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Organizational Ecology and Industrial Organizations; Old Firms in the Netherlands

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Abstract:

Two theories that provide some insight in the entry and exit of firms are the theory of Industrial Organization and the theory of Organizational Ecology. Two pioneers in this field of study are Nelson and Winter who both argue for the evolutionary approach of economic development.

The theory of Organizational Ecology, derived from sociology, takes the study of entry and exit data as the main theme. The number of firms (density) in an industrial sector is the core variable in the explanation of entry and exit rates. The relationship between these two concepts is described in the so-called 'density model of competition and legitimation'. The potential limit to the growth of the number of firms in a certain sector is called the carrying capacity. One of the main shortcomings of Organizational Ecology is the lack of attention to individual firms. The school of Industrial Organization does pay attention to individual firms. However, in the literature on Industrial Organization too little attention is given to the relationship between industry dynamics (the frequency of entry/exit) and the age of firms.

The purpose of this paper is to get insight in the use of theories of Industrial Organization and Organizational Ecology in my Ph.D. research project and to see if it is possible to transform the theoretical concepts into useable questions with a spatial context. This all with the incentive to find spatial factors that influence the survival of firms in the Netherlands.

Introduction

Two theories that provide some insight in the entry and exit of firms are the theory of Industrial Organization and the theory of Organizational Ecology. Two pioneers in this field of study are Nelson and Winter. According to Nelson and Winter (1988), the broad perspective is provided by an evolutionary approach useful in analyzing the different aspects of economic change, like the response of firms and industries to changed market conditions. Using these approaches to find reasons for the mortality of organizations and firms, it is very possible to extract the reasons for survival from this line of arguing. Supposing so, the connection with age-dependency and mortality can provide some insights in the relationship between age-dependency and survival (Nelson and Winter, 1982). This can be very beneficial for the research in old firms in the Netherlands.

The theory of Industrial Organization is concerned with the environmental settings in which enterprises operate and how these enterprises behave in these settings as producers, sellers and buyers. This means that there is no internal approach: organizations will be viewed in terms of their market behavior. Major emphasis is given to the competitive forces in the different industries or markets. Correspondingly, the analysis takes place in the industry or the competing group of firms, rather than using the individual firm (Davies and Lyons, 1988).

Organizational Ecology is a theory focusing on organizations, trying to explain long-term social evolution, particularly the rise and fall of organizational populations. It views the market as the field for organizational actions. 'The organization population is defined broadly as the set of organizations characterized by a particular organizational form and dependent on a common set of material and social resources.' (Carroll, 1997, p.2) This way of thinking has a very specific research design, which involves going back to the origins of a specific organizational population or industry and then tracking all organizations that enter or exit from it, using a prescribed definition of organizational form (Carroll, 1997).

In this paper the two theories mentioned above will be discussed briefly, followed by the discussion of the 'density model of competition and legitimation' which brings these two approaches together. Furthermore, the use of these theories for the research project 'Old firms in the Netherlands' will be considered in the end of this paper.

Industrial Organization

The theory of Industrial Organization emphasizes entry and exit (birth and death of firms), variations in size and market share (mobility), and changes of control in firms, as

demonstrated by from the firms' behavior in the market. The main focus is not on the individual firm, but on the total industry or group of firms interacting (Caves, 1998).

Industrial organization studies contribute to the understanding of how a market works from birth to maturity, associated with firms' behavior. Recent studies have enlarged the insight in the dynamics of industries. In general, the results show that there is considerable short-run entry and exit turnover in most industry markets, while the long run market structure is relatively stable. Firms may behave competitively because of the danger provided by potential entries. In other words, not only the number of existing firms, but also the potential new firms do determine the force of competition (Van Kranenburg, 1999).

