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Smallness, Newness and Regional Development

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INTRODUCTION

The purpose of this paper is to present empirical findings and interpretations concerning the role of small and new firms for job creation and economic well-being from a regional perspective. More specifically, we will deal with the following questions:

- Are small firms over-represented as creators of new jobs?
- What characteristics of regions contribute to high levels of new firm formation?
- Is a large and/or dynamic small firm sector a prerequisite for favorable development of various aspects of regional economic well-being?

The analyses concern business dynamics in Sweden during the 1985-9 period, using a data set that was compiled for this particular research project. Importantly, the studied period was one of increasing GNP, rapid employment growth in the private service sector, and very low levels of unemployment in most regions. While many results from the project have been presented and discussed before (Davidsson, Lindmark & Olofsson, 1993a; 1993b; 1994a; 1994b; 1995a; 1995b; Davidsson, 1995a) some analyses were carried out specifically for this paper.

MODELS

Two models have guided our research. The first, depicted in Figure 1, aims at the decomposition of net job creation into the gross job gains and losses that result from establishment births, expansions, deaths and contractions. In this analysis we will focus on autonomous, single-establishment firms (as a proxy for small firms). Is their job contribution large or small compared to the contributions from other types of business establishments? Is their share of new jobs large or small compared to their share of the stock of jobs? These are the questions that will be treated.

The second model, depicted in Figure 2, concerns the relationships between regional characteristics, business dynamics, and regional economic well-being. The assumption is that certain   demographic, socio-economic and business structure characteristics of regions affect regional patterns of business dynamics. We will here focus on the regional characteristics that

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are associated with higher or lower autonomous firm birth rates. In particular, we will highlight the relationships between business size structure on one hand, and gross and net birth rates on the other.

The model as depicted builds on the assumption that business dynamics affect the regions' economic well-being. We will here analyze the associations between various measures of regional business dynamics on one hand, and concurrent as well as subsequent period development of economic well-being on the other. Indicators of the latter are changes in, e.g., working population, unemployment, and per capita income. We here try to give some insights into the possible effects of dynamics among small firms vs. large firm units, as well as dynamics in terms of expansions and contractions compared with birth and dissolution.

Figure 1   Decomposition of job changes

Figure 2   Regional characteristics, business dynamics and economic well-being

THE DATA SET

The most crucial data are also the most difficult to obtain, i.e., those that concern business dynamics. In close cooperation with register experts and programmers at Statistics Sweden, data from various data-bases and different (annual) versions thereof were combined for this research project. The result is a data set which makes it possible to:

- include only non-government, commercially active business units
- monitor individual business units over time in order to identify births, deaths, expansions and contractions and their accompanying employment changes,
- identify business units that are autonomous small firms,
- group the units according to industry sector,
- group the units according to size of employment, and
- relate the establishments to labor market areas and location of ownership

What we deal with is census data. In total approximately 400 000 units are studied each year. The data set includes sole proprietorships, partnerships, and incorporated businesses.
Primary industries like agriculture and forestry, and public services such as the Telecom and the Postal Services are not included in the study.

The period studied is 1985 to 1989. In 1985 a major change in data collection and recording procedures occurred, increasing the quality of the original register. Complete data for 1990 and onwards were not available at the time for the data compilation (an update is currently under way and analyses for the years 1990-94 will be published in 1996).

Establishments rather than enterprises (firms) were chosen as the basic unit of analysis because while unique codes exist also for the latter, these are relatively more often changed even if no real birth or death has occurred. Three types of establishments were separated: Simples, Tops, and Branches (cf. Reynolds & Maki, 1990).

- A *Simple* is a single-establishment firm with autonomous ownership, i.e., it does not form part of a corporate structure. In this case, firm and establishment are synonymous concepts.

- 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.

We will here use Simples as an approximation for "small firms". While 99.99 percent of all Simples are small or medium sized (i.e., they have less than 200 employees; 89% have 4 or fewer and 98.6% have fewer than 20) it is not the case that all small and medium sized firms (SMEs) are Simples. For example, a small firm with three establishments would be registered as one Top and two Branches. As the size class data in the register concern establishment (not firm) size, it is not possible to determine with certainty which Tops and Branches form part of SMEs. As almost all *new* firms are Simples during their first year in operation, the number of new Simples is a very close approximation of the total number of autonomous new firms. When it comes to the job contribution provided by established small firms, however, counting only jobs created by Simples leads to conservative figures. Thus, this approximation is likely to lead to underestimation of small   firms' true job contribution.

A special problem occurs when establishments change categorical affiliation (industry, type, size, location etc.) from one analysis period to the next. As a general rule such problems have been solved so as to ascribe negative changes to the category of origin and positive changes to the new category. An exception is establishment type; for these all changes are ascribed to the original category. In the next annual version of the register the establishment is included in the stock of the new category. In order to avoid underestimation or exaggeration due to these heuristic rules we have used supplementary data and analyses. Another correction that we introduce is that contractions down to zero employees are counted as dissolution if the unit no longer exists in the next annual version of the register.

