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Self-employment dynamics in rural and urban labour markets

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Abstract. Only few in-depth studies of the alternation between different labour market states have been published. This paper deals with the alternation between self-employment, paid-employment and non-employment in Finland in 1987-1999, paying special attention to differences in self-employment dynamics between areas characterized by different labour market conditions, viz. rural and urban locations. The analysis is based on a one-percent random sample drawn from panel data on the census and longitudinal employment statistics. The results show differences in the transition processes between the three labour market states by the type of area. The results suggest that alternation between different employment options is likely to increase, if employment opportunities remain low in local labour markets. Five major types of working careers are identified, all of which are more common in rural than urban areas. The type of area is importantly related to alternating working careers even when all the important control variables are included into the models.

1. Introduction

Regional variations in entrepreneurship or self-employment are wide in Finland (Niittykangas, Storhammar & Tervo 1994, Niittykangas 2003) as elsewhere (Malecki 1997). In Finland, self-employment is more common in rural locations than in urban locations (Alanen 1997, Niittykangas 1999).¹ The fact that there are fewer paid-employment opportunities in rural areas compared with urban areas certainly has an effect on this. Employment conditions influence self-employment decisions (Carrasco & Ejrnæs 2003). Individuals in a small, dispersed labour market may be pushed into self-employment if they see no other realistic options. Self-employment may offer individuals normally seen as marginalised in the labour market a beneficial alternative to wage work. Thus, in many cases, the great number of small firms in rural areas can be interpreted as due to a lack of employment opportunities in other firms or sectors rather than as the pull

¹ In general, arguments can be made both for and against the advantages of entrepreneurship in urban relative to rural locations. The empirical evidence is mixed (see Parker 2004).

of the market.² It can also be presumed that alternation between self-employment, paid-employment and non-employment (whether unemployed or out of the labour force) is more common in areas in which paid work is scarce than in areas which offer varied employment opportunities.

While micro-econometric research on the economics of self-employment has expanded and e.g. the decision to enter or leave self-employment has now been widely studied (see e.g. the special issue of *Labor Economics*, no 5, on self-employment or Parker 2004; for Finland Johansson 2000, Uusitalo 2001 and Niittykangas & Tervo 2003), few in-depth studies of the alternation between self-employment, paid-employment and non-employment have been published (see, however, Holm & Onnela 2004). This paper deals with the alternation between different labour market states in Finland in 1987-1999, paying special attention to differences in self-employment dynamics between areas characterized by different labour market conditions, viz. rural and urban locations.

Individuals differ in their attitudes to job attributes such as effort, risk or independence, which explains their career choices (Lévesque, Shepherd & Douglas 2002).³ Some individuals choose to be self-employed while others prefer paid-employment. It is also well-known that many personal factors such as sex, age, education and family relations affect choices between different employment options (Parker 2004). In addition, institutional factors such as labour market flexibility, the unemployment insurance system or child care may affect occupational choice. Individuals' choices between paid work, self-employment and non-employment are not always predetermined, but individuals may switch from paid-employment to self-employment or non-employment, and the other way around. It can be assumed that people choose a career path that maximizes their overall

2 Type of business and motivation for starting a business may, of course, differ greatly within any given area. E.g. Curran and Storey (1993) argue that people establishing businesses in rural areas place a greater emphasis upon 'life style' - they may set up a craft or very specialized type of business - than those in urban areas. The problems of rurality in Finland are not, however, on a scale comparable to those in many other European or North American countries.

3 At a formal level, the decision between different employment options can be treated as a form of the human capital investment problem, implying that an individual chooses that option which maximizes his/her utility in the long run (cf. Knight 1921, Evans & Leighton 1989a and 1989b, Tervo & Niittykangas 1994a).

utility (Lévesque, Shepherd & Douglas 2002). Changing attitudes towards job attributes or changing personal situations may affect career choices. These choices may also be affected by environmental factors. If employment opportunities remain low in local labour markets, alternation between different employment options will especially be likely to increase.

Labour market experience has an effect on occupational choice (Parker 2004). Evans & Leighton (1989b) estimated that previous self-employment experience had a positive impact on the probability of entering self-employment among white male Americans, whereas previous employment experience had no effect. Lazear (2002) showed that people with more varied experience are more likely to become entrepreneurs. It has also been shown for Finland that employed persons with varied experience are more likely to have entrepreneurial aspirations than others, and that labour market opportunities available to people with varied experience are likely to be richer than to others (Hyytinen & Ilmakunnas 2004). Several studies also show that those with more unstable work histories (including periods of past unemployment) are significantly more likely to enter self-employment and to be self-employed (Evans & Leighton 1989a, Carrasco 1999, Uusitalo 2001, Ritsilä & Tervo 2002, Parker 2004). These findings on the role of previous labour market experience may also account for the existence and shaping of varied careers.