Subsequent to competition, both growth and size are important determinants of the mortality and survival of firms. In a study on mobility, entry and exit, Caves (1998) presents the following results. Mean growth rates of surviving firms are not independent of their sizes, but tend to decline with size also with the unit's age (given size). Entry and exit of firms are closely involved with growth-size relations. Entry is more likely to occur into smaller size classes and the chance of a unit's exit declines with its size. Growth rates are almost independent of size among larger firms, but the failure to sort firms into industry groups deprives the results of clear implications. The evidence on entrants' growth and failure rates suggests the process by which firms succeed and do not initially position themselves at a unique optimal size. Industries with high entry rates will also show high exit rates. The survival of mature firms is determined by the degree of depreciation or obsolescence in their original cumulative learning capabilities (Caves, 1998). That occurs as a firm ages and grows it is more certain about its costs, and therefore the mean and variance of its growth rate should decline.

Although many industrial organization studies contribute significantly to the understanding of the various market structures and firms' behavior, they are not sufficient to explain the evolution of industries. The industrial organization literature pays too little attention to the relationship between industry dynamics and the age of the industry (Van Kranenburg, 1999).

Organizational Ecology

The development of organizational theory took place in the late 1970s (Amburgey and Rao, 1996). Ecology of organizations is an approach to the sociology of organizations that builds on general ecological and evolutionary models of change in populations of organizations. The goal of this perspective is to understand the forces that shape the structures of organizations over long time spans (Hannan and Freeman, 1989).

Organizational ecology treats organizations as complex systems with strong limitations on flexibility and speed of response. The features of the theory are as follows. First, the ecological models are used as frameworks to study these sociological processes. Second, the theory concentrates on dynamics, particularly on the dynamics of processes that shape rates of entry and exit in populations of organizations, and these processes are studied over long periods of time. Third, in the process of studying such dynamics, the theory considers entire populations of organizations over the total history of these populations (Hannan and Freeman, 1989).

Reasons for developing the theory of Organizational Ecology are an interest in the causes of the vital events (birth, death, and mobility of firms and organizations), as well as a concern to structure connections between organization theory and social history. Research at the population level leads to an interest in history because the study of population dynamics frequently has to do with analysis over long periods of time. Furthermore, it leads to an understanding of the institutional context of organizational populations (Hannan and Freeman, 1989).

According to Carroll (1988) was the existing organizational theory was ignorant about founding and mortality processes. The focus should be on the vital rates, the entries and exits, which are the distinguishing features of ecology, which can be found in the present theory. Singh (1990) defines the central theme of the theory of Organizational Ecology as: "the investigation of how social environments shape rates of creation and death of organizational forms, rates of organizational founding and mortality, and rates of change in organizational forms." (p.11). Organizational ecology is the theoretical perspective that does not subscribe the adaptation model of organizational change. The ecological perspective challenges many of the fundamental features of the adaptation model and offers instead a selection model of organizational change. In the view of the selection model, adaptive change is not impossible, but this is seriously constrained. In this theory, organizations are seen as being characterized by strong inertial forces, and these forces are thought to limit the flexibility of change. From this viewpoint, then, most organizational change occurring in any historical period is the result of processes of organizational selection and replacement rather than internal change and adaptation. In this way, organizational ecology demands attention to patterns of organizational foundings and mortality, the visible outcome of the selection processes (Carroll, 1988).

The most important element in population ecology is the population of organizations. The crucial assumption in organizational ecology is that organizational populations can be defined so that they have a unitary character: the members of the population must have a mutual

standing with respect to the processes of interest (creation, dissolution and transformation) (Amburey and Rao, 1996).

A critique of the theory of Organizational Ecology is that in the population set, very large and very small firms are taken together as one homogeneous population of firms, despite the fact that very large firms have different routines and characteristics than small firms. The reason for defining the population set like this is the condition that the new (small) firms are potentially competitive with large firms. Furthermore, the large firms in the population set started as small firms as well. Excluding the small firms from the population until they became competitively important entails selection bias and obscures the many underlying processes of evolution, whatever the eventual outcome.

Density model of competition and legitimation

The density model of competition and legitimation identifies a relationship between entry and exit rates. The number of firms (density) in an industrial sector is the core variable in the explanation in the entry and exit rates (Hannan and Carroll, 1992).