Data on regional characteristics and the economic well-being of regions were collected separately. Most of these data were collected from Statistics Sweden's database on regional statistics (RSDB). The regions used are *Labor Market Areas* (LMAs). These are aggregates of communities on the basis of travel-to-work statistics. In order to avoid heavy influence of very small (population-wise) regions, the number of LMAs was in this study reduced from 111 to 80 by combining some small LMAs that were spatially adjacent and structurally similar.

RESULTS

Introduction

The data set comprises five annual static descriptions of the stock, and four year-by-year change files. Instead of presenting year-by-year analyses, however, we present:

a) Static comparisons of the state in 1989 vs. 1985. Such analyses build on November stock data for the respective years.

b) Dynamic analyses which display *average annual changes* over the four year period. Such analyses build on annual changes in individual establishments.

c) relational analyses where various measures of average annual changes are regarded as causes or effects of variables that describe the regions ("regional characteristics" and "well-being"; cf. Figure 2).

Small firms and job creation

Figure 3 displays average annual flows of jobs for different establishment types. The figure depicts the flow from left to right. For each entry an absolute (annual average) number as well as two percentages are displayed. The first percentage is related to initial stock for the establishment type in question (this 'initial stock' actually the average stock for the years 1985-88). The second percentage refers to share of the total within the box.

Figure 3   Average annual flow of jobs by establishment type, 1985-89

Several observations can be made. Of importance here is that for each measure of business dynamics, the Simples category has a percentage that exceeds its share of the initial job stock. This indicates that jobs in Simples are more volatile than jobs within the other types of establishments. This is in line with other studies' finding that there is a positive relationship between firm size and job durability (e.g., Davis, Haltiwanger & Schuh, 1993). However, it cannot be determined from this type of data whether this holds true from the perspective of holders of particular jobs, the reason being that "gross job gains" in the present context is in fact the aggregate of establishment level *net* changes (cf. Davidsson, 1995b).

Further, Simples' share of job gains is larger than its share of job losses, whereas the opposite is true for Tops and Branches. The result is that Simples' share of total job creation amounts to 45.4 percent in gross terms and no less than 63.4 percent in net terms. Both in gross and net terms, Simples' share of job creation is much larger than the category's share of the job stock (31.2% on average). The answer to our first question, then, is a clear "yes". Small firms were heavily overrepresented as job creators in Sweden during the studied period.

It may be noted that Simples births add less than 10 percent to the initial stock of employment in Simples. Nevertheless they account for 41 percent (67 768/165 552) of Simples' total gross job gains while the rest is due to expansion of existing units. The prime reason for this is that once established, relatively few small firms pursue continued growth. In an individual year, only about 16 percent of all Simples expand, and those that do show a modest average of 2.0 additional employees. Only the jobs created during the first year in operation are attributed to the "births" category. Keeping in mind that younger firms are more likely to grow than are older firms (Evans, 1987; Kumar, 1984) the importance of new firm formation for job creation is likely to be even greater than suggested by the data in Figure 3.

Table 1   Employment by type of establishment in 1985 and in 1989 (static comparison; absolute numbers and percentages)

Type of establishment	1985	1989	Absolute change	Percentage change
Simples	715 471 (31,7)	748 963 (30,4)	33 492	4,7
Tops	235 166 (10,4)	242 177 (9,8)	7 011	3,0
Branches	1 308 892 (57,9)	1 475 554 (59,8)	166 662	12,7
Total	2 259 529 (100,0)	2 466 694 (100,0)	207 165	9,2

Note: There is some discrepancy between the figure for total job growth in Table 1 compared to those displayed in   Figure 3. This is due to the fact that there is a minor flow of establishments into and out from the industries covered by the study.

As to industries, it can be shown that more than 70 percent of the new jobs created by small firms were in the service sector. Measured as net figures this share comes close to 80 percent. In accordance with findings from other countries (Aiginger & Tichy, 1991; Keeble, 1990;

Fumagalli & Mussati, 1993; Storey, 1994) the results indicate, however, that growth of the service sector does not suffice as sole explanation for small firms being overrepresented as job creators. Small firms net job creation was positive in all studied industries, including three manufacturing sub-industries where they were the only source of net job creation (Davidsson, 1995a; Davidsson et al, 1995b).

The data in Figure 3 might give the impression that Simples' share of the private sector job stock increases over time. This is not the case. Table 1 displays a static comparison of employment by type of establishment at the beginning and by the end of the period. It turns out that employment increased for all three establishment types. Both in absolute and relative terms, the increase was the greatest for Branches. If we use Simples as an approximation for small firms and ascribe employment in the other categories to large firms, the conclusion from these figures would be that the relative importance of small firms was declining during this period. As we have seen already rather the reverse seems to be true.