This paper is concerned with the situation in Finland. Due to rapid economic expansion and structural change, rural areas in Finland have been losing population for a long time. They are also extremely sparsely populated by European standards. Together with vigorous technological progress in agriculture and forestry the rapid urbanization and industrialization processes that Finland has been going through have had the effect of centralizing both economic activity and population (Tervo 2004). This process has been underway for many decades now, but it gained extra impetus in the late 1990s. The 1990s were a time of very rapid structural change. While the recession years 1991-1993 deeply affected every region in Finland, the recovery, based on the export and information technology industries, was felt highly unevenly across the country. New jobs were mainly created in the largest urban centres. As a result, in 2000 the number of jobs was at pre-

recession levels in only six regions out of 82. Employment rates (the proportion of the working -age population who are employed) vary widely between regions, e.g. in 2000 this rate ranged from 58% to 74% (national rate 66%).

To accomplish the aim of this paper - to describe regional variation in self-employment dynamics and alternation between labour market states in Finland - areas are divided into two groups according to their degree of urbanisation. The analysis is based on a one-percent random sample drawn from panel data based on the census and longitudinal employment statistics. The data represent a sample of the population aged 18-54 in the first year of the study period, 1987. Those leaving the sample are excluded. Workers in primary industries are excluded on the grounds that farm businesses have very different characteristics from non-farm-businesses (cf. Blanchflower 2000, Parker 2004).

The dynamics of self-employment is first analysed as a Markov process among three labour market states, employment in the wage and salary sector, self-employment and non-employment. The results show that transition probabilities between these states differ between rural and urban areas. Flows into and out of self-employment indicate that the relative number of those individuals with several transitions and changes in their working careers is clearly bigger in rural than in urban areas. A cluster analysis revealed five major types of alternating working careers, all of which proved to be more common in rural than in urban areas. Multivariate estimations based on logit and multinomial logit models showed that the type of area - urban vs. rural - is really of great importance in relation to alternating working careers even if all important control variables describing personal and family characteristics are included into the model.

The paper is organized as follows. First, a data description is given and features of rural and urban areas in Finland are presented. Second, transitions between labour market states are analysed. Third, working career paths are examined and, fourth, the importance of the type of area is analysed. The paper ends with concluding remarks.

2. Data description

The data set

Since 1970, Statistics Finland has compiled a population census every five years; since 1990 the census has been entirely register-based. By matching the unique personal identifiers across the censuses, Statistics Finland constructed a Longitudinal Census File with panel data on the entire population of Finland at five-year intervals from 1970 onwards. In addition, since 1987, Statistics Finland has maintained the Longitudinal Employment Statistics File, which is updated annually. Since the same personal identifier is adopted in both the census and the longitudinal employment statistics, the two data sets can be merged, providing panel data on each resident of Finland for 1970, 1975, 1980, 1985 and then annually from 1987 onwards. This data has a very low attrition rate.

The Longitudinal Census File holds very rich information on individuals' educational attainments, labour market performance, family characteristics and many other variables. This data also allows to follow individuals' working careers and their choices between different labour market states. A shortcoming related to performing a regional analysis is that, owing to Finland's data protection legislation, Statistics Finland does not give exact information on region of domicile. Statistics Finland adds, however, to the data file certain variables which give limited information on the nature of the municipalities and local labour market areas in which individuals reside, e.g. the degree of urbanisation.

The data set used in this paper is drawn from the Longitudinal Census File. It is a one-percent random sample from this file. The sample is restricted in two ways:

1. Age-restriction. The individuals included in the sample need to be at least 18 years of age in the first year of the study period, 1987, and not aged over 64 years in the last year of the period, 1999. Thus, the range is 34 years. In addition, to enable an individual to be followed up, there must be complete data on that individual throughout the period. Thus, those who died or emigrated during the period are eliminated from the sample.

