

17. THE DEMOGRAPHY OF FIRMS: PROGRESS AND PROBLEMS IN EMPIRICAL RESEARCH

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17.1 Demography of firms: key events and related issues

At first sight birth, death and migration of firms are the key events to be studied in the demography of firms approach, because these are the three magnitudes which arithmetically determine the growth and structure of populations, either populations of people or populations of firms. However, a thorough consideration of the contributions to this volume learns that many arguments are available to widen this rather strict arithmetic conception. First of all, we have to realize that the demography of firms approach is ultimately meant to be an analytical road to the explanation of the structure and change of the space economy, and for this not the firm population size (in numbers of firms) as such is of interest but the attendant level of economic activity, which is more commonly measured in numbers of jobs than in numbers of firms. This consideration has important consequences for the scope of key events to be included in the demography of firms approach, because in many and probably most cases local and regional employment changes are more determined by the growth and decline of *existing* firms than by the *mutations* of the firm population in terms of new establishments, closures, and moves. Classic firm demographic studies *avant la lettre* such as Cameron and Clark (1966), Stanback and Knight (1970) and also the studies of Allaman and Birch (1975) of the early nineteen seventies into the composition of employment change in the United States have already shown this and since then it has been repeated many times. In this volume, the contributions by Bade and Nerlinger (chapter 7) and Van Vilsteren and Wever (chapter 13) mention this argument.

Thus, there are good reasons to include growth and decline as key events in the demography of firms. But at the same time one might question the self-evidence of including migration as such a key event. In the demographic metaphor, birth and death are the natural beginning and end of the firm's life cycle. Sticking to the metaphor, life cycle events such as marriage and procreation - in the business world corresponding to phenomena such as firm mergers and spin-offs - maybe have a greater right to be labelled as "natural" key events than migration. Migration is just a thing that can happen in one's life time, but is not a natural, existential part of the life path as perceived by humans. Migration is not a goal in itself, but often a consequence of other decisions. However, migration is especially important from a spatial perspective, because it implies a spatial reallocation of economic activity. So, it certainly can't be missed in the demography of firms approach. Conversely, a phenomenon such as marriage may seem very crucial as a life cycle event, but the empirical study of the Hillsdown company by Van Vilsteren and Wever in this volume shows that firm mergers have no clear and direct effect on the organisation's location pattern, which questions its real significance for the demography of firms approach, if pursued in a spatial context.

Clearly, the demographic metaphor creates some problems when one wants to use it as a basis for the demarcation of the firm demographic research field. In this volume, as we already stated in the introductory article (chapter 1) a broad interpretation of the firm demography concept was used, including birth, death and migration, firm growth and decline, mergers and spin-offs, but also embracing related issues, especially employment and innovation. In the latter case the firm demographic approach is not used merely to monitor and explain firm population developments in terms of the constituting key events, but as a tool to shed more light on these related issues. Especially the employment issue is of great relevance. After all, the demography of firms approach was originally developed as a device to produce a better understanding of the factors underlying employment growth (Birch 1979, Davis et al 1996) and therefore it is justified that we find employment issues running as a red thread through all chapters of this book. Although most of the empirical studies relate to either The Netherlands or Germany, the contributions concerning Mexico, South Africa and Japan serve as clear illustrations of Fuchs' rightful thesis (chapter 9) that the employment effects of firm development differ remarkably between economic systems. We have to be careful with generalisations.

In this final chapter we will summarize the main conclusions which can be drawn from the individual firm demographic analyses collected in the book, and from the discussions with and between the authors. We once more used the distinction between the firm demographic key events of birth, migration and death as the main ordering principle for the chapter. We start however with a consideration of the major methodological questions which have to be faced on the firm demographic research field. The article concludes with some observations concerning the space and time perspectives in firm demographic studies.

