

Small Firms, Business Dynamics and Differential Development of Economic Well-Being

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ABSTRACT. In recent years a growing stream of research has examined the relationships between structural characteristics of regions and their levels of new firm formation. This empirical study aims at supplementing such findings with analyses that include other forms of business dynamics, and also the possible well-being effects of such dynamics. From a unique and comprehensive data set that tracks all births, deaths, expansions, and contractions of commercial business establishments in Sweden 1985–89, six groups of regions with different patterns of dynamics are extracted by means of cluster analysis. The clusters' structural characteristics and their development of economic well-being are also compared. The results suggest *a*) that the patterns of business dynamics are contingent on the structural characteristics of regions, *b*) that high formation and turnover of establishments are associated with a relative increase in economic well-being, and *c*) that small, autonomous firms have a vital role in this process.

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Introduction

In recent years, a burst of studies have investigated the relationships between structural characteristics of regions on one hand, and new firm formation on the other. Such studies have been carried out in several countries, including France (Guesnier, 1994), Germany (Audretsch and Fritsch, 1992, 1994; Fritsch, 1992), Ireland (Hart and Gudgin, 1994), Italy (Garofoli, 1992, 1994), Japan (LaPlant, 1992), Sweden (Davidsson, Lindmark and Olofsson, 1994a; Johannisson and Bång, 1991), U.K. (Keeble and Walker, 1994; Keeble, Walker and Robson, 1993; Westhead and Moyes, 1992) and the U.S. (Reynolds, 1994; Reynolds, Miller and Maki, 1993) among others.

These studies have been quite successful in several respects. The regression models they present typically explain 60–80 per cent of the variation in new firm formation rates. Further, the accumulation of empirical evidence from several countries has made it possible to make generalizations that have an unusually solid empirical backing. Comparing the results from seven countries, concerning firm birth rates in all economic sectors as well as in manufacturing only, Reynolds and Storey (1993) conclude:

For linear models predicting firm births in all economic sectors, the most significant process is growth in demand [measured as preceding period in-migration/population growth]. Three processes have a consistent positive effect: urbanization/agglomeration,; unemployment/desperation; and the presence of small firms and economic specialisation. There is a weak positive effect of household wealth. The presence of a liberal political climate has a mixed effect and there is no statistically significant impact from government actions (local spending programs of assistance) (p. 23; cf. also Reynolds, Storey and Westhead, 1994).

Thus, this line of research has made some real progress. However, like all research approaches the "regional characteristics → new firm formation" approach has its weaknesses. One of these is the question of causality, or, more generally, how to theoretically interpret the empirical relationships that recur in study after study. Other limitations are that the studies focus on but one aspect of business dynamics (new firm formation) and that the effects of new firm formation on economic growth or well-being are not tested in most cases.

The purpose of this paper is to present empirical analyses that do not focus solely on structural characteristics of regions and their rates of new firm formation. Instead, several measures of business dynamics are investigated. By application of cluster analysis groups of regions with different patterns of business dynamics are identified. The clusters are then compared as regards structural characteristics and the development of economic well-being during and after the period studied. With this approach the issue of new firm formation is viewed in a broader context of business dynamics in general.

Method

A unique and comprehensive data set, based on several of Statistics Sweden's business registers, was compiled for this study. For a more detailed description of the data compilation and quality checks see Davidsson, Lindmark and Olofsson (1993). The data set tracks all births, deaths, expansions and contractions of commercial business establishments (approx. 400,000 units; primary industries excluded) in 80 Swedish regions. From these data, the following types of dynamics measures were computed and used in the analyses:

Gross birth rate = No. of new establishments/
Working age population

Turnover rate = (No. of new establishments + No.
of dissolved establishments)/Stock of estab-
lishments

Net birth rate = (No. of new establishments -
No. of dissolved establishments)/Working age
population

Gross expansion = No. of expanding establish-
ments /Stock of establishments

Size turbulence = (No. of expanding establish-
ments + No. of contracting establishments)/
Stock of establishments

Net expansion = (No. of expanding establishments
- No. of contracting establishments)/Stock of
establishments

The variables were chosen to reflect the major job creation and resource reallocation processes in the regional economy. Dissolution and contraction rates could also have been entered. These processes are, however, reflected in the difference between gross and net rates and in the turnover/turbulence measures. Note that all measures concern the number of establishments involved. While data on job changes are also available, number of establishments was preferred because these measures are much less sensitive to occasional errors in the input data. For birth rates working age population rather than establishment stock was chosen as denominator because with the latter denominator a high rate may reflect either a high absolute number of new entrants or a small initial stock (i.e., large average establishment size) which causes problems of correct interpretation. More detailed definitions of the measures are given in the notes for Table I.

For data quality reasons, the business units are establishments rather than firms. This means that if a firm (the legal entity) has several establishments with different locations, changes that concern each of these establishments will be registered separately. The establishments are, however, classified in the register according to category affiliation. There are three types of business establishments: *Simples*, *Tops*, and *Branches* (cf. Reynolds *et al.*, 1993).

A *Simple* is a single-establishment firm with autonomous ownership, i.e., it does not form part of a corporate structure. It should be noted that such establishments are not necessarily "simple" in every sense of the word. *Simples* may provide sophisticated goods or services, and somewhat larger *Simples* may have complex internal structures or processes.

A *Top* is the top unit (e.g., headquarters) within a multi-establishment firm or company group.

A *Branch* is a unit other than the *Top* within a multi-establishment firm or company group.

Separate measures for dynamics among

Simples and Branches are used in the analyses. Important as they are, Tops are few in numbers and they are therefore excluded. The delineation between Simples and Branches does not correspond exactly to separating small firms from large firms. The vast majority of all existing autonomous firms are (small) Simples. While it can be shown that small firms to an increasing extent are eventually reorganized as multi-establishment firms (e.g., as a Top with one or more Branches), over 98 per cent of all *new* autonomous firms are Simples. The number of new Simples thus is a very close approximation of autonomous firm births.