2. Industry-restriction. Individuals who worked in the primary sector in either 1987 or 1999 are excluded from the sample. This restriction is necessary to eliminate farmers and other agricultural entrepreneurs from the analysis owing to the special characteristics of self-employment in agriculture. The concept of self-employment is more vague in agriculture than in other industries (Blanchflower 2000). Limiting the sample in this way, of course, means the elimination of relatively greater number of individuals from rural than urban areas.

The size of the sample is 22 264 and it thus represents a random sample of the population aged 18-52 in 1987 who continued to reside in Finland up to 1999 and who did not work in primary production.

Definition of self-employment

Defining entrepreneurship is a difficult task (cf. Parker 2004). In this analysis, the concept of self-employment follows from the statistical definitions used by Statistics Finland (see Statistics Finland 2001). The central variable in this regard is “occupational status” which describes the position of the employed in the labour market: wage and salary earners, and entrepreneurs, which unfortunately cannot be divided into employers and self-employed (sole entrepreneurs). The category of entrepreneurs also comprises unpaid family workers. If an individual is not employed, (s)he belongs to a third category, non-employed. The non-employed are either unemployed or outside the labour force. The data on occupational status is based on the person’s national insurance status and wage, salary and/or entrepreneurial income received. For an entrepreneur, it is required that (s)he had a self-employed person’s pension insurance during the last week of the year and that his/her income from entrepreneurship exceeds his/her wage income, if the person is also in an employment relationship (for details, see Statistics Finland 2001).

Because self-employment is fundamentally a statistical concept used in labour market statistics and national accounting, great diversity can be found among those in this category (Johansson 2000). As is well-known, there exists a “grey area” between paid-employment and self-employment. For example, people may be self-employed by

definition but share many of the same features of dependent paid employees. Examples of workers in the ‘grey area’ include salespersons on commission, freelancers, home-workers, tele-workers and unpaid family workers (Parker 2004).

Urban and rural areas

Urban and rural areas are defined on the grounds of the degree of urbanisation of the municipality in which an individual resides. This piece of information is given by Statistics Finland in the sample, although the identifier of the municipality is not given.

If the proportion of people within the municipality who live in urban settlements is 80% or above, the municipality in our analysis is classified as an urban area. Otherwise it is classified as rural. An urban settlement refers to a cluster of buildings which are less than 200 metres apart from each other and which together house at least 200 people. In defining an urban settlement, Statistics Finland takes into account not only residential but also business, office and industrial buildings. Administrative divisions are irrelevant.⁴ In our sample, 32.9% of the individuals are from rural areas in 1987, while by 1997 the proportion has decreased to 31.5% .

When analysing transitions between labour market states in rural and urban areas those individuals whose type of area is unknown (n= 546) or changes during the study period (migrated from rural to urban areas or vice versa, n = 2504) are excluded from the data set. Otherwise comparisons between rural and urban areas would have become distorted. After these exclusions, the number of individuals is 19214, of which 5725 were resident in rural areas and 13489 in urban areas.

⁴ Statistics Finland has a classification which allows for still more accurate distinctions between urban and rural areas than the classification used here. The classification divides municipalities into three categories: urban-type municipalities, densely populated municipalities and rural-type municipalities (Statistics Finland 2001). In addition to the degree of urbanisation, the classification is also based on the population of the largest urban settlement. Unfortunately, the first year for which this variable is available in our data set is 1995, hence the variable could not be used here. In practice, however, the differences between the classifications are not large.

Table 1 shows some basic statistics on urban and rural areas from around the middle of the study period. The numbers of municipalities in urban and rural areas are 82 and 372, respectively. Less than 40% of the population were living in urban areas⁵, while these locations cover nearly 94% of the total area. Population densities differ greatly between rural and urban locations. The figures show a strong increase in urban populations, while rural areas have lost people despite overall population growth in Finland.⁶ The age and education structures of the population favour urban areas: urban areas have more educated and younger populations compared with rural areas. The biggest urban-rural difference in industrial structure is in primary production, but the shares of services, especially the share of trade, transport and financing & business services, differ substantially by area type. If primary production is excluded from the employment structure, as in our sample, the differences in the shares of the service sector are not that big, but in that case the share of industry is bigger in rural than in urban areas.