17.2 Methodological questions

A basic problem confronting firm demographic research is the lack of datasets of good quality. In many countries up-to-date firm registers are not available, let alone complete annual registrations of firm startups, firm migrations and firm closures. Sometimes partial data are available, for instance about startups and closures, but not about migration. Or only national data are available but no regional or even local subsets. Data about growth and decline of existing firms are scarce and often non-complete or polluted, and the same is true for other firm demographic key events one might want to consider such as firm mergers and spin-offs. The data problem is seriously aggravated by the unreliableness and incomparability of the data which are available. Incomparability is first of all the result of the very different definitions which can and are being used to register the demographic key events. For human beings birth, death and the other key events are very distinct categories, but for firms the same words may create a lot of confusion in the actual registration process. "They can have very different meanings" say Bertram and Schamp in their chapter (4) of this book, and in all its simplicity this is the hard core of the problem. A simple example: a migration of a firm which at the same time changes its name is easily understood as a closure here followed by a new firm establishment there. And what to think of a firm which moves and changes its name *and* range of activities

but keeps its juridical identity? What if for instance a shop reopens at another corner of the street with a broadened assortment, and a different proprietor. Or the same proprietor but a different name? When a manufacturing firm splits off part of its production to a branch plant elsewhere, is that a migration or a start-up? What is in fact the true basis for the registration of a mutation: the juridical entity, the premise, the products, the staff or the entrepreneur? Obviously, this problem is related to the question about the official basis of registering the firm as a firm, which can be either its legal presence, or its physical presence, or its trading activity, or the presence of employees. Sometimes, to facilitate (restrict) registration efforts for the statistician but to complicate things for the researcher, certain performance levels are used in either of such categories, i.e. to mark a certain moment in the start-up process which is not reached by all, or to differentiate between shorter and longer migration distances.

The complexities of registration clearly hamper comparisons, most of all between national systems, but also between different registration systems which are often used next to each other in the same country. The complexity frequently leads to inaccuracy as well, because also within one and the same system the interpretation of registration rules easily differs between persons, places, and moments of registration. Chapter 5 about firm migration in The Netherlands contains an example of the high grade of errors (one third) which is reached in the firm registration system of the Dutch Chambers of Commerce, which is nevertheless rather intensively used as a basis for all kinds of research, including firm demographic research. We may safely assume that this is not an isolated example, and that data flaws cause difficulties in firm demographic research in most if not all countries. This can have serious consequences for the eventual conclusions, and this holds even more true when small deviations occur between data selections made by individual researchers. However, here one gets easily from the proper data problems into data interpretation problems, which are in fact of a different kind. As an example we may take the different results which are reported with respect to firm migration movements in The Netherlands by Van Dijk et al (chapter 5) and Atzema and Lambooy (chapter 6). The former report up to and included 1995 an ongoing loss of firms by the Randstad region, while the latter conclude that from 1995 onwards this loss is substantially reduced by a sudden growth of firm immigrations. Both use the same data source (Chamber of Commerce) but the difference - especially for the year 1995 - may well be explained by slight deviations in defining the migration streams (all firms versus all firms with 5 employees and more, all sectors versus firms in industry, wholesale and business services only, etcetera).

As a result of the data problems, in particular the unreliability of official registrations and the unsureness resulting from slightly deviating data selections, we witness a growing use of firm panels for firm demographic research as a substitution for integral data-sets. This volume contains examples of both practices. Firm panels have the big and obvious advantage of being more accurate, reliable, and controllable for the researcher. Especially if one wants to study individual firm behaviour over a longer period of time, a firm panel is in fact an indispensable tool. On the other hand, panels are always and inevitably selections of the real firm populations, suffering from representativity problems. Especially young firms and small firms tend to be underrepresented in firm

panels, which is a serious problem for firm demographic research, as both the birth and migration events tend to concentrate in these age and size groups. As a matter of fact, the same is true for the third key variable, firm death (see Yamasaki, in chapter 11). Finally we have to consider that firm panels, especially the large and longer lasting ones, are a very expensive research device, which tends to erode severely after ten years or more, because of progressive member drop outs.