While virtually all Simples are small firms – 99.99 per cent have less than 200 employees – it is not the case that all Branches are units within large firms. However, all measures concerning Branches are no doubt dominated by the behavior of large firms. It therefore makes sense to use Branches as an approximation of large firms, and to let the Simples category represent the small firm sector. To make it even more certain that the measures are dominated by the behavior of large firms, only somewhat larger Branches are included in measures that concern expansions and contractions of Branches.

The data concern the 1985–89 period. Importantly, the time period studied is one of increasing GNP, rapid employment growth in the private service sector, and very low unemployment in most regions. While the data set concerns annual changes we have chosen not to present year-by-year analyses. In order to utilize the material to the full while reducing the influence of stochastic variation, we analyze instead average annual changes during this four year period. For example, our measure of gross new firm formation is the average annual number of new Simples per 1,000 working age population during the 1985–89 period.

On the basis of travel-to-work statistics, the country's 280 communities were aggregated into 80 Labor Market Areas (LMAs). These constitute the regions used in the analyses. Their average population size is just above 100,000, with a range from about 2,000 to over 1 million. The large majority have populations in the 20,000 to 200,000 bracket. Most of the data on regional characteristics were collected from Statistics Sweden's data base on regional statistics (RSDB),

but other sources such as published research studies have also been utilized. Static descriptive data relate to the beginning of the period, i.e., 1985 or the closest available alternative. For the unemployment rate the average during the period was used. For dynamic descriptive variables (e.g., population growth) data on changes that occurred during the period preceding the period under study are used.

Six groups of regions with different patterns of business dynamics are identified by means of cluster analysis. While the groups are compared also as regards structural characteristics and the development of economic well-being, only measures of business dynamics were used to define the clusters. The specific clustering program used is SPSS PC+ clustering procedure using Ward's method, a hierarchical-agglomerative algorithm.

It should be noted that the study covers the entire population of Swedish regions and commercial business establishments. Statistical significance thus is a non-issue and such tests are therefore not reported.

Results

Business dynamics in the different clusters

After examination of different cluster solutions, a six cluster solution was chosen for further analysis. Figure 1 displays the location of the regions in each cluster. A list of the 80 regions and their cluster affiliation is given in Table III (Appendix).

Table I displays the cluster profiles for the 12 measures of dynamics included in the cluster analysis. Note that all measures concern the *number* of establishments involved (in relation to a relevant denominator). Six of the measures refer to dynamics among Simples whereas the other six concern Branches. The reported values are the arithmetic means for all LMAs in the cluster. All variables have been standardized, i.e., the grand mean is zero and the standard deviation is unity throughout. Hence the reported values show the size and direction of the clusters' deviations from the grand mean on a scale that is comparable across variables. Positive values indicate more dynamics and vice versa (for measures of net