(Table 1, Page 21)

Total unemployment was at the same level in both areas in 1993, which was the deepest recession year in Finland. This item of information might seem surprising at first, but knowing that the recession at the beginning of the 1990s led to a dramatic rise in unemployment and cut jobs sharply and evenly in all regions the equality in unemployment rates is no longer that odd. Several cities also suffer from structural problems, which raises unemployment. Three other labour market measures indicate a clearly worse situation in rural than in urban locations. The employment rate is somewhat worse and self-sufficiency in jobs clearly worse in rural than in urban areas. The latter measure indicates that the number of jobs compared with the number of employed in an area is notably smaller in rural areas. The most striking difference between the two areas is in the dependency rate: the number of unemployed persons and persons outside the labour force for each employed person is clearly bigger in rural than in urban areas. The

5 It should be noted that the population shares in this study differ from those in the sample, owing to the exclusion of those who worked in the primary sector. The age restriction also has a small effect on this. In all, these restrictions in the sample diminish the share of population in rural areas from the actual figure of 39% to 32%.

6 Total population growth in Finland under the period 1970-1993 was 10%.

maximum value of this ratio is as high as 2.80 among rural municipalities, while it is “only” 1.80 among urban municipalities. In all, these figures clearly demonstrate the relative lack of employment opportunities in rural locations.

Figure 1 shows how the non-agricultural self-employment rates evolved over the study period 1987-1999.⁷ First, a distinct difference can be seen between rural and urban locations. On an average, the self-employment rate over the period has been twice as high in rural than urban locations. If we relate the proportion of self-employed persons to the total population (employed + non-employed), the difference is no longer that big. This is due to the bigger proportions of the non-employed in rural locations. Second, there is a different trend in the two areas: while the trend in the self-employment rate is slightly upward in urban areas (from 5.9% to 7.9%), in rural areas the self-employment rate first increases, peaks in the deepest year of the recession, 1993 (16.8%), after which it falls, ending up at 12.1%, which is, coincidentally, precisely the same rate as in the first year of the period.

(Figure 1, Page 29)

3. Transitions between labour market states

Figure 1 above showed that the self-employment rate increased over the study period in urban areas, while in rural areas it first increased and then decreased. There is, however, much “intra-area dynamics” in this development: new entrepreneurs spring up, while old ones give up. In general, firm births and deaths can be interpreted as the inevitable consequences of industrial evolution and long-term regeneration (Tervo & Niittykangas 1994b). Schumpeter (1966) described this process as one of “creative destruction”, in which the economic structure is continually revolutionized from within, as the old structure is destroyed and a new one created. High turbulence, i.e. the flux created in the total composition of a sector or industry caused by flows of births and deaths (see e.g. Beesley

⁷ The self-employment rates were calculated in the sample and reveal the non-agricultural self-employment rates among the population aged 18-52 in 1987. Since the sample is random, the results can otherwise be generalized across the population.

& Hamilton 1984 or Audretsch 1990), is usually found in more innovative or newer industries. We are, however, analysing changes in aggregate self-employment, in which case high entry and exit rates may also follow from necessity.

If we look at the absolute numbers of self-employed persons in our sample, we can see that the total change was +102 in urban locations and -77 in rural locations. Each year the number of flows into and out of self-employment are, however, notably greater than the net change, as we can see from Figure 2. On an average, the number of inflows was 107 and the number of outflows 98 in the sample per year in urban areas, while the equivalent numbers were 66 and 73 in rural areas. Accordingly, the average annual change was only +8 in urban areas and -6 in rural areas. The respective entry rates for urban and rural areas are 14.7% and 11.7% and the exit rates 13.5% and 12.8%, yielding net rates of +1.2 and -1.1%. A higher rate of turbulence seems to prevail in urban than in rural areas (28.2% vs. 24.5%), but it should be remembered that aggregate self-employment is on a clearly higher level in the latter areas. If we relate the flows into and out of self-employment to the total number of individuals, these “entry rates” are 0.8% and 1.2% and “exit rates” 0.7% and 1.3% for urban and rural areas, respectively. Thus, the rate of turbulence is smaller in urban than rural areas (1.5% vs. 2.5%).

(Figure 2, Pages 30 to 32)

Figure 2 also reveals the sources of inflows and destinations of outflows. In both areas, inflows from paid-employment to self-employment are greater than inflows from non-employment to self-employment, especially during the initial years of the study period before the severe recession of the early 1990s. The difference in favour of paid-employment is especially noticeable in urban areas. This is the main entry mechanism to self-employment. In the deepest years of the recession, however, the flows from non-employment exceeded the flows from paid-employment.

The Markov chain analysis allows for a deeper analysis of the transitions between the three labour market states (cf. Kuhn & Schuetze 2001). Elements (p_{ij}) of each 3x3 matrix yield the empirical probability that an individual in state i at time t will be in state j at time $t+1$.