The data problem in empirical firm demographic research is an overwhelming one, but it is certainly not the only problem facing the researcher. Another relevant difficulty is the question of the research entity. It seems very obvious that in firm demographic research the *firm* is the research entity, i.e. the object or unit which is counted, followed, possibly approached with questions, etcetera. But as we know the firm is not always identical with an individual establishment, as in the case of *companies* with many branch plants. In such cases, there is the choice between monitoring individual establishments or companies. Furthermore, one could also argue that not the firm or the company, but the *entrepreneur* is the relevant entity, because he or she is the decision maker concerning the issues of starting a firm, merge it with another, sell it, expand or contract it, move it to another location, split it up, or ultimately close it. For large firms, the *business unit* or *market division* may also be regarded as the research entity, because it is on this level that most strategic decisions concerning firm demographic events are prepared and performed. Obviously, the choice of the research entity is related to the aim of the research. When a study is not aimed at strategic decision making as such, but only seeks to monitor the firm demographic events or to make quantitative forecasts about them, the firm is the natural unit of calculation and the region is the natural calculation framework.

Which models are best suited for firm demographic calculations is another matter of interesting debate, also looking at the experiences described in the chapters of this book. At present, firm demographic analyses tend to develop models in which, for instance, the establishment of a new firm or the relocation of an existing one are explained at once by a number of independent variables. Each of these factors has a distinct influence, to be expressed in a share or percentage, on the event which is to be explained. The question is whether this approach is an appropriate reflection of what happens in reality. Starting a firm or deciding on a relocation or any other firm demographic event in practice is not a snapshot happening, isolated in time, but a process. A *step wise approach* in model-building would give a more realistic expression of that process. It is certainly a challenge to firm demographic research to develop such multi phase models in the future. Another, related challenge would be the development of models which are able to negotiate the influence of factors on the different organizational levels on which they are exerted. i.e. the entrepreneur, the firm, the production environment, and the region. Such a *multi level analysis* approach is advocated by Van Oort et al (chapter 8) and would resemble a corresponding development which has been observable in population demographics (i.e. De Bruijn 1999). By measuring variables on different levels, firm demographic analysis could get a better hold of the complex processes of firm creation, growth and change than through the more conventional single level and single phase explanatory models.

17.3 Starters, survivors, growers and sprinters

Of all firm demographic events, the birth issue until now has been covered most intensively in empirical research and the reason for this is rather obvious: a high degree of firm creation is generally assumed to be a good indication of a healthy and growing local, regional or even national economy. As a rule, 10% or more is considered as high. In the United States the average startup level - in the early nineteen nineties - is even somewhat higher than this (annually between 11 and 12% new firms). In Europe Germany, the United Kingdom and The Netherlands also reach 11-12% while for instance Belgium, Finland, Sweden and Italy stay between 6 and 7%. Japan only has 4.5% new firms each year (EIM 1997). More interesting than the actual birth figure is in fact how many firms survive, and to which degree the survivors then are growers. According to the same source as just cited (EIM 1997) the UK may have a very high percentage of starters but at the same time shows a very low (less than 1%) share of survivors. Sweden and France are reported to have even negative survivor ratios. Germany (4%) and The Netherlands (5.5%) constitute the top in survivor ratios. Internationally comparable figures for the ensuing growth of survivors are not available, but on a national basis this is a matter of serious attention in empirical research, as shown by the contribution by Bruins et al to this volume (chapter 3). They report (for The Netherlands) that only 10% of the starters witness a substantial growth, measured in employment figures.