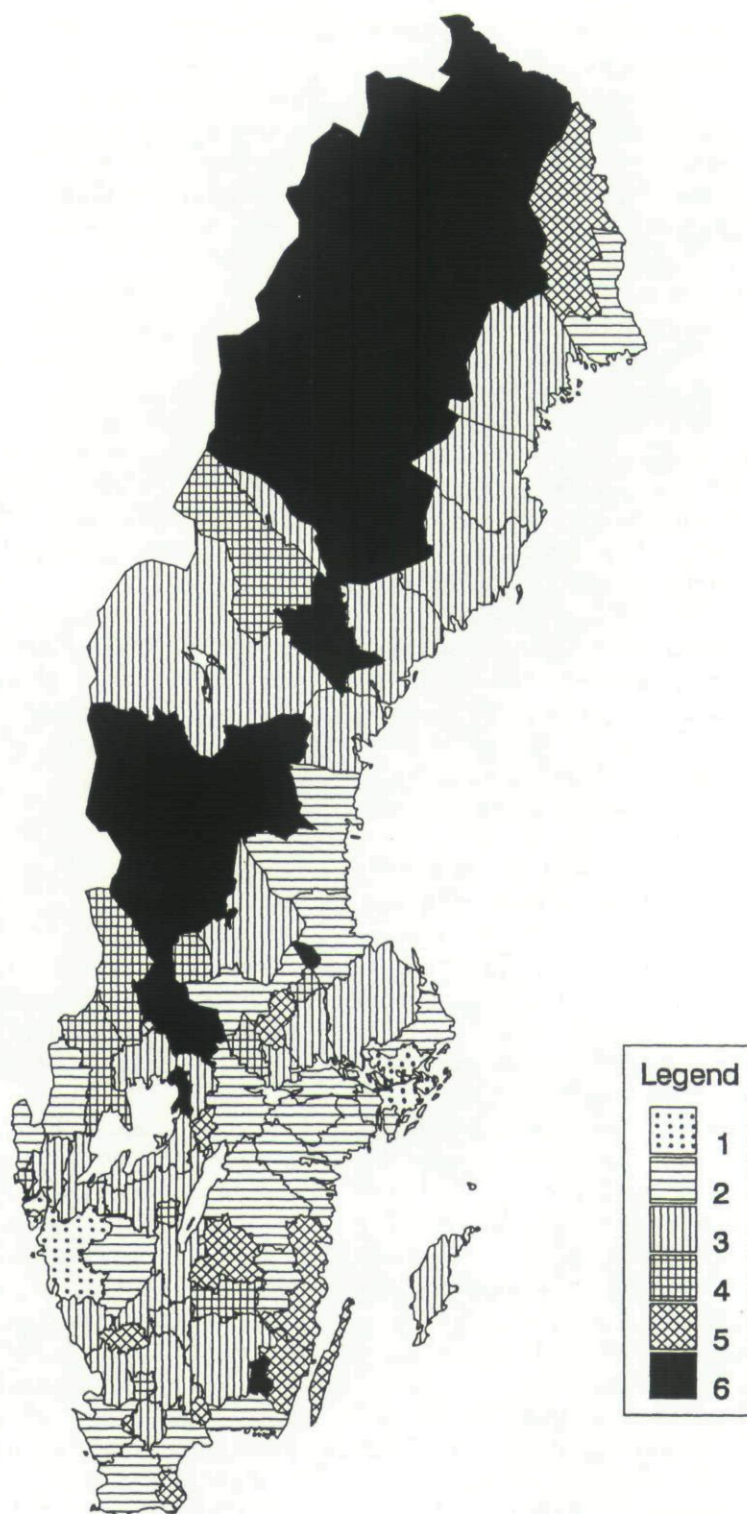


Fig. 1. Spatial distribution of the six clusters.

TABLE I
Patterns of dynamics in the different clusters

Variable ^a	C 1	C 2	C 3	C 4	C 5	C 6	Unstandar- dized mean	Unstandar- dized s.d.
1. Simples gross birth rate ^b	2.38	0.56	-0.19	-0.10	-0.49	-0.41	8.82	1.42
2. Simples turnover rate ^c	1.85	0.75	-0.06	-0.84	-0.56	-0.23	29.04	2.61
3. Simples net birth rate ^d	2.36	0.62	0.03	-0.73	-0.38	-0.60	1.04	0.95
4. Simples gross expansion ^e	-0.22	-0.77	0.73	0.09	-1.17	0.81	16.13	0.96
5. Simples size turbulence ^f	-0.05	-0.83	0.50	-0.20	-0.81	1.32	28.84	1.61
6. Simples net expansion ^g	-0.48	0.01	0.61	0.72	-1.05	-0.98	1.27	0.07
7. Branches gross birth rate ^h	2.63	-0.08	0.67	-0.91	-0.52	-0.56	0.66	0.19
8. Branches turnover rate ^h	2.34	0.22	0.48	-0.77	-0.60	-0.67	12.99	2.76
9. Branches net birth rate ^h	1.12	-0.07	0.67	-1.38	0.20	-0.59	0.11	0.14
10. Branches gross expansion ^h	-0.11	-0.27	-0.06	1.45	0.65	-1.31	40.56	4.75
11. Branches size turbulence ^h	0.36	-0.11	-0.21	0.73	0.28	-0.31	83.89	4.88
12. Branches net expansion ^h	-0.41	-0.31	0.00	1.35	0.63	-1.22	0.95	0.18

^a The table entries are standardized cluster means where a higher value indicates a more dynamic environment or, in the case of net dynamics, a more positive net result.

^b 1 = (No. of new Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89)/(Population 16-64 years 1985 + do. 1986 + do. 1987 + do. 1988).

^c 2 = (No. of new Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89 + No. of dissolved Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89)/(Stock of Simples 1985 + do. 1986 + do. 1987 + do. 1988).

^d 3 = (No. of new Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89 - No. of dissolved Simples 85/86 - do. 86/87 - do. 87/88 - do. 88/89)/(Population 16-64 years 1985 + do. 1986 + do. 1987 + do. 1988).

^e 4 = (No. of expanding Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89)/(Stock of Simples 1985 + do. 1986 + do. 1987 + do. 1988).

^f 5 = (No. of expanding Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89 + No. of contracting Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89)/(Stock of Simples 1985 + do. 1986 + do. 1987 + do. 1988).

^g 6 = (No. of expanding Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89)/(No. of contracting Simples 85/86 + do. 86/87 + do. 87/88 + do. 88/89).

^h Variables 7-12 are parallel to variables 1-6 but concern Branches instead of Simples. Variables 10-12 concern only Branches with more than 20 employees.

dynamics, the labels "more positive" and "more negative" changes might be more appropriate).

While standardized values make comparisons across variables easier, they give little information about the absolute size of the differences between the clusters. Therefore, the grand mean and standard deviation of each variable is given in the table. As a rule-of-thumb, a deviation (or pairwise cluster difference) of 0.50 is small but non-negligible. Differences that are greater than unity are substantial, while differences of 2.0 or more can be considered large.

The patterns of dynamics for the six clusters can be verbally described as follows:

Cluster 1 comprises the two LMAs in the country that are the largest in terms of population, i.e. Greater Stockholm and Greater Gothenburg. These areas stand out from the rest of the country by being considerably more dynamic in several respects. Sizeable positive

deviations occur for Simples as well as for Branches, but exclusively for measures of establishment formation and turnover (with a positive net result). As regards expansions and contractions the tendency for Cluster 1 is rather that it is somewhat less dynamic than other geographic areas. The cluster thus can be characterized as highly dynamic in terms of formation and turnover rates. *High formation/turnover* will in the following be used as a label for this cluster.

Cluster 2 is a fairly large group (20 LMAs) whose pattern of dynamics resembles that of Cluster 1 as far as Simples are concerned. Its level of dynamics is lower, however. Where Cluster 1 shows a large positive deviation, Cluster 2 tends to have a smaller deviation in the same direction, and where Cluster 1 has a small negative deviation, Cluster 2 has a larger negative deviation. While the patterns are similar for Simples, Cluster 2 lacks Cluster 1's high rates of formation and

turnover of Branches. As also its rates of Simples expansions and contractions are low, Cluster 2 seems to be characterized by a high entry and exit rate of very small firms that are not expansion oriented. The label *micro firm dynamic* might serve for this cluster.