Separate **P** matrices are reported for the sample as a whole (Table 2), by the type of area (Table 3) and for three different periods (Table 4). We have estimated both short-run and long-run first-order Markov chain transition matrices. In estimating the transition probabilities it has been assumed that the underlying process of change can be described in terms of one-step transitions, i.e. that the state occupied by an individual at time t depends only on that individual's state at time $t-1$. The Tables also report the ergodic distribution of individuals across these three states under the assumption that the transitions among the labour market states are governed by a Markov process; i.e. that there is no state dependence. This ergodic distribution is the fraction of the population that would occupy each of these labour market states if the transition matrix **P** applied to annual transition rates indefinitely.⁸ These steady-state distributions should be interpreted as a characterization of tendencies in the study period, not as forecasts of future developments. Finally, the Tables report a steady-state rate of self-employment for each transition matrix, as implied by the ergodic distributions across the states.

(Tables 2- 4, Pages 22 to 24)

The Tables clearly reveal a considerable amount of dynamics in the labour markets, although over the one-year horizon the predominant feature is, naturally, high persistence. The overall probability of an individual remaining in the same state turns out to be 0.869 in the sample as whole, while in urban areas it is 0.878 and in rural areas 0.863. The greater probability in urban areas is due to the high persistence of wage earners. Instead, the probabilities of self-employed and non-employed individuals remaining in their states are greater in rural than in urban areas. Indeed, when related to the state of self-employment, we can see that the probabilities of transiting to self-employment are greater and the probabilities of leaving it are smaller in rural than in urban locations. In all, the Markov matrices indicate how activities outside wage work play a greater role in rural than urban areas.

⁸ The ergodic distribution is calculated as the eigenvector \mathbf{q} associated with the unit eigenvalue such that $\mathbf{P}\mathbf{q}=\mathbf{q}$. By definition, \mathbf{q} must sum to one.

The estimated long-run models, based on the 12-year transition from 1987 to 1999, show a less evident trend to persistence. The overall probability of an individual remaining in the same labour market state during the twelve-year period is 0.642, while in urban areas it is 0.660 and in rural areas 0.639. It is interesting, though perhaps not very surprising, that the probability of self-employed persons remaining self-employed throughout the period decreases considerably. Thus, there seems to be a great deal of alternation between self-employment and other labour market states.

Tables 2-4 also contain the iterated one-step transitions in which the one-step transition function of the short-run model is iterated to cover the same time span as that of the long-run model. Comparison of the iterated models with the long-run models show that actual changes in labour market states during the period 1987-1999 were smaller than the best-fitting one-step model predicted them to be. The diagonal entries of the iterated models are smaller than those of the long-run model. This diagonal under-prediction is not, however, surprising in the light of earlier results yielded by Markov chain applications (see for example Quah 1993 or Pehkonen & Tervo 1998). When related to the state of self-employment, it is interesting to find that the predicted transition to paid-employment is much greater than was the actual transition, and, reciprocally, the prediction of the probability of remaining in the same state is smaller than the actual rate of retention rate in self-employment. Thus, self-employed persons are more likely to stay self-employed than the short-run model would predict. This might also suggest about the existence of alternation between self-employment and paid-employment.

Table 4 shows the estimated short-run Markov chain transition matrices by type of area for three different periods. The maximum likelihood estimation of the transition probabilities presupposes stationarity; i.e. that the probability of going from one state to another is independent of the time at which the step is being made. Although this assumption is roughly fulfilled, the results from the three periods show some variation in time. This variation may be due both to different tendencies between the periods and to the different age phases of the individuals in the (fixed) sample. The ergodic distributions implied by the transition functions show especially that the steady-state rates of self-employment decreased substantially in rural locations during the last 5-year period, 1995-1999, while

there was no change in urban locations. It is interesting to compare the steady-state rates of self-employment to the development of the actual rates (cf. Figure 1). The steady-state rates show a somewhat higher level than the actual rates in urban areas throughout the period, revealing the upward tendency in these areas. In rural areas, the steady-state rate was also on a higher level in the first two periods, but fell during the last period, levelling out a rate close to the steady-state rate estimated for urban areas. High growth might have affected entrepreneurship in the large cities and other urban locations in the late 1990s, while demand pull did not reach rural locations.