The reason why Simples' relative share of employment did not increase according to a static comparison is that some Simples eventually become Tops or Branches. Remember that job changes during a year are ascribed to the establishment type the establishment belonged to in the beginning of the analysis year. The fact that units switch categories is revealed only by the difference between the first year's initial stock plus net changes, and the next year's initial stock. As switches can occur in all directions - a Top may for example become a Simple if its only Branch is closed - these differences do not give full information about the gross movements. The average annual net result of the switches can, however, be computed.

The figures in Table 2 reveal that on average the Simples category lost 2 400 establishments and 24 000 jobs each year due to category switching. This deducts 3/4 from the category's net contribution of jobs (cf. Figure 3) and consequently only 1/4 remains in the static comparison (Table 1). Conversely, all of the Tops category's, and more than half of the Branches category's   net job growth in the static comparison is due to category switching. Importantly, the jobs involved in such switches are not necessarily *new* jobs. In all likelihood only a small fraction of the jobs involved in the switches were created the same year as the switch occurred.

Table 2   Net average annual establishment and job stock changes due to establishment category switching (net result of difference between dynamic analysis and static comparison)

Type of establish-ment	No. of establishments	No. of jobs	Pct of establishment type stock	Pct of establishment type job stock
Simples	-2 416	-24 042	-0.8 %	-3.3 %
Tops	622	1 956	6.0 %	0.8 %
Branches	1 828	21 968	3.6 %	1.6 %

Note: The sum of the net changes does not equal exactly zero. This is due to the fact that there is a minor flow of establishments into and out from the industries covered by this study.

Simples that become Tops almost certainly remain units within small firms. A Branch that formerly was a Simple is still a unit within a small firm when the switch is a result of acquisition or merger among small firms, or when a former single-establishment firm starts a new unit and this new unit is classified as the Top. Although switches from Simple to Branch also occur when small firms are acquired by large firms it is reasonable in most cases to say that the job changes that occurred during the year *originated* in a small firm.

The two percentages in Table 2 reveal also that while the Simples category lost units that were larger than average Simples, the units that were added to the other categories via category switching were considerably smaller than the average for the respective category. This is part of the explanation for declining average establishment size for all three types of establishments (Simples, Tops, Branches) during the studied period. However, also the net effect of expansions and contractions among existing establishments as well as the rates of births and deaths in different establishment size classes contributed to this general trend towards smaller scale. According to a static comparison of official register data for the 1990-94 period, average firm and establishment sizes continued to decline during the latter period (cf. Davidsson, 1995a).

According to the data presented so far there is little doubt that small and new firms were very important sources of new jobs during the late 1980's in Sweden. Not least do *new* firms appear to be of importance, especially if we account for the fact that they are more likely to expand in subsequent years than are firms that are since long established. The analysis so far have not, however, shown why some regions have a larger or more vivid small firm sector than others, or whether having that is instrumental for furthering regional economic well-being. These are the issues we will turn to in the following sub-sections.

Regional characteristics and new firm formation

Table 3 displays regression results for the relationship between structural characteristics of the 80 regions and their rates of new firm (Simples) formation. The displayed coefficients are standardized, i.e., their magnitude can be regarded as measures of relative importance. Effects of size +/- .30 or larger can be considered large, while a coefficients smaller than +/- .10 indicate that the explanatory variable is of no or almost no importance. Note that since we deal with census data statistical significance is a non-issue and therefore not reported.

The model was developed for the purpose of explaining regional variations in *gross* new firm formation. These results have been published before (Davidsson et al, 1994b) and will here only be discussed in brief. Almost 70 percent of the variation can be explained by the selected explanatory variables (explanatory power). This fairly high figure is similar to what has been obtained in studies in other countries (cf. Regional Studies, 1994). The strongest influence is that of a high concentration of small firms. This indicates that a dynamic small firm sector is to a considerable extent a self-perpetuating phenomenon and can be regarded as an effect of presence of role models and widespread 'entrepreneurship know-how'. Other important explanatory variables reflect the importance of a large and growing local market -- and possibly access to various resources as well -- for high rates of new firm formation (population size, density and growth; unemployment trend). But positive effects on gross new firm formation are ascribed also to factors that are not related to tradition or favorable market conditions (unemployment level; regional development support expenditure).

Table 3   Explanatory models for regional variations in gross and net Simples birth rates

(average annual No. of new Simples/1000 inh. in the 16-64 years age bracket)

Variable	*Standardized regression coefficients*	
	Gross new firm formation	Net new firm formation (births-deaths)
Small firm density (Stock of Simples/1000 inh. 16-64 years)	.47	-.32
Population size	.17	.03
Population density	.34	.43
Population trend (previous period)	.23	.32
Unemployment trend (previous period)	-.18	-.18
Unemployment level	.19	.09
Regional development support/capita	.12	.03
(Region dummy	.30	.33)
Explanatory power (Adj. R^2)	*.68*	*.48*

Note: A dummy was introduced for one LMA, Strömstad. This is a fairly small LMA whose coastal location right at the Norwegian border is the probable reason for an extremely high birth rate in industries relating to tourism and border-trade.