Cluster 3 is the largest cluster, comprising 26 LMAs. For clusters that are large relative to the total number of cases, no very large deviations from the grand means should be expected. However, Cluster 3 displays a pattern of dynamics that is distinctively different from that of Cluster 2. While it does not have a high birth rate for Simples, the number of expanding Simples is high both relative to the stock and relative to the number of contractions (positive deviations for gross and net expansion). In addition, the cluster deviates positively as regards formation and turnover of Branches. This pattern indicates that whereas Cluster 3 has a lower rate of formation of new, independent firms than has Cluster 2, its small firm sector is more expansion oriented. Note that formation of new Branches does not only reflect that large firms set up new units; a new Branch is also registered when, e.g., a former Simple re-organizes into a multi-establishment firm. As Cluster 3 has the highest figure for Simples expansion, one might suspect that in this particular cluster a relatively large proportion of the new Branches are actually units within expanding small firms. Comparatively *expansion-oriented small firms* thus seems to characterize this group of regions.

For Simples, Cluster 4 (10 LMAs) has average values as regards gross formation as well as gross expansions. Turnover and 'size turbulence' are lower than average. Net formation is markedly low for Simples as well as for Branches, while the opposite is true for net expansions. The cluster has a distinctive pattern for Branches, with a low degree of dynamics and a negative net figure for formation. At the same time the proportion of growing Branches is high both in gross and net terms. While the latter result can be interpreted as the most positive feature of this group it can also be given a more negative interpretation. It is possible that the observed pattern actually reflects that existing business units were not successfully challenged by new entrants and that the larger firms in these areas did not go through the restruc-

turing towards smaller units that was otherwise characteristic for the studied period (cf. Davidsson, Lindmark and Olofsson, 1995). *More of the same* (low formation/high expansion) characterizes the cluster.

While showing fairly high figures for expansion of existing (larger) Branches, Cluster 5 (11 LMAs) deviates in the negative direction in most respects. The figures are particularly low for measures that concern expansion of existing Simples, but they are low also for formation and turnover of Simples. While existing Branches appear to have done well, relatively *non-dynamic small firms* (including a low birth rate of Simples) appears to be the most characteristic attribute of this cluster.

The 11 LMAs in Cluster 6, finally, appear to be the least dynamic group of regions. Apart from a markedly high figure for size changes among existing Simples – more due to a large number of contractions than a high proportion of expanding units although the latter proportion is also fairly high – the cluster has negative deviations for all measured aspects of business dynamics. The formation rate for Simples is low, but even more distinctive is that the larger firms in these areas appear to be on the decline. Hence the cluster is characterized by generally low dynamism with a declining large firm sector. *Net decline* will be used as a shorthand label.

In summary, the six clusters – described in short by the labels *high formation/turnover*, *micro firm dynamic*, *expansive small firms*, *more of the same*, *non-dynamic small firms*, and *net decline*, respectively – are characterized by varying degrees and types of business dynamics. Their total degree of business dynamics roughly coincides with their numbering sequence, Cluster 1 being the most and Cluster 6 the least dynamic business environment. If all forms of dynamics are given equal weight, clusters 2 and 3 should however exchange places since the latter shows a slightly higher degree of over-all dynamism than the former.

The structural characteristics of the clusters

As mentioned earlier, several studies have shown that a very considerable share of the regional variation in new firm formation can be explained – in the statistical sense – by variation in certain

structural characteristics of the regions. It therefore appears likely that also more complex regional differences in business dynamics are linked to such structural variation.

Table II reports cluster values for a number of structural factors that would typically be included when structural reasons for regional variations in start-up rates are sought for (cf. Reynolds and Storey, 1993) with the addition of some extra indicators of sectoral distribution of employment. Like in Table I the displayed figures are the arithmetic means for the standardized versions of the variables.

Cluster 1, defined by *high formation/turnover*, is equal to Greater Stockholm and Greater Gothenburg. They have socio-demographic characteristics typical for core regions. A comparatively large proportion of the large and dense population is found in the 25–44 years age bracket. The population trend was markedly positive prior to the studied period. Moreover, the population is characterized by high levels of education and income. Business is characterized by a low degree of concentration, a large share of

employment in the private service sector, and a low proportion of business units with out-of-region ownership.

While the *micro firm* dynamic Cluster 2 and the *expansive small firms* Cluster 3 in structural terms resemble the major cities more than clusters 4 through 6 do, they do not at all deviate as markedly from the grand mean. Most LMAs in these clusters have – for Swedish standards – large or above-average sized cores (population-wise). All but one of the sites for university level education are found in these clusters. Taken together the two clusters represent 46 out of the country's 80 LMAs and 62 percent of the population. The two clusters do not deviate markedly from one another in structural terms. Hence, clear links between their structural characteristics and their different patterns of business dynamics (Table I) cannot be found. Their regional spread seems to differ, however, Cluster 2 being more concentrated towards the eastern 'midlands' and the far south while Cluster 3 is more represented in the north-east and the south-west (cf. Fig. 1).