4. Alternating working careers

The above analysis showed evidence of a considerable amount of dynamics in the labour markets. Next we analyse alternation between self-employment and other labour market states among individuals. We are especially interested whether this alternation is greater in rural than in urban areas, knowing that rural locations suffer from declining employment as a result of a shrinking agricultural employment base and the failure of alternative forms of economic activity to emerge sufficiently. The analysis above also clearly showed a higher rate of self-employment and greater transitions probabilities from paid- and non-employment to self-employment in rural than urban areas.

Table 5 indicates that alternation between self-employment and other labour market states is indeed more common in rural than in urban areas. The share of those individuals with frequent entries to and exits from self-employment is relatively big in rural locations: 3.4% of all individuals transited to self-employment and 2.2% switched from self-employment at least twice in the twelve-year period, compared to 2.1% and 1.2% in urban areas. The average length of the self-employment period among the self-employed is longer and the proportion of those who worked as self-employed throughout the period larger in rural than in urban locations, suggesting, however, the existence of larger “core” of self-employed individuals in rural areas.

(Table 5, Page 25)

Table 6 gives more detailed information on the distribution of the different working career patterns in the two areas. The most noteworthy finding is that rural dwellers show more alternation in their working careers than urban dwellers. The proportion of those who have been both in paid- and self-employment is nearly five and the proportion of those with self-employment and non-employment experience four percentage points higher in rural than in urban areas. Furthermore, the proportion of those who have been in all three labour market states is 9% in rural areas and 6% in urban areas. Career paths are evidently more varied in rural than in urban locations.

(Table 6, Page 26)

To analyse alternating working careers more thoroughly, individuals with both paid- and self-employment experience (n=2374) were extracted from the data in order to reveal natural groupings, or clusters, within this data set on the basis of information on each individual's labour market states for each year of the study period. The procedure used is TwoStep Cluster Analysis, which also works with categorical variables in contrast to traditional clustering techniques.⁹

The clustering produced five distinct groups of individuals with alternating careers (Table 7). The first group consists of those individuals who transited from a short period of paid-employment to self-employment; the second of those who, after a lengthy period of self-employment, transited to paid-work; the third of those who only at the end of period transited to self-employment, after a lengthy period in paid- and non-employment; the fourth of those who were most of the time non-employed, but were in self- and paid-employment at the beginning of the period; and the fifth of those who were most of the time in paid-work, but were self- and non-employed at the beginning.

(Table 7, Page 27)

⁹ The categorical variables used in the cluster analysis are the 13 variables which describe an individual's occupational status (labour market state) in each year of the period. The likelihood measure is used as a distance measure. This assumes that variables in the cluster model are independent and have a multinomial distribution. The procedure determines automatically the "best" number of clusters, using the Bayesian Information Criterion.

All these five groups are represented in both areas, although there is some variation in their distributions. Group 2 - those who transitioned to paid-work after a lengthy period of self-employment - is strongly represented in rural areas, while group 5 - those who were chiefly in paid-work after being self- and non-employed for a short time at the outset - is relatively well represented in urban areas. It should, however, be noted that alternation between different labour market states in aggregate is more common, and the relative number of those who show alternation in their working careers is greater, in rural than in urban areas. If we take this into account, each group is represented better in rural locations than in urban locations.

5. Logit and multinomial logit analyses

The analysis showed that alternation between self-employment and other labour market states is more common in rural than in urban areas and that individuals with alternating working careers are more likely to reside in rural locations than might be expected. In addition to location, this may, however, derive from different personal and other factors between rural and urban populations. To analyse this more thoroughly, we further carried out multivariate analyses in which all the important control variables are included.

The Appendix presents a description of the variables used. In addition to the rural/urban - variable, the analyses include two variables which describe individuals' region of domicile. The first of these "service-dominated municipality" shows whether an individual resides in an environment in which the service sector is strong. The second regional dummy states whether unemployment in the individual's travel-to-work area has been high at any point of time during the study period. The variables describing personal and family characteristics are standard variables used in many analyses of self-employment, describing sex, age, education and family relations (cf. Parker 2004). A dummy indicates whether the individual is female or not. Another dummy separates older individuals from younger ones. An education variable separates those with intermediate-level education from those with either upper or basic education. In addition, two dummies indicate two main educational orientations, the first separating those with a commercial education and the second those with a technical education. A language dummy shows whether the

individual belongs to the Swedish-speaking segment of the population. Two variables indicate the individual's family status, the first one showing whether (s)he is married or cohabiting, and the second one whether the household has more than two members (mostly indicating families with children).

