterprises and eliminating uncompetitive ones lies at the foundation of this economic doctrine. The reallocation exerts a pressure on the existing entities on the market forcing them to improve competitiveness in order to retain their position. Weak entities are subject to natural selection and elimination, giving way to new, more competitive ones. It also triggers the learning process of enterprises which affects their life cycle on the market (Jovanovic 1982). Newly created companies are not fully aware of their potential and survival opportunities. The companies learn about that during the time of their activity by generating profits. In order to minimize the risk of uncertainty connected with the lack of information at start, the companies try to enter the market as small entities thus lowering potential losses in the case of a failure. With time, the companies decide to continue development or to exit the market if the situation turns out to be negative for them. The enterprise may in an active way influence its profitability not only by observing its situation after entering the market but also by taking up relevant actions aiming at increasing the income and profit levels (Ericsson, Pakes, 1995). Theories from this group were many times verified based on empirical data. The U-shape of the hazard function confirms such an influence of active and passive learning of enterprises in the market. New companies need time to assess their efficiency. Such a behavior is known as “liability of the adolescence” in contrast to “liability of the newness” (Bruderl, Schussler, 1990 and Fichman, Levinthal, 1998).

### **3. Data and Methodology**

Event history analysis (survival analysis) is defined as the set of different statistical techniques used for description and analyzing life course of the individual: number or event, sequence of events, timing and time spent in different states of the process. The subject of the analysis is stochastic process with events (states). This process is described by survival time defining the time from the start of the observation till the moment of the end or the moment of survey if it happens before the end of the process. The subject of the research is time span between events called as time of the process or episode.

According to the number of analyzed events the classification distinguishes between single event episode or multiple event episode. Single event episode is the typical basic form of the event history analysis.

Comparing event history analysis with traditional cross-sectional research it must be stressed that the most advantage of the first is supply of information about the dynamics of the process. Due to socio-mathematic ruts of event history analysis and its biomedical and industry implementations terminology used in event history analysis is strictly connected to those disciplines. The final event ending the episode is often named “death”, “failure” but the name of this event should not be understood namely in negative meaning. In recent years methods of failure time analysis (the same as used in biomedicine) started to be used in social sciences, as example in time spent in unemployment, risk of bankruptcy, episodes between subsequent pregnancies, time between purchase of the product and the claim.

According to Frątczak (2005): “the main subject of event history analysis is properly defined process with its dynamics. Individuals defining the process or taking a part in the process are analyzed due to: time spent in subsequent states, transition between states, different types of events, their sequences and timing”. According to this definition the stochastic process being the subject of the analysis is considered in three areas:

- waiting time to events,
- transition between different states,
- number and sequence of events.

The basic analytical structure in events history analysis consists of: states and time. States are defined as discrete number and the time may be interval or discrete. Time may be defined as calendar time or relative time (age of the individual measured relative to the starting time point  $t_0$ ). Most frequently the relative time is used due to different starting time for different individuals in observed process. Starting state (single or multi options) is common for all individuals of the sample. The sample is defined as the cohort of individuals with the same starting time  $t_0$ . In the case of single episode model for risk of bankruptcy for enterprises the cohort may be defined as enterprises registered or started activity at the same period (year). In the analysis of enterprises' liquidation (main goal of this paper) the basic goal of analysis is event defined as liquidation of the enterprise or suspension with/without plans to reactivation. The event of liquidation eliminates the enterprise from the observation and is treated as the ending event (state of destination) in the single episode model.

Event history analysis covers many methods classified according to different criteria. The basic classification is given by Allison (1984) according to criteria:

- approach: regression or based only on time distribution,
- event repeatability: repeatable or non-repeatable events,
- number of different events: single event or multiple event,
- methods of estimation: parametric or non-parametric,
- time: discrete or interval.

First of classifications is closely related to usage of additional variables in explanation of the time of the process. The approach based on only analysis of time of the process with very limited usage of additional variables dominated in very early works on event history analysis. As example life tables may be cited. Nowadays regression approach is dominated where the main subject of analysis is connection of time of the process with additional explanatory variables (coexisting, causality).