Cluster 4, *more of the same*, is the mirror image

TABLE II
Structural characteristics of the six clusters

Variable ^a	C 1	C 2	C 3	C 4	C 5	C 6
Age structure (pct. 25–44 years)	2.26	0.33	0.46	-0.86	-0.81	-0.50
Education (pct of 25–44 years with university education)	2.36	0.13	0.49	-0.87	-0.65	-0.40
Unemployment rate (1985–89 average)	-0.87	-0.15	-0.25	0.22	0.10	0.73
Public sector (pct of work-force)	0.12	-0.04	0.21	-0.54	-0.57	0.64
Agriculture (pct of work-force)	-1.08	-0.26	-0.34	0.28	0.06	1.14
Concentration (pct employed by the 3 largest firms)	-0.67	-0.41	-0.34	0.03	1.08	0.56
Small firm density (No. of Simples per 1000 inhabitants 16–64 years)	0.35	-0.15	-0.15	0.76	-0.10	-0.04
Manufacturing (pct. employed in)	-1.55	-0.14	-0.16	0.54	0.78	-0.34
Professional services (pct. employed in)	2.90	0.14	0.30	-0.65	-0.77	-0.11
Total population per LMA (logarithm)	2.62	0.53	0.34	-0.80	-0.83	-0.69
Population density (square root)	3.89	0.32	-0.00	-0.31	-0.15	-0.87
Capacity-to-reach ^b (index)	0.85	0.06	0.13	0.38	-0.09	-0.83
Population growth 1980–84	1.38	0.37	0.52	-0.50	-0.87	-0.83
Per capita income (all sources)	3.27	0.14	0.11	-0.82	-0.31	-0.07
Business support (1986) ^c	-0.56	-0.27	0.06	-0.09	-0.25	0.80
Pct socialist voters	-0.83	-0.12	-0.26	-0.17	0.26	0.88
Community tax level	-0.65	0.06	-0.24	0.54	-0.17	0.26
Pct. of establishments stock with out-of-region ownership	-1.90	-0.13	-0.17	0.03	0.04	0.92

^a All entries as standardized cluster means and concern conditions in 1985 when other base years are not indicated.

^b The capacity-to-reach index reflects how large a percentage of the country's inhabitants are reachable for an over-the-day visit (trips plus 4–8 hours stay) for a person starting in the region's core.

^c The business support variable concerns government expenditures per capita in 1986.

of Cluster 1 in terms of socio-demographic variables. The levels of income and education are the lowest, as is the proportion of 25–44 years old. The regional economy is characterized by a small service sector, public as well as private. While the manufacturing sector is relatively large the manufacturing employment is not concentrated to a few large employers. Cluster 4 is not dominated by small firms, but its small firm density is higher than that of the other clusters. While most are found in the southernmost third of the country (cf. Fig. 1) the regions in this cluster are nevertheless somewhat peripheral in character, located off major national roads and at a distance from national and regional centers.

Clusters 5 and 6 are socio-demographically similar. However, the LMAs in Cluster 6, *net decline*, tend to be more peripheral, heavily represented in the northern inlands. Hence the lower population density, the lower reachability, and the relatively large share employed in agriculture. Cluster 6 is also characterized by a large public sector, high occurrence of out-of-region ownership of business units (i.e., low regional autonomy) and high per capita business support expenditure. These LMAs further suffered from relatively high unemployment.

Cluster 5, *non-dynamic small firms*, is in its turn characterized by high manufacturing employment and a high degree of concentration to a few, large employers. The cluster comprises four of the country's five more extreme 'one-company LMAs' (cf. SCB/ERU, 1991). There is also some geographic concentration of this cluster to the south-east (cf. Fig. 1) which along with the northern inlands has a reputation for economic development problems during the last decades. Like Cluster 4, the share of employment in private and public services are relatively low.

In summary, the results in Table II clearly show that the six clusters have different structural characteristics. As the cluster solution is based solely on business dynamics data, this is not to be expected if systematic relationships did not exist between the structural characteristics of regions on one hand, and their patterns of business dynamics on the other. Hence the results determine that such systematic relationships exist.

At the same time the analysis illustrates some weaknesses of the clustering approach. For

example, a causal approach detects a strong positive relationship between current small firm density and Simples birth rate (Davidsson *et al.*, 1994a). This relationship does not stand out at all in the results presented here. Instead, small firm density is one of the least discriminating structural variables, and the highest value is found for Cluster 4 which has a modest birth rate for Simples.

More generally, while it can be concluded that systematic relationships exist between structural factors and business dynamics it is difficult to get, from this type of analysis, a clear image of the exact nature of these relationships. However, if structure and dynamics for Clusters 1–3 are compared to those of Clusters 4–6 a clear relationship emerges between a core-periphery dimension on one hand, and formation and turnover rates (for Simples and/or Branches) on the other. Clusters 1–3 have higher values for the population size, density, growth, education and income, and lower values for agricultural employment and employment concentration. These are all characteristics that relate to core vs. periphery. Clusters 1–3 also have higher values than Clusters 4–6 as regards all formation and turnover rates, the only exception being that Cluster 5 has a marginally higher value than Cluster 2 as regards net formation of Branches.

A positive agglomeration effect, probably reflecting better access to resources and markets as well as more intense local competition, thus appears to be one of the factors underlying regional differences not only in new firm formation (cf. Reynolds and Storey, 1993; Reynolds, Storey and Westhead, 1994) but formation and turnover of business establishments in general. Reynolds *et al.* (1993) do not, however, find strong relationships between "size of economic base" on one hand, and a "business volatility index" on the other for the US economy in the 1980–84 period. The core-periphery pattern found here may thus be country or time-period specific, possibly because agglomeration *diseconomies* are not very pronounced in a country where communities with 100,000 total population are considered large. It is difficult to find a simple formula for the factors behind variations in expansions among existing establishments in the Swedish data.

The development of economic well-being during the studied period

Studies from many countries have claimed that SMEs and autonomous firm births have become very significant contributors of new jobs in the last decades (e.g., Aiginger and Tichy, 1991; Davidsson *et al.*, 1995; Fumagalli and Mussati, 1993; Keeble, 1990; Kirschhoff and Phillips, 1988). This is one of the reasons for the interest in explanations for regional variations in firm birth rates. Critics have claimed, however, that such studies overestimate the role of small and new firms, that the jobs created in small firms are of lower quality, etc. (Davis, Haltiwanger and Schuh, 1993; Harrison, 1994). It is therefore important to carry the analysis beyond the issue of new firm formation and to try also to estimate the contribution of small and new firms to the development of regional economic well-being.

To be able to do that, two indices aiming at capturing the development of economic well-being were computed. The first index is a summation of four (standardized) indicators of income-growth (1985–90; all sources of income) and net migration surplus (1988–90). This index should reflect

the relative development of total wealth of the regions.