First, a logit model was estimated with a dependent variable which was assigned the value of one if an individual had been in both paid- and self- employment during the period (n=2007), and zero if not. Second, a multinomial logit model was estimated with a dependent variable based on the clustering result above. Thus, the reference class remains the same as in the logit model, whereas individuals with alternating working careers form five groups (cf. Table 7).

(Table 7, Page 27)

The results show, first of all, that the variable "rural-urban" obtains a statistically significant coefficient in all cases: the probability that an individual will have an alternating working career clearly increases if (s)he lives in a rural location. In the logit estimation, the estimated effect is clear. In the multinomial logit estimation, the coefficients vary somewhat depending on the type of working career. The effect of a rural location seems to be especially strong among those who transited to paid-employment after a lengthy period of self-employment. The two other variables describing the environment an individual resides in obtain no significant coefficients. An exception is category 4 in the multinomial estimation: regional unemployment seems to have affected those individuals who were in self- and paid-employment only at the beginning of the period and who were otherwise non-employed.

The behaviour of personal and family variables is in most cases as expected. Gender has a strong effect on alternation in working careers - men are more likely than women to choose (or to drift into) an alternating working career. The probability of having an alternating working career decreases with age in the sample, and is significant especially if an individual has had paid- and non-employment experience of long duration before the transition to self-employment. The opposite effect can be found in category 4, which

includes those individuals who were non-employed for most of the period: the probability of belonging to this group increases with age. Mother tongue has no impact. Intermediate level of education somewhat increases the probability of having alternation in working career.¹⁰ Commercial education also increases this probability, but not in all categories. Technical education typically has no effect, except in category 4, where it decreases the probability of having that type of alternating working career. In most cases, marital status and family size both have a positive and significant effect. Again, category 4 is an exception in the multinomial logit estimation, where the effect of marriage is negative.

6. Conclusions

Self-employment is an important alternative especially in those areas which have fewer paid-employment opportunities. For many individuals in these locations, alternation between different labour market states, i.e. paid-employment, self-employment and non-employment, becomes a necessity. Rural labour markets are characterized by worse rates of employment, self-sufficiency in jobs and dependency than urban labour markets. Historically, rural areas have suffered from depopulation and declining employment due to overdependence on a shrinking agricultural sector, low population density and the failure of sufficient alternative forms of economic activity to emerge.

This paper demonstrates that self-employment dynamics is clearly more common in rural than urban labour markets in Finland. The Markov analysis showed differences in the transition processes between the three basic labour market states in the two areas. Individuals with alternation in their working careers are more likely to reside in rural locations than might be expected. Five major types of working careers were identified. Logit and multinomial logit analyses showed that the type of area is importantly related to alternating working careers even when all the important control variables describing

¹⁰ In general, the role of education in self-employment is ambiguous. Education may increase an individual's probability of becoming self-employed, as it enhances his/her human capital, but higher earning capacity which arises due to a higher education level may also depress this probability. Finnish results suggest that individuals with a higher level of education have a lower probability of entering self-employment (Johansson 2000, Uusitalo 2001, Niittykangas & Tervo 2003). Kangasharju & Pekkala (2002) found that the exit probability is lower for the firms run by highly educated in the economic downturn, whereas it is higher in the economic upturn.

personal and family characteristics are included in the models. This result was obtained irrespective of the type of working career change.

This is one of the first papers to address alternation between different labour market states, and so leaves considerable room for further research. For example, the factors affecting transitions (entries and exits) between labour market states should be analysed more thoroughly. We also need further analysis of the determinants of durations in different states. Answers to these questions are needed before we can fully understand the role of alternating working careers in different labour markets.

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Table 1. General features of rural and urban areas

Feature	Urban areas¹	Rural areas¹
Number of municipalities	82	372
Average population in municipalities (1993)	37419	5365
Proportion of population, % (1993)	60.6	39.4
Proportion of labour force, % (1992)	63.5	36.5
Proportion of total area, %	6.5	93.5
Population density (1993)	263.5	11.1
Percentage change in population in 1970-1993	+20.9	-2.5
Level of education, %: upper secondary education (1993)	44.7	42.1
Level of education, %: higher education (1993)	15.0	7.6
Proportion of elderly (≥65) population, % (1993)	12.6	15.9
Employment structure, %: primary production (1992)	1.6	20.9
Employment structure, %: secondary production (1992)	25.6	25.2
Employment structure, %: trade, transport and financing & business services (1992)	37.3	24.6
Employment structure, %: public, social and personal services (1992)	33.3	26.5
Average income subject to national state taxation per household-dwelling unit, Fmk (1992)	164 189	142 275
Unemployment rate, % (1993)	19.5	19.5
Employment rate, % (1993)	60.3	57.5
Self-sufficiency in jobs (number of jobs compared with the number of employed in an area, 1992)	108.4	85.4
Dependency rate (number of unemployed persons and persons outside the labour force for each employed person, 1993)	1.43	1.72