The basic model in event history analysis is single episode model where destination event (non-repeatable) happens after event of origin. Non-repeatable event is possible only once in a lifetime, its appearance removes the individual from the observation field. Repeatable events may take place a few times in a lifetime. Example of non-repeatable event is bankruptcy which causes that all liabilities are not paid, and the example of repeatable event would be temporary difficulties with liability payments. Multiple episodes model is wider than single episode model, but the analysis may be simplified by definition of single episodes within multi-episodes process. In the literature, the process analyzed by single episode model is called elementary process.

Process analyzed by multi-episodes model is called multistate model (multistate process is sum of elementary processes).

According to number of categories the distinguish is made between single events and multiple events. This distinguish concerns single episode analysis and multiple episodes analysis. Multiple episodes analysis is rather rare due to high level of complications. For single episode model there is single origin state and single or multiple destination state where destination state appears in multiple categories. Multiple events are also named competing events, and models with those events as competing risks models.

According to methods of estimation the distinguish is made between parametric and non-parametric methods. This division is based on assumptions about the functional form of time distribution (T). In case of lack of such assumptions there are non-parametrical methods applied with classical example of life table models. Non-parametric analysis gives information about changes of individual behaviors schemes in time. In parametric approach the time between events is assumed to be random variable with specific distribution. The most frequently used distributions are: exponential, Weibull, Gompertz. In parametric analysis regression methods are used including the influence of time on hazard rate and the inclusion of explanatory variables and heterogeneity of the population.

The combination of two approaches is named semiparametric approach. The most popular semiparametric model is Cox regression model (described later). The parametric component is based on specified influence of explanatory variables (regression function) on the hazard rate, but non-parametric component does not specify functional distribution of the time (dependent).

According to type of the time description the distinguish is made between discrete time models and interval time models. Time in its nature is interval but sometimes it is measured by discrete scale (days, months, years). If the measurement is sufficiently frequent the time is assumed to be on interval scale.

Very characteristic for event history data is censoring. If the information about some individual is not available (due to lack of observation during the observation window) then it is censored. The most typical is right censoring when the time till event is not known but it is longer than observation period. Right censoring may be (Rossa, 2003, p.14 ):

- censoring type I – when the moment of the end of observation period is prior known and fixed; size of the sample is fixed, but the number of events is random;
- censoring type II – when the number of events is assumed (known) in advance; the survey lasts till there is not observed the assumed number of events; in this case the size of the sample and the time of the end of observation are random.

In practice censoring type I is used, and censoring type II is rather theoretical. If censoring is not predefined by the process mechanism methods of event history analysis allow to include such censored observations. If censoring is not random the data must be corrected and the adjustment is not easy. There must be also mentioned the problem of truncation. The truncation may be caused by lack of the access to some individuals and those individuals are not included in the sample.

The basic method in event history analysis is survival model describing the distribution of random variable – time to event. The subject of the interest is lifetime of the individual and pattern of all individuals survival in the population and the scheme of deletion from the cohort. The interest is also put on the risk of the event occurrence in the nearest future assuming that it did not happen till now.

There are many different models used in survival analysis. Models are differentiated according to assumptions about functional form of hazard rate and its variability in time. The description of different models: nonparametric, parametric and semi-parametric may be found in Frątczak (2005, chapters 7, 8, 9). In practice the most frequently used model is proportional hazards Cox regression model. For this reason this model was presented in more details in this paper. For Cox regression model the hazard function is given by formula:

$$h(t | x_1, \dots, x_k) = h_0(t) \exp(\alpha_1 x_1 + \dots + \alpha_k x_k),$$

where:  $h_0(t)$  - means base hazard, parametrically non-specified function of time and  $X_1, X_2, \dots, X_k$  - means explanatory variables (including time dependent variables).

Cox proposed also the special type of estimation method called pseudo-likelihood (Cox, 1972). This method divides the likelihood function for proportional hazards model into two parts: first including only information about parameters and second, including information about parameters, and hazard function. Division into two components is justified because first depends only on sequence of events occurrence, does not depend on exact time of occurrence, and the second is 0 and is omitted.

Main advantage of Cox model (and other semi-parametric models) is assessment of many variables (including time dependent variables) influence on the process without necessity of base hazard  $h_0(t)$  specification. The main disadvantage of Cox model is hazard proportionality assumption. This assumption impose that for each pair of individuals in any time the hazard rate is fixed. The relative hazard (ranking) for individuals is stable in time.