While economic theory holds that dissolutions and contractions reflect that resources are being reallocated for better use, it is inescapable that some of these 'resources' are individuals who lose their job and their regular income, sometimes never to return to gainful employment. Our second index therefore aims at capturing also the distributional aspect of economic well-being. The two indicators for this index are a) relative decline in the proportion of people 16–64 years that receive welfare money (1985–90), and b) relative decline of welfare expenditures per capita (1985–90). Low values on these indicators could reflect either a general downward trend in the regional economy, or increasing economic inequality.

The two indices have high reliability in the technical sense, with Cronbach Alpha values of 0.82 and 0.94, respectively. They are slightly positively correlated (0.25). In the results reported below, both indices are scored so that a higher value means a more positive development of economic well-being.

Figure 2 displays the standardized cluster means (* 100) for the two well-being indices. As

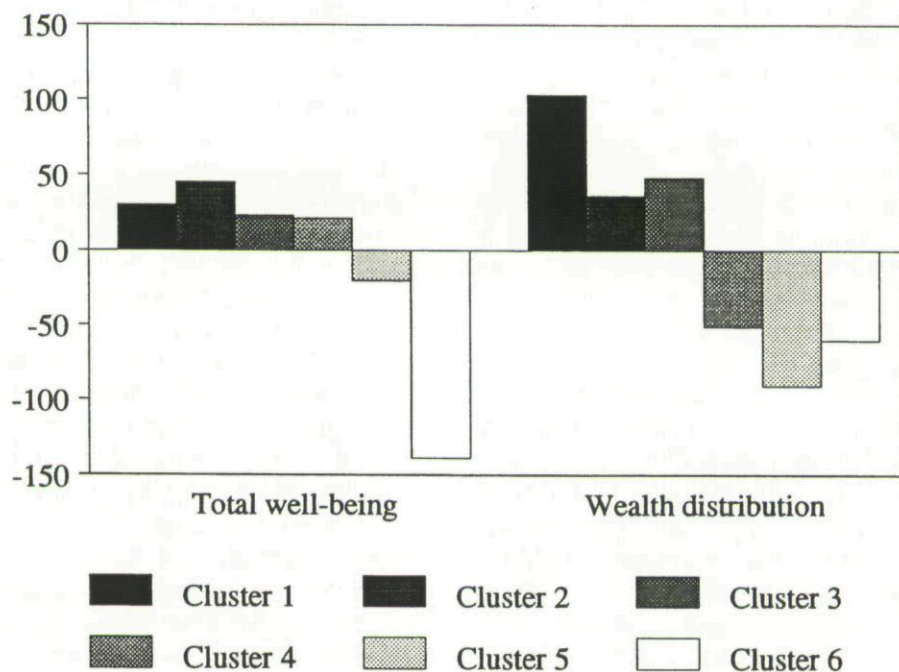


Fig. 2. Development of economic well-being 1985–1990.

regards the first index (total well-being) only small differences emerge with respect to the first four clusters. Cluster 5 (*non-dynamic small firms*) and Cluster 6 (*net decline*) deviate in the negative direction, in the latter case markedly so. While the differences among Clusters 1–5 seem even smaller if the cluster medians are compared rather than their means, the relatively worse development of Cluster 6 stands out clearly with either measure.

The second index (wealth distribution) appears to have somewhat greater discriminative power. According to this index, however, it is Cluster 5 that has experienced the worst development of economic well-being. This result becomes even more accentuated if medians are compared instead of arithmetic means.

Taking the results from the two indices together, Cluster 1, *high formation/turnover*, stands out clearly as the group of regions that has experienced the most positive development. Cluster 2, *micro-firm dynamic*, and Cluster 3, *expansive small firms*, can hardly be separated in this regard. Their median values are almost identical for both indices. Cluster 4, *more of the same*, takes a middle position. It is worth noting that this cluster's relatively high value on Index 1 is mainly due to a positive development, but from a very low initial value, of the proportion of inhabitants being in the 16–64 years age bracket. Clusters 5 and 6 both deviate markedly in the negative direction.

Over-all, the development of economic well-being of the clusters largely follows their numbering sequence and hence appears to be fairly closely connected to the total degree of business dynamics in the private sector. We thus seem to have empirical verification that business dynamics of the kinds captured by this study is positively associated with the development of regional economic well-being.

While it seems safe to say that our data suggest that the general relationship is positive, it is more difficult to make statements about the relative importance of different forms of dynamics. Firstly, an association does not prove causality. Secondly, the different forms of business dynamics are likely to be interrelated in intricate ways. If it is assumed, however, that dynamics causes well-being and that different types of dynamics have separate effect, a careful examination of the presented results suggests the following:

High dynamics as regards formation and turnover appears as a necessary and possibly sufficient condition for a favorable concurrent development of economic well-being. Support for this is that Cluster 1, which has the most positive development of economic well-being, has high formation and turnover rates for Simples as well as for Branches. Clusters 2 and 3 have high formation and turnover of either Simples or Branches. The remaining clusters have relatively low rates of formation and turnover for both establishment types – and worse development of economic well-being.

High dynamics in terms of expansions and contractions of existing establishments does not appear to be a necessary, and possibly not a sufficient, condition for a positive concurrent development of economic well-being. Clusters 1 and 2 are characterized by (somewhat) low size-change related dynamics for both types of establishments. For all measures based on expansions and contractions, the highest value is found among the clusters that have experienced relatively worse development of economic well-being, i.e., clusters 4–6.