What explains the occasional appearance of some survivors as growers or even sprinters? Bruins et al point to the influence of "entrepreneur associated factors" i.e. personal backgrounds, motives and skills which tend to be disregarded in conventional theories of the firm but could well be of great influence, next to the more common firm- and environment related growth factors. Their observation is found back in the contribution by Van Vilsteren and Wever, who also stress the importance of the "personal factor" in their case study of the Hillsdown company. The question is of course how to get more insight into the nature and effective influence of this personal factor. Maybe research techniques such as cluster and factor analysis might help to identify relevant entrepreneur-oriented growth factors in future research endeavours concerning (new) firm growth. Special attention in future firm demographic research on starters - especially successful starters - should furthermore be paid to a category of starters which tends to become invisible as a consequence of their success, i.e. the successful growers which are taken over by other companies. On the firm demographic monitor, these firms vanish from the screen and thus are no longer identifiable as successful starters.

Although employment growth is the most commonly used indicator of the success of new firms, it should be stressed here that it is certainly not the only possible indicator. Bruins et al give an extensive discussion of this point in chapter 3. There are many possible alternatives. Value added is, for instance, used by Elsevier to determine the annual top 100 of "quick growers" in The Netherlands (Van Empel 1999). And of course, profitability could be used as an indicator. Yet another possible indicator of success could be innovation, or the early adoption of new concepts such as environmental management, which is used by Braun and Geibel (see chapter 15).

One of the most interesting results from a spatial science point of view is that firms which are successful in terms of any of these development criteria do not always show very

evident spatial concentration patterns. Or better said: the evidence is contradictory. Bade and Nerlinger (chapter 7) who work with employment figures as the main indicator for the activity of new firms (starters) do find distinct spatial differences in the presence of technology-based new firms in Germany, and using a multivariate model they discover a high positive correlation with the regional presence of R&D facilities. The influence of agglomeration factors is less clear, though. And a number of other contributors to this volume are plainly negative about the influence of spatial factors, for instance Bruins et al, Braun and Geibel, and Van Vilsteren and Wever. We will come back to their views in paragraph 17.6 which highlights the spatial factor in firm demography.

The overwhelming interest for the sheer numbers of newly created firms, their survival and success, and the factors which explain it, have thus far more or less obscured the interest of researchers for another question which is very important both from a theoretical and methodological point of view. This is a question addressed by Van Wissen (chapter 2), although not the main issue of his contribution, which tries to combine the firm demographic key elements of birth, death and migration into one comprehensive spatial simulation model. But relating to the birth variable in his model he poses the very interesting question whether firm foundings should be studied within an organisational approach or within a labour market approach. To state it simply: is a firm being born, or is a person becoming an entrepreneur? In the organizational approach, which we have followed thus far, a firm foundation is viewed within the context of a population of firms. In a labour market approach, firm foundation is related to the size of the labour supply. In the first approach institutions, product markets and firm strategies are crucial to understand what happens; in the second the attention shifts to personal characteristics and labour market factors. Future research should work out the differences between firm foundations defined from either of these two diverging views. The results will also be very interesting from a policy point of view, because it may lead to different views on what should best be done to stimulate new firm foundation.

17.4 Migration: a different reality on all geographical scales

Next to firm startups, firm migrations are the most frequently studied firm demographic event. The definition of firm migration, unlike new firm establishment or firm closure, is subject to differences in the geographical scale of observation. Local movements, from one address to another in the same town or city, are often neglected in empirical research, although they certainly are migrations in the true sense of the word: one location is changed for another. On higher levels, we can subsequently distinguish between intra-regional, inter-regional, international or even intercontinental migrations. Interregional moves have attracted a lot of attention in empirical research by professionals as well as by university researchers, also witness the various firm migration chapters in this book (5, 6, 14, and to a certain degree also 12) which all four focus on this level. This attention is understandable, because the interregional migration level corresponds with the object of regional development policy which is also a topic cherished by economic geographers, regional economists and planners. Firm relocation into policy assisted regions is the ultimate goal of many if not all regional economic policies, which try to achieve this by

offering favourable location conditions and/or investment premiums. The success or failure of such policies can be measured in terms of the numbers of relocations, and study of the push and pull motives given to understand by the relocated firms are food for thought for all policy parties. One particular field of interest are the irrational aspects of firm migration decisions, as highlighted by Enxing (chapter 14) in his behaviour-oriented study of advanced producer service firm migrations in Northrhine-Westfalia in Germany. He stresses the importance of personal factors in the (re)location decision. For The Netherlands, a comparable study was published in the nineteen eighties (Pellenbarg 1985). Other behavioural-oriented studies relating to firm migration were published already in the 1970s, by Baade (1979) and Townroe (1979).