The results accord well with international experience. Reynolds, Storey & Westhead (1994) conclude that:

Analysis of the processes associated with new firm births across seven advanced market economies in the late 1980s (France, Germany, Ireland, Italy, Sweden, United Kingdom and the United States) indicates three processes having a positive impact on firm birth rates:

- *growth in demand, indicated by population growth and growth in income*

- *a population of business organizations dominated by small firms*

- *a dense, urbanized context, reflecting the advantages of agglomeration, presumably including the benefits of access to customers, sources of supply and capital, as well as awareness of competitors' actions.* (p. 453)

If we use the same regional characteristics for explaining *net* new firm formation some important differences emerge. This analysis is displayed in the last column of Table 3. The most notable difference is that while a high small firm density has a strong positive effect on gross new firm formation, the same variable has a fairly strong *negative* influence on net new firm formation. This means that the gross births results considered in isolation may give a too positive image of regions that are high in small firm density. The fact is that such regions *need* to have a higher gross rate of new firm formation in order to *maintain* employment, just to make up for the jobs lost via small firm dissolution. The results indicate that relatively more of crowding out is involved when new firms are founded in regions that already have a large population of small firms. This may be due to the fact that relatively more of the market opportunities and entrepreneurial talent have been utilized already.

The results further show that while business support expenditure can have some effect on gross new firm formation, the positive effect of this variable on net new formation is close to non-existent. The same pattern emerges for unemployment level, amplifying the impression that firms that are founded in relatively deprived regions for negative reasons (avoiding move or unemployment) or with "artificial" help have survival problems or manage to establish themselves only at the expense of older firms that have to shut down. Favorable market conditions thus seem to be a must for high net rates of firm formation.

By means of cluster analysis we have also investigated the relationships between regional characteristics and a broader spectrum of measures of business dynamics. One of the main findings was that formation and turnover rates (for both Simples and Branches) co-vary positively with structural characteristics that typically follow a core-periphery continuum. That is, regions that were more dynamic in these respects tended to have higher values for population size, density, growth, education and income, and lower values for agricultural employment and concentration of employment to a few large employers. Regional variations in measures of expansion and contraction of establishments do not follow the same pattern, and it was difficult to find a meaningful interpretation of spatial variations of the latter kind (Davidsson et al, 1995a).

Small firms, new firms, and economic well-being

In previous reports from this project (Davidsson et al, 1993b; 1994a; 1994b; 1995a) we have investigated the associations between measures of   business dynamics on the one hand, and the development of regional economic well-being on the other. The analyses have concerned both concurrent development (1985-90) and the possible relationship between the regions' dynamics during the boom (1985-89) and their ability to cope with the subsequent recession (1990-92). Measures of both "gross" and "net" dynamics have been used, and various analytical techniques (correlation, regression, cluster analysis) were applied. When interpreted in line with our causal model (Figure 2) the results may be summarized as follows:

- The relationship between business dynamics and the development of economic well-being are generally positive (the measures were *birth rates*, *turnover rates* [births+deaths over stock] and *size changes* [expansions or expansions+contractions over stock] among Simples and Branches). This indicates that within the ranges represented in the data, and under the macro-economic conditions prevailing during the period, change is definitely better than stability.

- The inter-correlations between different measures of business dynamics were for the most part positive but rather small in magnitude. Individual regions did not tend to have generally high or low levels of business dynamics, but rather displayed different patterns of business dynamics. They thus may follow different routes towards economic development. However, when the regions were grouped into six more homogeneous groups by means of cluster analysis ('dynamics-wise'), these groups were separable in terms of over all levels of business dynamics.

- Measures of annual gross dynamics (e.g., gross birth rates) explain more of the variations in the development of economic well-being than do corresponding measures of annual net dynamics (e.g., net birth rates). This indicates that business dynamics have developmental effects over and above what is directly observable in terms of, e.g., net increases in the

numbers of jobs and establishments. That is, change tended to be for the better also when change did not mean growth.

- Dynamics in the form of birth and turnover of establishments appeared relatively more important for economic well-being than were size changes among existing establishments. This is a significant finding especially as expansions and contractions sum up to a larger share of direct job changes than do births and deaths. One interpretation -- which is in line with Schumpeter's (1934, p. 67) theorizing --   would be that a new job in a new establishment represents more of genuine change than does a new job in an existing establishment. The former would therefore be associated with more economic side-effects (a larger multiplier) than the latter.

- Among the different measures of business dynamics that were tested, the rate of new firm (Simple) formation stood out as one of the more important -- possibly *the* most important -- for a favorable development of regional economic well-being.

The causal interpretations of these relationships can of course be questioned. For example, if we are right in assuming that dynamics in the 1985-89 period causes concurrent development of economic well-being, then subsequent (1990-92) development of well-being should logically be explained by subsequent (1990-92) dynamics, for which we lack data. It may also be the case that relatively stable characteristics of regions 'cause' both dynamics and well-being, i.e., that dynamics is more an epiphenomenon in the causal chain. The true relationships are likely to be so intricate that they cannot be estimated empirically in a fully satisfactory manner. At least, the results suggest that relatively high levels of business dynamics are associated with more favorable development of economic well-being in the very short as well as in the somewhat longer run, and that this association is particularly strong for new firm formation.