Despite this limitation of Cox model, it is especially attractive for researchers in case of Blossfeld and Rohwer (2002):

- unknown shape of hazard in time;
- no theoretical bases for parameterization;
- no possibility of functional shape of hazard specification;
- main interest is focused on explanatory variables influence on hazard.

Above mentioned advantages in using Cox regression model make this model useful in risk of enterprises' liquidation modeling. The only disadvantage of this model is proportionality assumption which implies fixed proportion of hazard for individuals during the observation time period. This problem may be solved by including additional time dependent variables in the model (like interaction between variable and the time). For checking the proportionality assumption the easy way is to include the interaction with time, the significance of this parameters confirm that the proportionality assumption is violated. In this case model is named nonproportional hazards Cox regression model. Results of Cox model estimation are parameters

describing the influence of explanatory variables on the probability of event occurrence and on the base hazard (the same for all individuals, dependent only on time).

Starting from 2002 CSO has been conducting a panel survey which constituted an important source of data on micro and small enterprises with a view to assess such factors as the entrepreneurship in Poland, the survival of enterprises and the barriers met by an enterprise in conducting their activities ("Creation and operation conditions, development prospects of Polish enterprises established in the years ..." is a publication concerning the results of CSO research). The focal point of the publication were the results of the research obtained from the sample of enterprises in annual periods. The first survey involves interviewing the entities entered into the business registry in a given year and in next stages the same entities are interviewed again in subsequent years in the form of a summary questionnaire which contains questions on financial results, investments and the assessment of barriers met. Factors such as demographic features of an entrepreneur and the manner the business started are also included in the questionnaire in the first year. Follow-up continues to 5th year of the activity of the enterprise and then it is deemed stable and its future activities are not followed.

For the purposes of this paper and survival analysis a panel of enterprises founded in 2004 was selected. As many as 1518 enterprises are included in the sample (only self-employed owners-entrepreneurs) providing information on their five-year activity starting from 2004 till 2009. Those enterprises which were still active in 2009 were censored.

#### 4. Results

Analysis of enterprises' survival requires information about exact date of the start and exact date of the end of activity. Data concerning this information available in administrative registers like REGON (Register of Business Activities), covering all enterprises are not up-to-date and are useless in enterprises' survival analysis. Data available in KRS (National Court Register) or VAT (Value Added Tax System) or available in Central Statistical Office (SP- annual questionnaire for enterprises and F-02 statistical financial statement at the end of each year) do not cover all enterprises. This situation requires representative surveys. Panel representative survey on micro and small enterprises sample conducted by CSO since 2002 is a good source of data (Warunki... 2010). However panel character of survey causes significant deletion of information in subsequent waves and pauses the necessity of missing data imputation. More about data sources is available in Ptak-Chmielewska 2012.

Among available datasets the sample of 1.518 enterprises established in 2004 from the panel survey was selected. Basic characteristics analysed for those enterprises are enclosed in table 1. Most of them were defined as binary variables. For enterprises liquidated in the first year of activity there was no information about some characteristic. In the whole sample 43.6% of enterprises were still active after 5 years of activity and those enterprises were censored.

Table 1. Characteristics describing the enterprises

Variable name	Description
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<i>area of activity</i> (2005)	1='domestic or international market' 0='local or regional market/no information';
<i>export</i> (2005)	1='exporting' 0='non exporting/no information';
<i>places of activity</i> (2005)	1='several locations' 0='single location/no information';
<i>type of activity</i>	1='production' 0='non-production/no information';
<i>profit/loss</i> (2005)	1='profit' 0='loss/no information';
<i>sex of the owner</i>	1='male or company' 0='female';
<i>age of the owner</i>	1='35 year and older or company' 0='below 35 year';
<i>education of the owner</i>	1='higher, post-secondary or company' 0='lower';
<i>type of previous work of the owner</i>	1='private, state company manager or company' 0='other/no information';
<i>source of maintenance of the owner</i>	1='main source of maintenance or company' 0='not a main source of maintenance/no information';
<i>loan for a start</i>	1='at least 50% from credit' 0='below 50% from credit/no information';
<i>investments</i> (2005)	1='investing' 0='non investing'/no information';
<i>barriers (demand)</i> 2005	1='demand barriers'/ no information' 0='no barriers';
<i>barriers (supply)</i> 2005	1='supply barriers/no information'; 0='no barriers';

Sources: own elaboration.