Behavioural studies of firm migration have a natural interest for the interregional level, because it is on this level that managers are especially conscious of making a real spatial choice. On this level their awareness of spatial differences can be studied most fruitfully, including the interesting deviations from reality which are observable in the managers' mental maps. For a recent study showing mental maps by Dutch and German entrepreneurs (not necessarily movers) we may refer to Meester (1999).

What about the other spatial levels in firm migration research? We already mentioned the general lack of interest for local moves. On the one hand this is understandable because of the smaller impact of such moves on local and regional employment structures (and because of the difficulty of acquiring adequate data on this level). On the other hand the relative ignorance of the local moves is to be pitied, because from them a lot can be learned about the basic causes of firm migration, and the course of the inherent decision process. In almost all cases, a local move is considered by firms *before* eventually deciding upon a move over greater distances, so it is very much worth while to know more about this phase. Furthermore, firm relocations over short distances can be very important in order to facilitate adjustment processes in the local economy. For instance, the need for developing new residential areas, changes in infrastructure, or the tackling of certain environmental issues only becomes apparent *and* possible when substantial numbers of firms need to move to other (nearby) locations, to avoid further conflicts between the various economic functions.

The next spatial stage of considering firm migrations, placed between the local and the interregional, is the intraregional level: movement between places within regions. In practice, this is predominantly suburbanisation of firms from cities to neighbouring smaller towns and villages, a phenomenon studied rather frequently in many countries because of its relevance in the context of urban development and planning. Unfortunately the majority of such studies is undertaken by either government institutions on the local and regional level, or by consultancy firms commissioned by such institutions, which leads to many non-academic professional publications. The quantity of (mostly descriptive) research of firm migration on the urban/suburban level is thus not matched by the level of scientific knowledge.

If we cross the border, also literally, to international firm migrations, we enter a different world. Firm migration on the local, regional and national scale is dominated very much by small and medium sized firms. At the same time, relocating SME's seldom cross

national borders. International firm migration is the world not of the SME's but of the big firms, the multinational and transnational organisations. In their global sourcing strategies these MNO's and TNO's move their production plants, their distribution centres, their regional headquarters, R&D centres and back offices to and from over the earth's surface according to the actual state of cost factors and market prospects. In a way this is not at all comparable to what happens when an independent small or medium sized firm decides to relocate from the city centre to the city fringe, or from city A to suburb B, or from region X to region Y. Location decisions on the international scale are part of overall company strategies and master plans, and more often than not guided by the advice of internationally operating location consultants - quite contrary to relocation decisions by SME's which are seldom if ever subject to expert advice. The MNO and MTO relocations also differ from SME relocations in this respect that in most cases they do not concern integral but partial migrations. More often than not, international relocations are also part of company-wide restructuring processes and only comprehensible within that context. Within the discipline of economic geography, they can best be understood in the so-called geography of enterprise approach, instead of the behavioural approach which better suits the understanding of individual entrepreneurial decisions as in the case of most small and medium sized firms.