The suggested conclusion here is fairly strong and needs some qualification. Although a regression approach ascribes relatively greater importance to formation and turbulence rates, such analyses also suggest that expansion-related dynamics might have a positive impact on economic development (cf. Davidsson, Lindmark and Olofsson, 1994a; 1994b). More positive expansion-related dynamics also seems to be what separates Cluster 4 from clusters 5 and 6. It therefore cannot be ruled out that relatively high (net) expansion of existing establishments saved the LMAs in this cluster from a worse relative development of economic well-being. Moreover, the measures are very crude and do not reflect any regional differences in the internal dynamics of existing firms other than employment size changes. It can be shown that expansions of existing establishments sum up to a larger gross increase in employment than does the formation of new establishments. Despite the above qualifications, it is therefore interesting to note that the analyses attribute the stronger associations with economic well-being to formation and turnover.

High dynamics as regards units within larger

firms does not appear to be a necessary, and possibly not a sufficient, condition for a positive concurrent development of regional economic well-being. The micro-firm dynamic Cluster 2 has a positive development of economic well-being without having high values for any measures based on Branches. Cluster 5, characterized by *non-dynamic small firms*, has high expansion and higher than average net formation of Branches. Nonetheless, this cluster's economic well-being has developed clearly worse than average. Again, the suggested conclusion is perhaps stronger than the data really permit. A cluster with positive values for dynamics among Branches, average values for dynamics among Simples, and low to average development of economic well-being would have been required to make the interpretation more well-founded.

Because the extracted clusters do not represent all conceivable patterns of dynamics it is also difficult to judge the well-being effects of a dynamic small firm sector. It can be concluded, however, that the three clusters that have the most positive development of economic well-being also have high values for at least some form of dynamics among Simples. Cluster 2, which appears dynamic only with respect to the formation and turnover of Simples, has experienced a relatively favorable development of economic well-being. Cluster 5 has low values for all measures based on Simples – and much worse development of economic well-being. This contrast is perhaps the strongest support for the notion that dynamics among small firms is a necessary condition for a positive development of economic well-being. At least as far as the studied period is concerned it seems to be the case that *a positive development of regional economic well-being is closely associated with the presence of a dynamic small firm sector.*

The development of economic well-being during the subsequent recession

A drastic downturn in the economy occurred after the period studied. It is therefore possible to investigate whether the data suggest that regional variation in business dynamics during a boom has any bearing on the regions' ability to cope with a subsequent recession. However, at the time for this

analysis data are lacking for the subsequent period as regards several of the indicators used in the above mentioned indices. Since escalating unemployment is the most discussed well-being effect of an economic downturn, it was decided to use instead the change in unemployment 1990–92 as one indicator.

Migration flows tend to be positive in regions that are in relative terms economically sound. This makes migration surplus an indicator of the development of regional economic well-being in its own right. The fact that migration flows deflate the regional variation in the change-in-unemployment measure also makes it advisable to use net migration as a supplementary indicator with respect to the 1990–92 development of the regions. As recent data on migration are also lacking, the ratio between the size of the working age (16–64 years) population in 1992 and 1990, respectively, is used as an approximation.

Figure 3 displays the cluster results for these two indicators of the 1990–92 development. Again, the displayed values are standardized cluster means ($\times 100$) and the variables are scored so that a higher value means a more positive development. In order to make the picture more complete, the 1992 relative level of unemployment is also displayed.

If we turn first to the second indicator (which approximates net migration, assumed to reflect relative economic soundness) the relationship between earlier period dynamism and subsequent period development of economic well-being appears to be almost perfect. At the same time the analysis reveals the insoluble problem of causal order. Are the displayed cluster differences really attributable to their degree of business dynamics during the 1985–89 period? The data suggest this is possible, but other explanations also present themselves. Perhaps relatively stable structural characteristics of the regions made them more dynamic during the earlier period *and* during the latter period. Their attractiveness during the latter period could then be explained by *current* dynamics or by more stable characteristics, i.e., without reference to 1985–89 dynamics.

According to the other indicator, change-in-unemployment, there is little of an interpretable association between 1985–89 dynamics on one hand, and subsequent development of economic

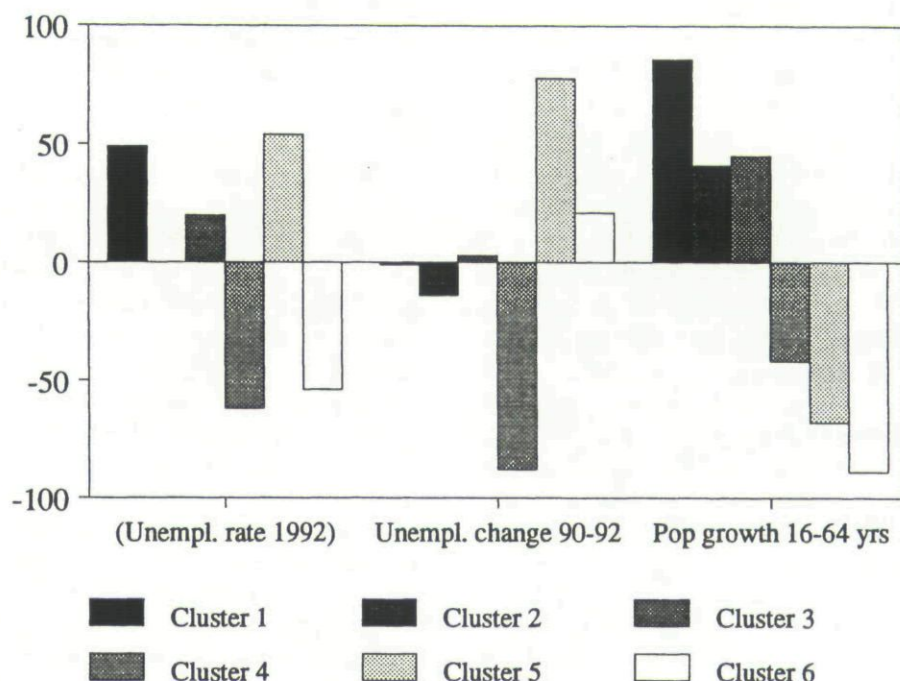


Fig. 3. Development of economic well-being 1990–1992.

well-being on the other. However, this is at least partly due to the tendency for migration to level out differences in unemployment rates. Moreover, the fact that the clusters' initial unemployment rates were different makes the analysis more complicated. The problems involved can be illustrated by Cluster 6's relatively positive development as regards change-in-unemployment. A check of all three variables in Fig. 3 reveals that this 'positive' figure is achieved only because Cluster 6 *a*) had the highest initial (1990) rate of unemployment, and *b*) has had more out-migration than the other clusters.