Returning to causal interpretation, it is also possible that different forms of business dynamics affect different aspects of economic well-being. This is what the correlation coefficients in Table 4 seem to suggest. These correlations give information about strength and direction of the associations between various measures of gross business dynamics on the one hand, and aspects of concurrent and subsequent development of economic well being on the other. To make causal interpretations of these correlations is, of course, a highly speculative exercise. It must also be emphasized that these correlations do not convey all information about the association between dynamics and well-being that is available, so the information in the table should not be regarded as counter-evidence to any of the summarizing points above, which are based on more thorough analyses. What is added here is greater detail as regards different aspects of economic well-being.

Keeping this in mind, let us examine the results column-wise. Three aspects of concurrent development of economic well-being are considered; job creation, income growth, and income distribution as indicated by the proportion that have to rely on welfare payments. With respect to private sector job growth the relationships may at first appear surprisingly weak. Only the Simples birth rate seems to have an association of recognizable size. If the association reflects a causal relationship, however, new firm formation stands out as the most important variable among those investigated with regard to the specific goal of increasing the number of jobs.

Table 4   Business dynamics and economic well-being (correlations)

	Concurrent (1985-90) development of regional economic well-being			*Subsequent (1990-92) development of regional economic well-being*	
	Private sector net job growth (+)	Average income/capita growth (+)	Increase in No. of receivers of welfare money (-)	Unemploy-ment increase (-)	Growth of working age population (+)
Simples birth rate	.33	.19	-.09	.02	.44
Simples turnover rate	-.08	-.09	-.42	-.01	.30
Simples expansions	-.02	-.08	-.14	.11	.06
Branches birth rate	.03	.29	-.42	-.08	.37
Branches turnover rate	-.08	.35	-.59	-.12	.48
Branches expansions	.03	.35	-.12	.00	.14

Note: The sign within parentheses following each variable label shows the expected sign of the correlation if business dynamics has a positive influence on economic well-being. Private sector job growth is the percentage increase over the entire 1985-89 period. The income measure includes all forms of income except "black" payments and lottery wins (or the like) and is computed as (total income 1989/total population 1985)/(d:o 1985). The welfare receivers measure is (No. of welfare receivers in 1990/population 16-64 years in 1990/(d:o 1985). Unemployment increase is (No. seeking immediate employment 1992/population 16-64 years in 1992) - (d:o 1990). Growth of working age population = (population 16-64 years in 1992) / (d:o 1990). All terms used in the computations of business dynamics measures are annual averages for the 1985-89 period. Simples birth rate = No. of new Simples / total population 16-64 years. Simples turnover rate = (No. of new Simples + No. of dissolved Simples) / Stock of Simples. Simples expansions = No. of expanding Simples / Stock of Simples. Branches measures were computed in the same way.

High levels of new firm (Simples) formation are also associated with rising levels of income. However, for this aspect of well-being these data suggest that dynamics among large firms (approximated by Branches) has a relatively stronger association than dynamics among small firms. The causal interpretation would be that without necessarily adding more jobs, dynamics among large firms during this period seem to have added wealth to their regions.

For the next indicator, welfare receivers, negative coefficients are expected if dynamics is positively related to well-being. This is also what we find for each and every aspect of business dynamics, and in some cases the association is so strong that the strength of the relationship in itself is a cause for caution when it comes to making causal interpretations. The pattern that emerges is, however, highly interesting and suggestive. For it is in particular the turnover rates that come to the fore in this analysis. High turnover of establishments is, arguably, an index of the intensity of competition and the rate of change in the regional economy. While the turnover rates are not associated with private sector job growth, both Simples and Branches turnover are strongly associated with a relative decline in the number of people who have to rely on welfare. This may have to do with the impact of high turnover on long term unemployment. With high turnover, relatively more people would at some time

be affected by unemployment, but at the same time new job opportunities would open up for individuals more frequently. A more dynamic business environment may have the effect that total unemployment is more evenly distributed among the population over time, leading to shorter average duration of unemployment and therefore less need for welfare payments.

The last two columns in Table 4 concern the development of economic-well being during the period following that (1985-89) for which business dynamics have been measured. This analysis is of particular interest because during the latter period the Swedish economy went into the deepest recession that has been experienced since the Great Depression of the early 1930's. Unemployment rose dramatically to reach the two-digit figures that large parts of the rest of Europe had become accustomed to but which Sweden so far had been able to avoid.

Our interest here concerns whether or not a high level of dynamics during the 1985-89 boom made regions better prepared to cope with the subsequent recession. Opposing hypothesis could be put forward. On the one hand, regions that have been highly dynamic should have gone through relatively more of the restructuring necessary for dealing with the new situation. On the other hand, in such regions relatively more jobs would be found in newer, smaller and therefore possibly more vulnerable units.