We have to realize that the growing internationalization of business gradually will bring the relocation strategies of many small and medium sized firms on a higher level, closer to that of the multinational enterprises. This is certainly observable in Europe, where the inner borders of the European Union have been opened since 1992, and the Union also expands to embrace more and more countries. This leads to a greater number of - also smaller - firms to consider alternative locations outside their home country, to handle at least part of their activities for which such alternative locations are more attractive than the present one. In 1994 it was front page news in The Netherlands that no less than 40% of Dutch firms were considering to move part of their activities abroad within the next 5 years, predominantly to other West- and East-European countries (Van Eenennaam 1994). At a closer look the menacing message only concerned member firms of the Federation of Exporting Firms in The Netherlands (Fenedex) which is certainly not an average firm population, and contains more big than small firms. Nevertheless, such research findings hold a warning not to neglect the international dimension in future firm migration research, even when such research focuses on small and medium sized firms. Recently, growing tensions on the labour market increase the chance that not only big but also small and medium sized firms will move to other countries. In May 2000 one of the national Dutch newspapers reported that in a survey among 2,500 firms in the two southern provinces of Zeeland and North Brabant no less than 5% of all firms declared to consider leaving the country - within the year! - because of severe labour shortage (Volkskrant 2000).

17.5 The end of the cycle: firm decline and closure

With the issue of firm closures we turn from birth to death, from the start to the end of the firm's life cycle, which seems to be far apart both in time and atmosphere from the excitement and expectations associated with the start of a new firm. Still, both events can come

very close together. Not only do many firms die within a few years after being born (the average percentage hovering around 50% after five or six years) but as we already mentioned in section 17.3 even the most successful starters may vanish quickly because they are taken over by other firms before they really come off the ground. And looking at Van Wissen's experiences described in chapter 2 it even seems to be a general rule that the most dynamic firms die quicker than other ones! But there is also contradictory evidence. Braun and Geibel (chapter 15) conclude that early adopters of innovation (in their case: managerial innovations, concerning environmental management standards) are significantly older than late adopters, which suggests that getting old as a firm depends of timely renovation. Van Geenhuizen confirms this, when she considers firms that avoid any disruptive strategies but follow a more gradual development path. She states that particular types of such path dependency can be deathly dangerous.

Although these are interesting observations, we still have to acknowledge that up till now not too much is known about dying firms in a spatial context. There is a modest list of literature on the theme of "plant closures" (for an interesting recent overview see Kirkham and Watts 1998) but most of this literature concentrates on MNO's. For SME's there is much less information available. So, compared to firm birth and firm migration, firm death is definitely the least observed sector of firm demography, which makes it all the more worth while to concentrate research efforts on it and thus shed more light on the later stages of the firm's life cycle. Attention for these later stages is needed and it not only includes the monitoring of firm closures as such, but also interest in the general characteristics of older firms and their spatial occurrence. Do old firms concentrate in certain regions? Are these the same regions with a high death rate? Or is reaching a high age by firms much more a positive than a negative indicator for the sanity of the regional economy? Shouldn't we pay much more attention to "mature firms" in firm demographic studies - like Van Geenhuizen does in her contribution (chapter 10) to this volume? Can reaching the old age for firms anyhow be associated with spatial factors? Is, ultimately, the death of firms to be associated with spatial factors? And if it is possible to connect illness and ensuing death of firms with the quality of the production environment, which are then the crucial location factors?

Because of the relative scarcity of firm demographic research focussing on firm closures, we have more questions than answers. This situation may well continue in the near future, because empirical research focussing on firm death has the definite handicap of missing data. The book of death for firms is not kept as well as that for humans. When firms cease to exist in other circumstances than bankruptcy, it may take years before it is noticed by any administrating institution. And even if the firm closures as such are correctly registered, one is left with the problem that the research object is no longer there! This makes it quite difficult to enter any in depth research into the dying process and the reasons behind the firm closure, let alone the spatial aspects thereof.