The model assumes that change occurs mainly through the selective replacement of different organizations, rather than through the adaptations of individual organizations. Carroll (1997) assumes that there are two forces of selection: social legitimation and diffuse competition. Social legitimation refers to the taken-for-granted nature of particular organization as the 'natural' ways of doing certain things. Diffuse competition refers to the competition that arises when organizations depend on the same set of finite resources (for example skilled labor). Diffuse competition implies that the viability of particular types of organizations will drop when there are many firms acquiring these resources (Carroll, 1997).

Low or absent legitimation implies that organizing is difficult: capital suppliers are cautious; suppliers and customers need to be informed; employees may be hard to find and hire; and often institutional rules have to be changed. As more firms appear, legitimation increases. Initially, when the number of organizations is low, the returns to legitimation of adding another organization are large. However, when many organizations are present in the population, legitimation increases little or not at all when the density of the population rises. In other words, legitimation of an organizational population increases with the density at a decreasing rate (Carroll, 1997).

This interaction between competition and legitimation can be observed in the organizational births and death of firms in this population. When legitimation increases, entrepreneurs see an opportunity and are more attracted to start such a type of business. Organizations founded

during periods of growing legitimation also find it easier to attract capital, suppliers, customers and employees. They also encounter fewer institutional obstacles. For that reason as legitimation rises, not only do organizational founding rates increase but mortality rates decline as well. By contrast, when diffuse competition in an organizational population intensifies quickly, entrepreneurs become cautious (Carroll, 1997). This process can be seen in figure 1.

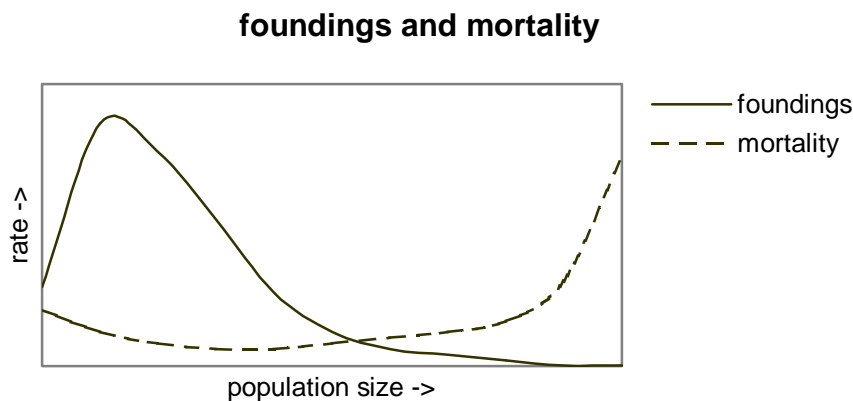


Figure 1: Founding and mortality. Source: Carroll, 1997, p.128.

When density is low competition is minimal. The competition intensifies as the size of the population increases, resulting in a higher chance of mortality for some population members. Decreasing birth rates and / or increasing death rates result, slowly causing the population's overall growth rate to decline and eventually equal zero. A continued increase in the number of deaths implies an unhealthy environment for firms. The effect of density on the mortality rate is predicted to be negative at low density and positive at high density (Hannan and Carroll, 1992). Entrepreneurs respond to this unhealthy environment by staying away and not starting up new organizations, and the number of foundings decline. Similarly, an initial increase in the creation of new organizations encourages the creation of other firms because this creation can be interpreted as a sign of a supportive environment (Aldrich and Staber, 1988). This competition can also be indirect. The growth of one population of organizations may reduce the growth of another population even though the members of these two populations never interact directly (Hannan and Freeman, 1989). Organizations founded in periods of high density are expected to have higher age-specific mortality rates. Resources can be scarce in high-density periods, conditions that could cause mortality in less strong organizations (Swaminathan, 1996).