The results show that the association between previous levels of business dynamics and increase in unemployment is weak or non-existent. At the same time, the associations between measures of business dynamics and growth of the working age population -- a measure that is a reasonable indicator of relative *employment* growth and economic soundness -- is generally positive and fairly strong for some aspects of dynamics.

This pattern of dynamics may seen puzzling at first. However, there is a number of reasons for a weak relationship between dynamics and unemployment increase to emerge even if business dynamics were important for the development of economic well-being. Firstly, the measure of unemployment used concerns the number of people seeking immediate employment. Policy measures that keep people in employment or education with subsidies distort the measure as an indicator of the number of people who would really want a job. The fact that at high levels of unemployment some people may not bother to seek employment because the chance of actually getting a job is so slim has the same effect. Secondly, the tendency for people to move from the areas with the highest unemployment to regions that are relatively better off levels out some of the differences. Thirdly, and perhaps most importantly, rates of economic growth and rates of unemployment need not be strongly related (cf. Ormerod, 1994, Ch. 7).

In contrast, the growth of the working age population, arguably an indicator of relative economic soundness, is fairly strongly associated with previous period business dynamics. That is, regions that were relatively more dynamic during the boom have performed relatively better during the subsequent recession. While formation and turnover of units in small and large firms (Simples and Branches) both appear important, the expansion measures appear relatively unimportant. In our cluster-based approach (Davidsson et al, 1995a) it turned out that the two groups of regions that had the worst development in the 1990-92 period had in common that they were low on all measures of formation and turnover. In terms of Branches expansions the two categories differed dramatically. While one group had the highest figures among the six groups of regions for Branches gross and net expansions, the other had the lowest figures for these measures. In short, previous high rates of formation and turnover

appear to be necessary conditions for the ability to cope with the subsequent recession, while a high proportion of expanding establishments does not appear to be a sufficient one.

Taken together, the results favor the view that regions with a more dynamic business sector experience a more favorable development of economic well-being. Dynamics among small firms appear at least as important as dynamics among larger firms, but the two categories may have in part different roles in the development of economic well-being. Our results suggest that small firms are relatively more important for job creation, whereas rising levels of income are more associated with dynamics among large firms. It is dynamics in the form of birth and turnover rates which appear to have the stronger effects on economic well-being. In the somewhat longer run, having a large proportion of growing establishments is not necessarily a sign of sound economic development. It may be suspected instead that a high proportion of growing establishments in combination with low levels of formation and turnover reflects that competition is not intense enough to bring about necessary adaptation to changing conditions in the business environment.

Given the apparent trend towards smaller scale and the importance of new firm formation for the development of regional economic well-being it is reasonable to ask whether smallness as such is advantageous. Although theoretical arguments can be -- and indeed have been -- put forward as regards the relative advantage of small scale (e.g., Aiginger & Tichy, 1991; Arrow, 1983) the more classical theoretical arguments in favor of large scale remain valid for many types of economic activity. And empirically, it is easy to show that the relationship between GDP per capita and average enterprise size across countries in Europe is clearly positive (ENSR, 1994, p.33). So in times when there are widespread hopes that small firms will lead our way into the future there is every reason to look more closely at this issue and ask whether small firms really can be expected to fulfill this role.

Table 5   Size of the small firm sector and development of regional economic well-being (correlations)

	Concurrent (1985-90) development of regional economic well-being			*Subsequent (1990-92) development of regional economic well-being*	
	Private sector job growth (+)	Average income/capita (+)	Increase in number of receivers of welfare money (-)	Unemployment increase (-)	Growth of working age population (+)
Small 1	.28	.18	.28	.10	.08
Small 2	.30	.16	.29	-.07	.16
Small 3	.28	.10	.23	.20	.14
Large 1	-.24	-.30	.47	-.31	-.66
Large 2	-.18	-.23	.42	-.35	-.59

Note: See Table 4 (note) for more detailed descriptions of the well-being indicators. The sign within parentheses following each variable label shows the expected sign of the correlation if business dynamics has a positive influence on economic well-being. Small 1 = No. of Simples / 1000 inh. 16-64 years. Small 2 = No. of Simples/(No. of Simples + Tops + Branches). Small 3 = Total employment in Simples / Total population 16-64 years. Large 1 = The three largest employers' (corporations) percentage of total employment. Large 2 = The largest manufacturing employers' (corporations) percentage of total employment.

One way of shedding some light on this in this particular context is to supplement the above analysis of business dynamics and economic well-being with an analysis of the relationship between the size of the small firm sector and economic well-being. This analysis is displayed in Table 5. Three alternative measures of small firms' relative importance in the regional economy are correlated with the same indicators of economic well-being that were used in Table 4. In addition, two indicators of concentration of employment to a small number of large firms are included.