Some characteristics describing the whole background of enterprise activity (external factors) can be expected to influence positively the chances of survival. In the dimension of the market of activity, we expect that enterprises which expanded their activity above regional market or succeed in exporting their goods and services will be more successful in surviving. The first year of activity is crucial and only enterprises which start with profits have more chances for survival. Some barriers reported at the first year also determine the profile of an entrepreneur. Demographic characteristics of entrepreneur also matter due to internal factors and human capital. Older, more experienced and highly educated entrepreneurs are expected to be successful, however this effect is not confirmed in literature. Also the effect of sex of the main owner is not definitely confirmed. However, if a start-up succeeded in getting the loan for a start

it seems to prove the management abilities of its owner. Seemingly, starting with investments and being financed externally means also that the management skills of entrepreneur are confirmed and the chances for a success are increased.

As dependent variable the time from registration to the failure (not distinguished between bankruptcy and sole trader decision) was adopted. Multivariate method, the Cox regression model, was applied. Also the interactions with time were analysed.

10 from 14 included effects were significant at the level 0,1. Enterprises acting at the national or international markets have 18.8% lower risk of liquidation than enterprises known only on regional and local markets. This is strictly connected to places of activity. Because enterprises with more than one unit of activity have 45% lower chances of being liquidated. The expansion is also evident in case of exporting goods and services but this effect was not significant. More successful are enterprises in production sector, their chances to be liquidated are 25% lower than in other sectors.

To check the proportionality assumption also the interactions with time were analysed. Results were included in table 3.

In case of demographic profile, as the basic interest in this article, of the entrepreneur the effect of sex is not obvious. It was expected that male ownership increases the chances for survival, but the effect is opposite. Highly educated owners increase chances for survival on the market. Their human capital increases the management potential of the company. Their experience in management positions also increases the chances for survival. Owners who previously worked at the management positions have 48% lower chances of failure. The motivation of course can be different but the effect is confirmed. Managerial abilities also confirm the ability to convince the bank to grant them the loan. The investments in assets in the first year is also important, it increases the chances to survive and this effect accelerates with time.

Table 2. Results of Cox regression estimation (exact method)

Parameter	DF	Parameter Estimate	Standard Error	Chi-Square	Pr > ChiSq	Hazard Ratio
area of activity	1	-0.20781	0.10077	4.2527	0.0392	0.812
export	1	-0.27415	0.30402	0.8132	0.3672	0.760
places of activity	1	-0.60290	0.21360	7.9670	0.0048	0.547
type of activity	1	-0.29837	0.21139	1.9922	0.1581	0.742
profit/loss	1	-0.80409	0.08641	86.5845	<.0001	0.447
sex of the owner	1	0.15205	0.08082	3.5393	0.0599	1.164
age of the owner	1	0.32270	0.11589	7.7544	0.0054	1.381
education of the owner	1	-0.39723	0.08879	20.0167	<.0001	0.672
type of previous work of the owner	1	-0.65025	0.21456	9.1846	0.0024	0.522
source of maintenance of the owner	1	-0.01864	0.07877	0.0560	0.8130	0.982

loan for a start	1	-0.34946	0.20203	2.9919	0.0837	0.705
investments	1	-0.47530	0.10936	18.8894	<.0001	0.622
barriers (demand)	1	-0.03441	0.08905	0.1493	0.6992	0.966
barriers (supply)	1	0.55044	0.08976	37.6067	<.0001	1.734

Source: own elaboration.

Table 3. Results of Cox regression estimation with interactions

Parameter	DF	Parameter Estimate	Standard Error	Chi-Sqr	Pr > ChiSq
area of activity * time	1	-0.08783	0.09238	0.9039	0.3417
export * time	1	-0.23709	0.26898	0.7769	0.3781
places of activity * time	1	-0.17792	0.22901	0.6036	0.4372
type of activity * time	1	-0.24337	0.25686	0.8977	0.3434
profit/loss * time	1	-0.36010	0.08920	16.2965	<.0001
sex of the owner * time	1	0.10703	0.07466	2.0551	0.1517
age of the owner * time	1	-1.09730	0.12465	77.4934	<.0001
education of the owner * time	1	-0.07292	0.08010	0.8286	0.3627
type of previous work ... * time	1	0.29535	0.17829	2.7443	0.0976
source of maintenance ... * time	1	0.06986	0.07292	0.9179	0.3380
loan for a start * time	1	-0.01041	0.19605	0.0028	0.9577
investments * time	1	-0.17165	0.09472	3.2840	0.0700
barriers (demand) * time	1	-0.31074	0.08477	13.4387	0.0002
barriers (supply) * time	1	-0.83568	0.11889	49.4057	<.0001

Source: own elaboration.