Criticisms on the density model are: first, the concept of social legitimation is not very clear, it is hard to find direct measures for this concept and it should be broadened by including legal and socio-political legitimacy. Second, the density variable is an incomplete way to measure evolution. In this variable size or location, for example, should also be included. Third, the diffusion competition component should be better replaced by a direct competition component, to give a better representation of evolution than does diffuse competition (Carroll, 1997). One of the advantages of the density model is the generalizability of the model because it can be applied to very diverse populations of firms, including all sizes of firms (Amburgey and Roa, 1996).

Liability of newness

The Liability of newness hypothesis assumes that a lack of social agreement, stability and sufficient resources typifies recent entries into a population and that these shortcomings increase the risk of failure for the new firm. Empirical evidence indicates that organizational mortality tends to decline with increased size, and therefore large organizations are expected to be less vulnerable to the risk of failure (Baum and Oliver, 1991). Furthermore, the liability of newness argument links problems faced by young organizations, such as barriers to entry, inability to attract skilled labor, and difficulties of internal organization, to an increased risk of failure. The mortality rates of organizations in a particular cohort may depend not only on organizational age, as suggested by the liability of newness argument, but also on the interaction between organizational age and initial conditions such as environmental conditions at founding (Swaminathan, 1996). Hannan and Freeman (1989) add to this that new organizations fail at higher rates than old ones. New organizations are vulnerable because they are strangers in the population, they have to create roles and routines, and they cannot rely on generalized skills and experience available in the labor market. Mortality rates drop sharply with age even when the initial size of organizations is taken into account. The possibility exists that age variation in mortality rates is deceptive in the sense that it reflects only the operation of unobserved but age-dependent heterogeneity in cohorts of organizations. According to Bruderer and Singh (1996) environmental selection influences adaptation, and adaptation, in turn, influences the selection process. Learning and selection are fundamentally interdependent processes because adaptation enhances inertia, even as inertia accelerates the process of environmental selection. There are three processes that influence organizational evolution. These processes are 1) variation, or the birth of innovative organizational forms. 2)

Organizational learning as an example of adaptation. 3) Selection, that is the death rates of organizational forms to their relative fitness (Bruderer and Singh, 1996).

Mortality of firms

Ecological research on mortality overlooks how existing organizations are embedded in social networks. Social ties can serve as conduits for the transmission of hostile influences and hasten death. The impact of these social ties on death rates and firms can be connected through strategic alliances and joint ventures. Unlike individual organizations that fail by liquidation or absorption, enterprise groups cease to exist when the links between the central unit and constituent organizations are severed (Amburgey and Rao, 1996). There is evidentially a difference in the causes of mortality, when one looks either to individual firms or to networks of firms.

Nevertheless, there is no reason why individual organizations cannot live forever (Carroll, 1988). The definition of mortality in strictly organizational terms is as follows: "An organization ends when it ceases to carry out routine actions that sustain its structure, maintain flows of resources, and secure the allegiance of members." (Hannan and Freeman, 1989, p.149) The different sub-processes in the mortality process include:

- Formal dissolution: some formal decision is made to end an organization (bankruptcy).
- Resource contraction: organizations, especially those tied to an area or to a technology, often experience a period of protracted decline in resources prior to failure.
- Loss of participation: employees are laid off or quit, members resign, board members resign, and regular customers and suppliers withdraw.
- Disorganization: the structure dissolves as people's behavior no longer fits customary organizational roles, deviant behavior abounds, and coercive power replaces authority.
- Cessation of operations: the organization no longer makes its products, provides its services, or processes information (Hannan and Freeman, 1989).

Institutional theorists have proposed that an organization is more likely to survive if it obtains legitimacy and social support. Organizational ecology theory suggests that organizational survival is the result of environmental demands that differentially select adaptive forms for retention by an organizational population. Among the environmental selection criteria recently elaborated by organizational ecologists are external pressures for legitimacy and the forces of competition and institutionalization in organizational populations (Baum and Oliver, 1991). An institutional linkage is defined here as a direct and regularized relationship between an organization and an institution in the organization's environment (Baum and Oliver).