The picture that emerges is mixed. As for concurrent development of economic well-being, regions with a high reliance on small firms did comparatively well in terms of job and, to a lesser extent, income growth. If we take the third indicator of economic well-being, welfare receivers, the association between small firm dominance and economic well-being is instead negative. The results for subsequent development of economic well-being gives even more reason to doubt that having a large small firm sector leads to positive development of economic well-being. Judging from the results of Table 4 and Table 5, such is the case *only if the small firm sector is also dynamic*, i.e., if high rates of formation and turnover is characteristic for it.

More detailed analyses suggest that the regions which experienced the most favorable development over the entire period had neither a very small nor a very large small firm sector at the outset. The small firm sector grew in importance in these regions during the period due to high rates of formation of new firms. In particular, the rates of formation of somewhat more advanced small firms (professional services, high-tech manufacturing) were higher. Conversely, some of the regions with the worst development were peripheral regions that were highly dependent on small firms simply because virtually no large firms had any activity in those regions. In all, the relationship is complex, and there is little evidence that a high dependence on small firms were in itself instrumental for a sustained positive development of economic well-being.

On the other hand, being highly dependent on a small number of large employers was clearly worse. Such regions performed poorly both during and after the 1985-89 period, with the exception that they did not experience as much increase in unemployment during the subsequent period. The reason for the somewhat peculiar latter result is that this type of region was the only one to have any considerable unemployment problems at all during the boom, and in part the shortcomings of the unemployment measure described above. In particular, the last column suggest that extensive out-migration has kept the increase in unemployment down in regions dominated by a few large employers.

Taken together we would argue that neither a high dependence on small firms nor on large firms solely appear to be optimal. The regions which have experienced the most favorable development of economic well-being are those that had a good mix of industries and business sizes, and whose business sector was characterized by a relatively rapid pace of change.

OVERVIEW AND IMPLICATIONS

Our research suggests that during the period studied, small firms' share of job creation was much larger than their share of the stock of jobs. This is in line with results obtained in many countries from the 1970's and onwards. In the short run, regions dominated by small firms

seem to have performed well in terms of total employment growth. In the somewhat longer run, and when a broader spectrum of aspects of economic well-being is considered, we would argue that it is newness rather than smallness that is the key issue. Regions with higher rates of formation and turnover of establishments in small *and* large firms experienced a more favorable development during the studied period and through the early parts of the subsequent recession. The rate of formation of autonomous new businesses thus appears important for job creation as well as for other aspects of economic well-being.

Does this mean that policy makers should redirect their interest from large towards small and new firms, and that firms of the latter kind should receive additional support? Such a conclusion should certainly not follow automatically from the kind of results that have been reported here. This is so for a number of reasons. For example:

1. The fact that spontaneous job creation is high in the small firm sector is in no way evidence that the "return on investment" for policies geared towards that sector is higher than the return on other policies (cf. Storey, 1994; Davis et al, 1993).

2. Small firms and large firms are neither separate nor opposing parts of the economy, and it is hardly fruitful to adopt an "either-or" position. Large firms and small firms are mutually inter-dependent in intricate ways (cf. Aldrich & Wiedenmayer, 1993; Davidsson, 1995b) and the role of government should be to enable the entire system to work for the benefit of society as a whole.

3. Even though our data suggest that small firms have a major role not only in job creation but also in furthering the development of regional economic well-being, it is still possible that it is the dynamics of large firms that lead economic development at the national level. The regional perspective that we have adopted in our research may bias the results in favor of small firms because the secondary effects of their actions are more likely to stay within their own region. It can be argued that when large firms introduce change, the suppliers, customers and owners that are affected are not necessarily found within the region to the same extent as when small firms introduce changes (cf. Davidsson et al, 1994a).

4. The roles and relative importance of firms and establishments in different size classes vary over time in shorter and longer cycles (Kirchhoff & Phillips, 1991; Stockmann & Leicht, 1994). Policies geared towards a certain size class runs the risk of being wrong most of the time.

5. The "track record" for policies that have actually been used to support the creation and development of small firms is not impressive (cf. Storey, 1994).

Despite the above points, and despite the current great interest in small firms in Europe, it is very likely that relatively little of the total efforts and expenditure on economic policy in today's Europe takes into consideration the vital role of small and new firms in the economy. On the other hand, it is not a given that extensive small-firm-specific policies should at all be used by central governments. For large firms and small firms alike, the macroeconomic, legislative, and socio-cultural framework is more important than anything else. This framework should facilitate and reward the introduction of newness. It appears that at certain times and under certain conditions, small organizations are effective at introducing newness, while other conditions require the resources of large organizations (Arrow, 1983; Stockmann & Leicht, 1994). What policy-makers can do, of course, is to remove current practices that

discriminate against new and small firms. Possibly, ways can be found to improve the prospects for entrepreneurial profit from the introduction of innovations (in the broad sense) without reducing competition or discriminating against existing businesses.

