

Introduction

Spatial perspectives on firm demography

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1 Firm demography

Firm demography, or economic demography, or firmography as it is sometimes called, is traditionally concerned with the description of changes in the population of firms. Population demography considers birth and death as the most important events in a human life. These events are also important in the firm demography, where the event of firm migration (relocation) is traditionally added as a third key event because of its important spatial dimension. The firm demographic approach makes use of a set of biological metaphors. Firms are seen as living organisms, subject to processes like birth, growth, selection, ageing, illness, and death. This view is not completely new. Already in the 1970s organisational ecology was proposed to analyse sociological aspects of organisational change using specific models drawn from population ecology. The demographic notion of 'family' (or 'household') can also be applied to firms: individual firms can merge ('marry') with other firms or in other cases organisations can split ('divorce'). These processes of merging and separation can have important spatial side effects. Although growth and shrink are 'non-demographic' events in the sense that they have no direct counter-parts in population demography, these are nevertheless very important elements for the demography of firms approach. More recently, researchers have introduced explanatory analysis and models of demographic behaviour of firms from various disciplines. In regional science the behaviour of firms in a spatial context receives more and more attention. In this regard regional differences in the establishment of new firms, the exit of firms and the migration of firms are important elements. Regional economic development at an aggregate level is the result of many different factors that are interrelated in a very complex way. One of the key elements is the behaviour of firms in a spatial context. Therefore, in this special issue the various elements of the demography of firms will also be related to regional economic development, employment growth, regional policy, and spatial planning in several countries.

The article by Van Wissen aims to shed light on the possibilities to use and combine the various elements of firm demography to simulate the developments in size, composition, and location of firms over time. The article describes the structure of a spatial demographic simulation model of firms and its empirical application to The Netherlands. Based on transition functions for firm birth, firm closures, firm growth, and firm relocation a demographic cohort component type model is developed, where an initial cohort of firms ages in a number of discrete steps and where in each step additions and subtractions to and from the population are modelled.

The next three articles deal with various issues related to the birth of new firms. It ranges from determinants of success of entrepreneurs in The Netherlands and the spatial distribution of new technology-based firms in Germany up to the effect of air quality regulations on the location choice of 'dirty' firms in the United States.

The aim of Schutjens and Wever is to detect which factors determine whether or not a new-born firm will be successful in terms of employment growth and to a lesser extent turnover. Based on an extensive overview of the literature they distinguish three types of variables: entrepreneur-associated factors, firm-associated factors and external factors like for instance the regional production milieu. For the empirical analysis they apply a logistic regression model to data from a panel of 2000 Dutch firms. Based on this they derive a typology for successful and non-successful starters. They show that the most successful entrepreneurs are well prepared, have a business-partner at start up and compared to other starters their turnover and number of employees at the start is relatively high. The regional setting (urban versus rural) does not seem to play a role.

The article by Bade and Nerlinger focuses on the spatial distribution of the birth of new technology-based firms (NTBF). They find that in absolute terms most NTBF are found in core cities or in densely populated districts. In relative terms, start up rates are higher in the areas surrounding these regions. The empirical analysis makes use of a count data model applied to observations for 327 spatial districts in Germany. They find that the influence of agglomeration economies is of minor importance, but only for some type of firms. A high share of small and medium-sized firms may work as a seedbed for new firms because it goes together with a relatively high number of new foundations. A major result is the strong positive correlation between the number of NTBF start ups and the location of Research and Development (R&D) facilities comprising universities, technical colleges, non-university institutes as well as private R&D.

The article by List and McHone tries to detect to what extent environmental regulation influences the spatial behaviour of firms. The empirical analysis using a Poisson framework is based on county level panel data for New York State that contain information with regard to the effect of air quality regulations on the location choice of new pollution-intensive manufacturing plants. The results indicate that the birth rate of polluting firms tends to be lower in counties with more stringent environmental regulations. The empirical evidence suggests that

environmental regulations alter factor movements and may lead to a temporal “browning process” across space.