Analyzing mortality is more complicated than analyzing birth and entry of firms. Processes of founding and entry are only characteristics at the population level. Mortality processes occur at both the organizational level and the population level. The effect of a particular shock (for example: financial panic, major strike) on an organizational population depends on the age distribution of the population and the relationship between age and mortality rates (Hannan and Freeman, 1989).

Organizations founded in adverse environments experience higher initial mortality rates. However, beyond a certain age, survivors among such organizations have mortality rates that are lower than those of organizations founded in less adverse environments (Swaminathan, 1996). In other words, organizations founded when the level of environmental resources is low and competition for these resources is high experience higher mortality rates. The adverse founding conditions may eliminate the weaker organizations more quickly, leaving behind a surviving cohort of stronger organizations. This results in a population of survivors with lower mortality rates.

Surviving firms are more likely to have been exposed to organizational routines that result in failure and through a process of vicarious learning avoid the development or acquisition of such routines (Swaminathan, 1996).

Firms and spatial environment

In order to use the two explained theories in the research-project 'Old firms in the Netherlands' it is important to apply the constructed theoretical concepts into useable questions with a spatial context. After all, this research has the incentive to find spatial factors that influence the survival of firms in the Netherlands. Therefore, the goal is to find the critical variables affecting survival, with the necessity to derive measures for these variables out of a spatial context -- in other words the location of the firms.

Caves (1998) write that the survival of mature firms is determined by the degree of depreciation or obsolescence in their original cumulative learning abilities. This means that if the firm's abilities for learning become out-moded or old-fashioned, or if these learning abilities reduce over the years, this will also lessen the chance of survival of the firm. But what are these learning capabilities? The learning abilities of firms can be seen as the way firms adapt to changes in their environment. Furthermore, the flexibility of this adaptation defines the learning capabilities. These can also be described as the speed of response firms have to the changes in environment. The environment of the firm according to Walker (1975) includes all factors not in control of the firm. These include the actions of suppliers, buyers,

government departments and the whole range of events that comprise the general economic and social conditions in the society in which the firm operates. Vaessen (1993) uses Walker's view in his research 'small business growth in contrasting environments', although Vaessen clearly makes a difference between the 'business' environment and the 'spatial' environment. Vaessen (1990, 1993) uses Walker's view, but adds the location of suppliers, customers and other actors relative to the location of the firm.

First of all, the firm itself cannot learn, but the individuals in the firm, the management of the firm, can. The firm that responds fastest to changes are the firms that are best suited to the environment. These best-suited firms have a higher chance of surviving. This form of adaptation, or response capabilities, can be seen as competition, the fittest in the struggle for life. The stiffer the competition in the firms' environment, the greater the necessity for improvement (Walker, 1975).

The learning process that copes with the spatial dimension is referred to as the spatial adaptation. As a result of environmental change such as the price of inputs from various sources, the size of demand in different areas, or the cost of transportation, locational adaptation can be the solution. This can be through moving the entire firm, building a new plant, or closing an existing one (Walker, 1975). Watts (1975) agrees with this view. According to Watts, the survival of the firm in the long run depends on the ability of the firm to extend or intensify its market area. Vaessen (1993) agrees that firms can learn to survive in contrasting environments through the extension of its market to a national, or international level.

Carroll (1998) states that most organizational change occurring in any historical period is the result of processes of organizational selection and replacement rather than internal change and adaptation. In order to make this statement more clearly it is important to discuss the processes of selection. According to Pfeffer (1982) the change in populations of organizations occurs because of the operation of selection processes working on those organizations. The importance of selections derives from the fact that there are both internal and external constraints on the adaptability (the ability to learn) of organizations.

This selection process is also called natural or ecological selection, or evolution. Aldrich and Pfeffer (1976) prefer natural selection to evolution, because evolution implies that there is a movement towards higher forms of social organizations or to better firms. However, this is not the case. The process of natural selection moves towards a better fit of the firms with the environment, nothing more (p.80).