In case of supply barriers reported in the first year of activity, this effect is positive, means the chances to be liquidated are increased if the enterprise reports barriers, but the acceleration with time is in opposite direction. This means that even if the effect in the first year was positive this changes in the next years. The supply barriers matter but at the beginning of the activity, their effect is not so important in the subsequent years.

Only interactions with time for profit/loss, age of the owner, type of work of the owner, sources for investments, barriers were significant at the level 0,1. Those results confirm the time varying character of the influence of those variables on the process of liquidation. All of significant effects were negative, which means they accelerate the effect of the main variable in negative direction. Profit in the first year of activity is very important, because the enterprise with profit at start has 55% lower chances to be liquidated comparing to the one with loss at start (first year of activity). This effect accelerates with time.

Also the age of the owner being the positive effect at start, diminishes with time. Age 35 and over is not high enough to start a business because the difference between younger under 35 and older over 35 is not significant, but the interaction with time is significant.

#### 4. Conclusions

According to proposed theories and classifications used to explain the survival of enterprises we proposed to distinguish between internal and external factors. Demographic profile of the owner is mainly connected with internal factors.

Considering the socio-demographic profile of an entrepreneur as the most deterministic in enterprise failure we describe below the demography of owners. Those are main internal factors determining the success and failure.

In 29% of all enterprises the main owner was a woman, in 35% cases a man and the rest of enterprises were companies without the main owner. In 55% of enterprises the owner was younger than 35 years old and in 13% of enterprises the owner was younger than 25 years old at the moment of the start of the business in 2004. Main owners are mostly people with at least secondary level of education (78%). 35% of owners declared tertiary level of education

Only 12% of owners were unemployed before starting their own business which means that the influence of the market “push factor” was not significant (see also Ptak-Chmielewska 2012). This group can be distinguished as “unsure entrepreneurs”. In 55% of cases the employment in the own enterprise is the main source of maintenance of the main owner. In our model the effects of sex of the owner (but opposite), education of the owner, type of professional experience of the owner were significant. In some works the effect of sex was opposite or insignificant (Bastie et al., 2011). 6% of entrepreneurs were previously employed as managers and this group can be distinguished as “pragmatic entrepreneurs”. This characteristic in multivariate Cox regression model was significant and this effect was also confirmed by others (Bastie et al., 2011).

Conditions of activity and barriers seem to be of high importance. The evaluation of the situation and conditions helping or disturbing the enterprises’ development was focused on the environment and barriers existing on the market. If an enterprise invested during the first year of activity its chances for survival were higher. Enterprises running activities on local or regional markets had lower chances for survival compared to enterprises with activities run on cross-national or international markets. Enterprises that succeeded in expanding outside regional and local markets had lower risk of liquidation. The effect of places of activities is stronger with time, which means that an enterprise expanding its activity decreases the probability of being liquidated, and increases the time of existence on the market. 50% of enterprises did not invest in the first year of activity. Almost 48% of enterprises form investing group used their own funds, only, only 9.25% used credit loans or subsidies. In subsequent years the share of non-investing entrepreneurs slightly increased but the changes in the structure of financing were rather small. Research in this area is rather limited. Bastie et al. (2011) give arguments that private sources have positive influence on survival. Those enterprises have easier access to credit loans. As higher own sources as liquidity barriers are lower and survival is higher (Gawel 2010).

Half of entrepreneurs did not report any barriers in sales of goods and services and production development. In subsequent years the share of enterprises that did not report barriers decreased slightly. The most important was the first year because this was the main driver of being on the market. 26% of enterprises reported too high competition on the market, other barriers were not significant. The crucial factor was gaining profits during the first year of activity. Enterprises which made profits during the first year of activity had lower risk of liquidation compared to

enterprises that made a loss or suspended their activity. Profit gained in the first year of activity is very important, because the enterprise with a loss at start has 55% higher chances to be liquidated comparing to the one with profit at start. This effect accelerates also with time.

Further research should go on the direction of deeper research to distinguish between other motivations. Knowing motivations gives the policy makers the information for future policy planning.

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