The final article of this special issue by Van Dijk and Pellenbarg focuses on the relocation process of existing firms. Aggregate data show that the number of firm relocations increases over time and leads to a spatial redistribution of employment. Further insights are derived from an empirical analysis of micro data of 1300 Dutch firms by means of an ordered probit model. In this model the stated propensity to move is related to three types of explanatory variables: firm internal factors, location factors (site and situation), and firm external factors. The results indicate that firm migration is mainly determined by firm internal factors, especially the firm life cycle. Location and external factors are of much less importance, which corresponds to the identical conclusion of Schutjens and Wever for new-born firms.

2 Policy relevance and research agenda

Reducing differences in unemployment between regions is still a major goal of regional policy and, therefore, it is not surprising that stimulating employment growth is often a very important element of regional policy programmes. The development of employment over time in a particular region is the result of the birth and death of firms, relocation of firms and of course, growth and decline of employment in existing firms. Taking this into account it is not surprising that Van Wissen indicates in his article that for spatial planning there is an increasing demand for models based on demographic concepts. The results of Van Wissen show that the development of an integrated model of all demographic components is still very difficult, because both theoretical and methodological problems have to be solved and high quality data are lacking. It is clear that the comprehensive model developed by Van Wissen in its present form is only of limited value for policy purposes.

The large attention for research on firm births in general is confirmed by the attention for this type of firm demographic research in this special issue. The articles in this issue show that useful policy information can be derived from such studies. The typology of starters developed by Schutjens and Wever can be a useful instrument for regional policy to select and stimulate potential entrepreneurs that are successful in terms of employment growth. Bade and Nerlinger identify the factors which are most important for spatial differences in the number of start ups of technology-based firms. List and McHone show that more stringent environmental regulations indeed influence the location of pollution intensive manufacturing firms. Although this may represent a Pareto improvement in terms of a more equal spatial distribution of economic activities, it does not imply that the welfare effects of environmental policy in terms of a reduction in pollution are positive.

Van Dijk and Pellenbarg show that in terms of numbers the spatial mobility of firms is not much less important than the issue of new firm formation. An important result of this article is that once a firm is located somewhere, a relocation

is mainly dependent on firm internal factors and to a much lesser extent on location factors and firm external factors. They show that firm migration may lead to a substantial spatial redistribution of employment. A spatial redistribution of firms can also be efficient from a macro-perspective, because in a small country like The Netherlands scarcity of land can be a burden on economic growth. The problem is that the benefits for individual firms are often small and the cost very high. Often only when firm internal factors, especially the firm life cycle, lead to the need to consider relocation the benefits of migration might be positive for an individual firm. This implies that a government policy to stimulate firm relocation – in order to realise macro-efficiency – will only be successful if this policy is specifically targeted to firms belonging to the pool of potential movers.

Insights into the various components of firm demography are also highly relevant for spatial planning purposes. On the one hand, there is an increasing demand for locations with certain specific characteristics. In order to realise scale effects, to benefit from agglomeration economies and networks, firms often prefer “labelled” industrial sites, like science-parks, eco-parks, logistic-parks, etc. Besides quantitative factors such as price and number of acres, the qualitative aspects of a location become more and more important. On the other hand, local governments try to fulfil these needs by developing sites with specific characteristics. However, often the number of firms that are willing to move to this specific site is too small to fill the site within a reasonable time span. As a result, other firms than the specific target group are also often allowed to settle on this site and this leads to a dilution of the site concept. More adequate models of firm demographic developments may help to forecast the demand for specific sites in a more detailed way and this would be a precious asset for spatial planning.

An important conclusion from the articles in this special issue is that the research in the field of firm demography might contribute to a better understanding of the spatial behaviour of firms. The results of this analysis can be used to get more insight into the factors that determine regional growth and the demand for specific types of locations. It is also clear that a lot more work has to be done. Especially, more work needs to be done on firm closures and firm growth and decline to get a more balanced view on the outcomes of the various demographic components for regional employment growth. When more sophisticated data sets will become available, the type of model developed by Van Wissen may become a very adequate policy tool. The ultimate challenge is of course to derive insights that permit a better integration of location theory and the theories of regional economic growth.