As regards "conventional" small firm policy, Storey (1994) notes that objectives and targets of small firm policy have not been clearly stated, neither in the UK nor in any other EC country, and he suggests that a White Paper on small firm policy be produced. The present authors fully agree. An important aspect of this problem is whether small firm policy is an instrument for reduction of unemployment or a means of furthering economic growth. While small firms can have a role to play for both objectives, it is not the case that growth automatically leads to low unemployment. Supporting his argument with empirical data, Ormerod (1994) quite convincingly argues that over longer periods than a business cycle

[F]or any given path of economic growth, on the basis of international experience, the rate of unemployment is indeterminate (...) changes in the rate of economic growth need not lead to changes in employment or unemployment (p. 149, 151-152).

While this may be hard to swallow for some economic theorists, the converse is more obvious to most of us: that a policy that maximizes employment need not at the same time be a policy that maximizes economic growth. It is certainly also conceivable that there are alternative routes to achieve the same rate of economic growth. If so, the research evidence would seem to suggest that policies that put more emphasis on the small firm sector would have better chances to at the same time secure high levels of employment.

Another of Storey's (1994) recommendations is to continue with devolving policy to the local level. Most small business researchers would probably agree on this issue. However, at first glance our results would seem to suggest that little can be done to increase the rate of new firm formation. Firstly, the direct effect of regional development support is weak and disappears when net formation is the dependent variable. Secondly, the other factors associated with high rates of new firm formation are difficult to affect, at least in the short run. This is merely a reflection of the fact that also on the regional level, the "macroeconomic" framework is more important than anything else. Long term policy aiming at the general business climate rather than on new firm formation would therefore be the most effective also with regard to the latter.

The results should, however, not be regarded as evidence that every effort to specifically increase the rate of new firm formation is inherently futile. Our results suggest that gross dynamics are important *per se*. If the new firms contribute with *something*, e.g., increased competition that forces existing firms to use resources more efficiently, increasing the gross formation rate -- which the results suggest is possible to some extent -- may be fruitful even if it does not lead to higher rates of net new firm formation. The problem is, of course, to achieve higher rates of new firm formation at reasonable cost and without actually discriminating against existing businesses.

The results also suggest that policies must consider the existing business structure. In regions with high small firm density, obtaining high rates of gross new firm formation does not seem to be a problem. In such regions it would probably make more sense to direct the efforts at making existing firms utilize their growth potential. The potential for net job growth via new firm births is the greatest in regions that have historically not been dominated by small firms. The problem seems to be how to achieve this. However, results from research on the

characteristics of business founders would suggest that the effect of small firm density on new firm formation is an effect of role models and work experience in small firms (e.g., Stanworth et al, 1989; Gudgin et al, 1979). Increased visibility of the role models there are and targeting of policy measures on people with small business work experience is possible to achieve even if the total numbers of role models and individuals with such work experience happen to be smaller than the national average.

Increasing local demand seems to be the crucial "natural" force behind high levels of net new firm formation. This is quite natural given that most small firms are heavily dependent on the local market. However, firms in all industries are not equally dependent on local market conditions, and for a given region the local market conditions are not equally good or bad for firms in all industries. There should therefore be some room for policies aiming at increasing the number of start-ups in industries for which the regional market conditions are relatively favorable or relatively unimportant.

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APPENDIX

Further details on the data set

All together, data from four data-bases were used. These are:

- the Central Firm & Establishment Register (CFAR)
- the Regional Employment Register (ÅRSYS)
- the Register of Groups of Companies (KCR)
- the Register of Establishments and Firms with Foreign Ownership.

Parts of the data originate (i.e., they enter Statistics Sweden's registers) from administrative routines. Other parts build on mandatory-response surveys. *Existence* and *activity* is based on registration forms being sent in to authorities and the payment of VAT and/or taxes for employees, respectively. New entrants enter the register every 14 days. The November version of the register were used as our "annual" versions. A number of checks were carried out in order to obtain the highest possible quality of the input data. In addition, samples of register data were checked against reality by means of telephone interviews and other sources.

Employment data in CFAR are based on both administrative sources (payment of wages/salaries and employers fee) and, for multi-establishment firms, on annual survey data. However,   as data quality of the CFAR according to experts is less satisfactory as regards employment figures, the original size measure was in most cases (excluding the construction industry and a few unmatched cases) exchanged for more accurate figures from the ÅRSYS register, that tracks specific individuals. Administrative data on the number of people who received wages/salaries from the unit in November each year is used as the size measure. Corrections have been made so that the owner/manager is counted as an employee irrespective of the legal form of the firm, i.e. one employee has been added to all Simples and Tops that are units within unincorporated firms.

Affiliation with a company group is based on data from annual reports. In the case of an unincorporated business being owned by a company group this status is based on survey data. Survey data is also the source for data on foreign (majority) ownership. The included industries are (codes from system SNI69; Statistics Sweden's version of ISIC codes): SNI2, 3, 5, 6, 71, 92003-005, 92009, 95, and unclassified. In order to minimize the latter group, forward checks were made in all subsequent annual versions of the register, and unclassified status exchanged for the industry classification the unit eventually was assigned to.

Data on characteristics of regions were taken from other sources, mainly the Register on Regional Statistics (RSDB).