Taking the indicators together, Cluster 4, *more of the same*, and Cluster 6, *net decline*, no doubt have had the worst development of economic well-being during the 1990–92 period. These two clusters have one thing in common as regards business dynamics during the preceeding period: all measures that concern establishment formation are low. Cluster 5, *non-dynamic small firms*, has had a surprisingly positive development as far as change-in-unemployment is concerned. The regions in this cluster earlier had unemployment rates in the same range as the regions in Cluster 4. Later development has led to marked differ-

ences between the two clusters in this regard. Differences in migration appears to be only a marginal explanation for these two clusters' differential development of unemployment. Also in terms of structural characteristics the two clusters are similar. Neither is it easy to find the explanation in differences in 1985–89 dynamics. A hypothesis that can be derived from the data, however, is that large firms in Cluster 4, for which the label *more of the same* was chosen, have not been sufficiently active in re-structuring towards smaller and more independent units. While having high values for Branches' expansions, Cluster 4 ranks lowest by far when it comes to net formation of Branches, where Cluster 5 is slightly above the national average. In this regard the data are in line with the interpretation that insufficient renewal during good times makes a region vulnerable when the business cycle turns downward.

Conclusion

In this paper we have elaborated on the empirical associations between structural characteristics of regions, business dynamics among small and large firms, and the development of regional economic

well-being. As regards the association between structural characteristics and business dynamics we found that groups of regions that display different patterns of business dynamics also display systematic structural differences. While it is difficult with the chosen approach to get a clear image of the exact nature of these relationships it was concluded that formation and turnover rates co-vary with structural characteristics that typically follow a core-periphery continuum. Regional variation in expansions and contractions do not follow the same pattern.

As regards business dynamics and economic well-being the general association appears to be positive as regards concurrent as well as subsequent development. Our analysis ascribes a somewhat greater role to dynamics among small firms as compared to the effects of dynamics among larger firms. While important to note this should not come as a surprise given that the small firm sector was the major contributor of new jobs during the period, and that the effects of changes among small firms are more likely to stay within the region (local ownership, local customers, etc.).

A clearer and more important distinction emerges, however, when different types of dynamics are compared rather than dynamics among firms in different size classes. Whatever the exact process is, our results support that formation of new, independent firms (Simples) and the internal reorganization of established firms (formation of Branches) are important for the development of regional economic well-being. As regards expansions, the analyses give reason to suspect that having a comparatively high proportion of growing establishment during a boom is not necessarily a sign of regional economic health in the longer run, at least when not accompanied by high rates of establishment formation. The combination of high expansion and low entry might reflect instead that the business environment is not competitive enough to bring about qualitative development alongside with quantitative growth. Therefore, while regions with such a pattern of dynamics can have a reasonably favorable development during the boom, they are struck comparatively hard in the following recession.

As regards policy-making, our results can be interpreted as suggesting that policies should not aim at keeping existing firms alive or at saving

particular jobs. Rather, they should focus on creating conditions that attract the formation of new business units, so that the natural process of job losses via contractions and dissolutions is counterbalanced. It is important, of course, that existing firms are not actively discriminated against. However, if they are allowed to survive and grow without the pressure for development that new entrants create, the development of economic well-being might slow down. From a regional policy-making perspective, it is interesting to note that dynamics among small firms seem to have the greater effect on economic well-being. This is presumably because the secondary effects of changes among small firms are more likely to also stay within the region. Hence our results do not exclude the possibility that on the national level dynamics among large firms may be as important or more important. The main impression, however, is that it is at renewal, rather than at smallness or expansion, that policy-makers should direct their attention.

A drawback of this study is that dynamics are studied only during a period of economic boom. A natural next step of this research program is therefore to supplement the analysis with patterns of dynamics and their effects during the subsequent recession period. When this work has been carried out, a more complete picture of the antecedents and effects of different forms of business dynamics may emerge.

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Appendix

TABLE III
Swedish labour market areas and their cluster affiliation

CLUSTER 1	CLUSTER 2	CLUSTER 3
Stockholm Göteborg	Södertälje Sigtuna Nyköping Katrineholm Eskilstuna Linköping Norrköping Vimmerby Karlskrona Kristianstad Malmö Helsingborg Strömstad Bengtsfors Borås Örebro Ludvika Gävle Hälsingland Kalix	Uppsala Gnosjö Jönköping Värnamo Älmhult Växjö Gotland Hässleholm Halmstad Falkenberg Uddevalla Trollhättan Lidköping Skövde Karlstad Karlskoga Västerås Köping Falun Sundsvall Östersund Örnsköldsvik Dorotea Umeå Skellefteå Luleå
CLUSTER 4	CLUSTER 5	CLUSTER 6
Vetlanda Markaryd Lysekil Tidaholm Torsby Säffle Lindesberg Vansbro Avesta Strömsund	Norra Småland Kalmar Oskarshamn Olofström Perstorp Simrishamn Hylte Munkfors Laxå Fagersta Pajala	Emmaboda Kristinehamn Hagfors Mora Hofors XYZ-inland Sollefteå AC-inland Lycksele Arvidsjaur BD-inland

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