There are three processes that influence organizational selection. These processes are 1) Variation, or birth of innovative firms. 2) Organizational learning as an example of adaptation. 3) Selection, that is death rates of firms to their relative fitness (Bruderer and Singh, 1996). Aldrich and Pfeffer (1976) use also three stages in the selection process, these are: first, occurrence of variation; second, the operation of consistent selection criteria that differentially select some variations over others or selectively eliminate certain variations; and third, the operation of a retention mechanism for the selective retention of the positively selected variation (p.81). These three processes all occur simultaneously in the population of firms (Freeman, 1981). The most important stage in the light of this paper is the process of selection.

Aldrich and Pfeffer (1982) distinguish two different models of selection that both agree on the importance of organizational environments for understanding organizational decisions and structures. First the model of natural selection, with the strongest argument for an environmental perspective, posits that environmental factors select those organizational characteristics that best fit the environment. Second, the model of political economy, that argues for greater attention to internal organizational political decision-making processes and for the perspective that organizations seek to manage or strategically adapt to their environment. Thinking back to Carroll's statement, the model of natural selection fits this paper best.

According to this model, selection is based on survival of different structural forms, rather than on the adaptation of a single organizational unit. Furthermore, the process does not make a distinction between the survival of long-existing structures or new emerged firms. This is because the length of an organizational 'generation' is not known, if such a thing exists. In the long run only those organizations that fit the environment best will survive (Aldrich and Pfeffer, 1976). For this, it is important which variables are concerned with such an organization-environment match. This fitness of the firms to the environment refers, according to Freeman (1981), to how many organizations of a given kind can be observed in a locally bounded area. He described two characteristics that influence this fitness. First it is important in what way the organizations acquire resources and second, it is important to know if there are many similar firms in the same bounded area (competition). Aldrich and Pfeffer (1976) add to this that for the survival of firms the following facts can be of importance; economies of scale, cost barriers and product differentiation. Pfeffer (1982) also argues that the market of buyers and suppliers can have an influence on the survival of firms.

Another point of discussion is legitimation. As legitimation rises, not only do organizational founding rates increase but mortality declines as well (Carroll, 1997). Institutional theorists have proposed that an organization is more likely to survive if it obtains legitimacy and social support. Organizational ecology theory suggests that organizational survival is the result of environmental demands that differentially select adaptive forms for retention by an organizational population. Among the environmental selection criteria are external pressures for legitimacy and the forces of competition and institutionalization in organizational populations (Baum and Oliver, 1991). This argument needs some specification of the term 'legitimation' and how this influences the spatial surroundings of the firm. Carroll (1997) defines legitimation as the taken-for-granted nature of a particular organization as the 'natural' way of doing certain things. Carroll gives the next example (p.125): Universities, with their medieval social structures, are the socially taken for granted organizational form for accomplishing basic research and advanced education in modern society. The definition derives from the so-called institutional perspective on organizations, a decidedly phenomenological theory, as described by Meyer and Rowan in 1977. In other words legitimation is the reception of an organization in the society.

In the case of the survival of firms the legitimation can be seen as a certain amount of embeddedness in a bounded environment or region (Stam, forthcoming). The more institutional links a firm has in its own region, with for example suppliers, customers and governmental departments, the more it is generally accepted that the firm 'belongs' there and the chances of survival will get higher.

Density of a region is also important for the chances of survival. Organizations founded in periods of high density are expected to have higher age-specific mortality rates. Resources can be scarce in high-density periods, conditions that could cause mortality in less strong organizations. Using this framework, the density variable is an incomplete way to measure evolution. Not only the number of firms is useful in measuring evolution. In this variable size and location should be included (Saminathan, 1996; Carroll, 1997). The higher the density is in a certain area, the more competition there will be in this region. If then size is included, it is so that the large firms have more power to reach the resources and because of economies-of-scale, a better competition-position against the smaller firms (Aldrich and Pfeffer, 1976). This also is applicable for the location variable. When a firm is situated in a better location (for example, with greater accessibility and proximity to resources and customers, than its competition in a high-density region) this firm clearly has better chances of survival.