In this book some interesting information about decline and death of firms is presented in the three contributions by Yamasaki (chapter 11), Fox and Nel (chapter 12), and Bertram and Schamp (chapter 4). Yamasaki finds the general rule - in Japan, and for manufacturing industry - that the smaller firms are, the higher the closure rates. Only the very smallest firms (1-3 employees) are less inclined to close than the "medium small ones" (4-20 employees). He explains this from the Japanese context, in which these very small

firms are often highly specialised subcontractors, which are family owned, and very resistant to crisis situations. Firms with their roots firmly in the ground, and not so easy to weed out. How very different is the situation in South Africa's former "homeland" Ciskei, described by Fox and Nel in chapter 12. Production plants were relocated to this region by various and very generous financial incentives during the "apartheid" period but are being closed now one after another since the apartheid policy is dismantled. Although unique because of its racial policy context this story also clearly demonstrates the frailty of government policies aiming at influencing firm establishment c.q. firm migration. Or better said: the frailty of policy *results*, when such policies are counteractive to natural location tendencies.

The contribution of Bertram and Schamp (chapter 4) about declining industries in the German regions of Offenbach and Pirmasens, illustrates a totally different point of interest for the demography of firms: there are many different ways in which a firm can cease to exist. There are different - as the authors call it - "exit strategies" which can be followed, ranging from several forms of resistance to various forms of actual stopping. And - quite unexpected and without an equivalent in population demography - there is even life after death! At least part of the firms which disappear in their original form reappear ("reincarnate") in another one, in many cases even at the same location. It once more shows that like all demographic events also death of firms is a category dependent of definition. Incidentally, the phenomenon of life after death is certainly not restricted to Germany. It also showed very prominent in a recent research report on bankruptcies in The Netherlands (Knegt 1996) which discovered that no less than two thirds of all bankrupt firms make (in aviation terms) a "through start", meaning that they start operations again (usually on a more modest basis) after the bankruptcy has been settled in some form or another. It is assumed that many of these restarting firms yet die shortly after their through start, but there is no good empirical evidence of this.

17.6 The spatial factor in firm demography

The ultimate reason for entering a firm demographic approach, as stated in the introduction, is to find (better) explanations for spatial-economic structures and changes. Thus it seems reasonable - at the end of the book - to draw up a balance about what has been found in this respect. The empirical evidence then proves to be ambiguous. Certainly, many chapters give evidence of interesting spatial tendencies. One out of many examples is that Atzema and Lambooy (chapter 6) established a relationship between innovation, firm growth and migration. Bade and Nerlinger (chapter 7) report that technology intensive starters are most successful in suburban zones and less so in the centres of urban agglomerations. Such findings can also be interrelated: the successful starters - often originally established in central city areas - are innovators and growers, their growth leads to migration, and the most common destination are suburban zones, so this is where one finds the innovators. In this way, firm demographic research leads to interesting, space-oriented theories. But we have to admit that other firm demographic studies have a much more disappointing result when the spatial factor is at stake. For instance Bruins et al (chapter 3) explicitly state that they find no regional variation in the

occurrence of successful new firms, a result which is confirmed by the study concerning the annual top 100 of "quick growers" in The Netherlands which we cited in 17.3 (Van Empel 1999). A second example: Van Geenhuizen (chapter 10) in her evolutionary approach concludes that non-adaptive behaviour may be essential for the survival of firms, but that spatial factors are only of *indirect* importance here (i.e. through agglomeration cost and/or regional differences in capital availability). Braun and Geibel present a third case of doubts regarding spatial factors. In their study of firms engaging in environmental management (chapter 15) they have to conclude that spatial factors seem to be unimportant. More specifically, they find that firms in the (German) periphery are not generally slower in the implementation of new management tools than firms in economic core areas. After all, it might be argued that spatial relationships could have been found if they had followed the *impact* of environmental standards through forward and backward linkages with other firms, but this remains uncertain. As a fourth and final example, we can return to the aforementioned (in paragraph 17.1) conclusion by Van Vilsteren and Wever that take-overs of firms have no clear and direct effect on a big organisation's location pattern: in the Hillsdown case, most firms and jobs survived the successive take-overs. As the authors say, this is hardly surprising considering the fact that the Hillsdown acquisitions were part of a growth strategy, in which only healthy firms were involved, but nevertheless the conclusion is clear enough.

Doubts regarding the spatial factor in firm demography not only show from some contributions to this volume. We find them also in research findings published elsewhere. Davis et al (1996) in their book on Job Creation and Destruction argue that employment reallocation through destruction of old jobs and creation of new ones predominantly takes place *within* sectors and regions, instead of *between* them. Labour market dynamics mainly result from firm specific "shocks". This seems to point in the same direction as the findings by Van Dijk et al in this volume (chapter 5) in which the conclusion is drawn that firm internal factors (especially firm size, and also previous migration) are much more important explaining variables for firm migration than the classical location factors (and other, firm external factors). This is confirmed by Atzema and Lambooy (chapter 6) who also found that the internal organisation of the firm is the single most important migration factor. Explanation in firm demography maybe should reason much more from the individual firm and its life cycle, and less from firm external factors. And: spatial-economic variations are mainly found as *results* of firm demographic events; as causes of such events they play a less important role. In other words, and put more bluntly: the spatial factor is mainly found at the output side of firm demographic processes and not so much at the input side of them. Additionally, one could hypothesize that the influence of external, spatial factors is to be found in the *intensity* of a firm's specific strategic behaviour, more than in the *nature* of that behaviour .

17.7 Conclusions. The time perspective

In the preceding sections, a number of possibilities to further firm demographic research have already been mentioned. Successively, we advocated: a) conception of new (step wise, multi levels) models in empirical research, b) differentiation between different

forms of starting a firm, c) intensification of research on the local and the international levels of firm migration, and d) a focus on the firm's life cycle, and especially more attention for the later stages of this cycle. Still many more alternative routes forward are conceivable. In the penultimate chapter (16) Lagendijk for instance puts the challenge to oppose the strategies of the firm and the region. Regional case studies such as from the Tyneside region and the Bergisches Land show how a firm's interest can be to leave, whereas the region's interest is that it stays. Is it anyhow possible to make such interests compatible? Is locational stress, if detected early, "curable"? How can a policy be devised in which firms are "anchored" in the region? More policy-oriented studies are surely needed. A better understanding and possible forecasting of firm demographic events will be of great value for spatial policy and planning, especially the planning of business sites in quantities and qualities which will adequately meet demand, which is a matter of growing urgency because of the growing specificity of locational demands by individual firms.

Finally, there is one specific way of extending the demographic metaphor in firm-oriented spatial research which holds a promise for the future, that is to place the firm demographic events in a time perspective. This time perspective is already reflected in the wish to consider not only birth, death and migration, but also growth and shrink of existing firms in the course of time. Not a normal thing to do in population demography, but a very important step ahead in firm demography, because the contribution of growth and shrink of existing firms is often more important in the employment shift over time than the contribution of firm startups, firm closures and firm migrations, as we already mentioned in the introductory paragraph of this chapter. But introducing the time perspective includes more. It leads to the acknowledgement that the history of conception belongs as much to the demographic development as conception itself, just like weakness and disease are the interesting forebodes of death. In population demography we call this the "event history approach", and it is associated with a paradigm shift from a structure-oriented to a process-oriented demography (Willekens 1990). It seems all too clear that we should follow the same process-paradigm for firms as well, to be able to really understand why and where firms are born and grow, why and where they move and merge, and why and where they decrease and decrease. It is a development which also concords with the advocated focus on the firm's life cycle, and with the methodological trend to use firm panels as a research vehicle. The contributions to this book provide a number of valuable new insights in the various elements of firm demographic processes. If we come to a better understanding of these processes, we may eventually be able to identify structures again, but then on the higher level of spatial-economic systems, and integrate this knowledge into theories of firm location and regional economic growth, which constitutes the ultimate goal of all firm demographic research endeavours.

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