Empirical evidence indicates that organizational mortality tends to decline with increased size and therefore large organizations are expected to be less vulnerable to the risk of failure (Baum and Oliver, 1991; Freeman, 1981). It should be recognized that there is some evidence that concentration of resources in fewer large organizations is increasing, and that clearly these larger organizations and comparable organizations in the public sector dominate many aspects of current life (Aldrich and Pfeffer, 1976). As stated before, larger companies have more power and better economies of scale. Another way of reasoning can be that the large firms started as small firms, and have already managed to survive until now. This proven survival or fitness could be due to, location, product differentiation, lack of competition or innovation, for example.

The mortality rates of organizations in a particular cohort may depend not only on organizational age, but also on the interaction between organizational age and initial conditions such as environmental conditions at founding. In adverse environments the weaker firms are being eliminated early and the surviving firms are hardened by battle. Mortality rates drop sharply with age. Organizations founded in adverse environments experience higher initial mortality rates. However, beyond a certain age, survivors among such organizations have mortality rates that are lower than those organizations founded in less adverse environments. The adverse founding conditions may eliminate the weaker organizations more quickly, leaving behind a surviving cohort of stronger organizations. This results in a population with lower mortality rates (Swaminathan, 1996). Walker (1975) rephrased this writing as the fittest in the struggle for life will be the survivor. How can this adverse environment be considered? What are the elements of this environment that make it so adverse in comparison with other regions? Amburgey and Roa (1996) say that ecological research on mortality overlooks how existing organizations are embedded in social networks. This assumes that social networks are also regional networks, because the contacts a firm has are mostly over a short distance. This could be one argument, if a firm has a less strong social network, it has less chance of survival. This is because it will take more input to get the same output. If one looks at the study from Vaessen (1993) 'Small business growth in contrasting environments' it is clear that it is possible for firms to start up in environments that are less obvious and that it is very likely for these firms to succeed in these environments. Even so, it gives these firms, when they survive the first years, better chances for survival in the long run. This is because these firms had to cope with longer distances for customers and suppliers

from the beginning. Those firms start with a much broader market than firms that start in cities that have a very regional market. Vaessen concludes that the success of firms is a function of both the way they behave and the economic environment in which they exist (1990, 1993).

Old firms in the Netherlands

Theories in regional science can take two different approaches toward firm and environment. First, one can infer the behavior and functions of organizations from the environment in which the firms are located. The spatial environment is in this view of overriding importance for the formation, behavior and performance of the firms. Here little is left for the firm to influence the environment in which it is located. Second, one can see the environment in which the firms are located as the result of the firms' behavior and activities. In this view, the firms have more freedom of choice. There is a close attention to the decisions and organizational structures and the influence these have on the spatial environment.

In the research project 'Old firms in the Netherlands' we chose for the first approach. We assume that the survival, the 'aging' of firms is to a large extent specified by the environment. The way the spatial environment is (in which the firm is located) and how these firms behave in this given environment is presumed to contribute to the chances of survival. Variables that could determine this survival are, among other things; the density of the location region, the size of the firm and the size of the firm's market, the modes and costs of transportation, the accessibility of the firm and the size of the competition. The objective of the research project 'Old firms in the Netherlands' is to get insight into: 1) The regional differences in the age composition of the population of old firms in the Netherlands, with special attention to the occurrence of older firms: 2) The relationship between the existence of old firms and the spatial conditions in which these firms operate; 3) The spatial aspects of the entire firm lifecycle, in particular the latter stage of this cycle. The research is spatially orientated on the development of firm lifecycles in long term periods.

This paper is first step toward the operationalization of the second part of the research project's objective. However right now the attention is focused on the relationship between the spatial conditions and the survival of firms, rather than on the relationship with old firms. Nevertheless, when a spatial relationship between survival and spatial conditions is found, it might give useful insights in the relationship between old firms and the spatial environment.

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