¹ The classification of areas is based on the degree of urbanisation used by Statistics Finland. If the proportion of people within the municipality who live in urban settlements is more than 80%, the municipality is classified as urban, otherwise as rural. An urban settlement refers to a group of buildings which are less than 200 m apart and which together house at least 200 people. The data on urban settlements are based on the 1990 Population Census.

Table 2. Estimated Markov chain transition probabilities; three labour market states

State	Paid-employment	Self-employment	Non-employment
<i>A. Short-run model: first order, time stationary (1987-1999)</i>			
Paid-employment	0.903	0.008	0.090
Self-employment	0.065	0.868	0.067
Non-employment	0.204	0.014	0.781
<i>Ergodic</i>	0.645	0.069	0.286
<i>B. Long-run model: 12-year transition (1987-1999)</i>			
Paid-employment	0.707	0.042	0.251
Self-employment	0.296	0.404	0.300
Non-employment	0.481	0.036	0.483
<i>Ergodic</i>	0.606	0.063	0.331
<i>C. Iterated long-run model: stationary estimate, iterated 12 times (1987-1999)</i>			
Paid-employment	0.660	0.056	0.284
Self-employment	0.518	0.218	0.264
Non-employment	0.643	0.062	0.295

Table 3. Estimated Markov chain transition probabilities for urban and rural labour markets; three labour market states

State	Urban labour market areas			Rural labour market areas		
	Paid-employment	Self-employment	Non-employment	Paid-employment	Self-employment	Non-employment
<i>A. Short-run model: first-order, time stationary (1987-1999)</i>						
Paid-employment	0.912	0.007	0.081	0.892	0.010	0.098
Self-employment	0.064	0.865	0.072	0.061	0.874	0.065
Non-employment	0.203	0.013	0.784	0.185	0.019	0.796
<i>Ergodic</i>	0.669	0.060	0.272	0.591	0.095	0.314
<i>B. Long-run model: 12-year transition (1987-1999)</i>						
Paid-employment	0.719	0.039	0.243	0.687	0.048	0.265
Self-employment	0.268	0.417	0.315	0.318	0.421	0.261
Non-employment	0.488	0.034	0.478	0.379	0.036	0.585
<i>Ergodic</i>	0.618	0.060	0.324	0.542	0.069	0.389
<i>C. Iterated long-run model: stationary estimate, iterated 12 times (1987-1999)</i>						
Paid-employment	0.683	0.049	0.268	0.610	0.076	0.314
Self-employment	0.534	0.207	0.259	0.472	0.247	0.282
Non-employment	0.663	0.054	0.282	0.590	0.085	0.326
<i>Steady state rate of self-employment</i>	0.072			0.138		

Table 4. Estimated short-run Markov chain transition probabilities; three periods, three labour market states

State	Urban labour market areas			Rural labour market areas		
	Paid-employment	Self-employment	Non-employment	Paid-employment	Self-employment	Non-employment
<i>Period 1987-1990</i>						
Paid-employment	0.925	0.010	0.065	0.909	0.015	0.076
Self-employment	0.089	0.841	0.069	0.059	0.882	0.059
Non-employment	0.332	0.016	0.653	0.278	0.029	0.693
<i>Ergodic</i>	0.779	0.062	0.159	0.675	0.133	0.192
<i>Steady state rate of self-employment</i>	0.074			0.165		
<i>Period 1990-1995</i>						
Paid-employment	0.892	0.006	0.102	0.866	0.009	0.125
Self-employment	0.058	0.851	0.091	0.062	0.869	0.069
Non-employment	0.191	0.015	0.794	0.174	0.023	0.803
<i>Ergodic</i>	0.612	0.058	0.330	0.528	0.101	0.370
<i>Steady state rate of self-employment</i>	0.087			0.161		
<i>Period 1995-1999</i>						
Paid-employment	0.927	0.005	0.068	0.910	0.006	0.083
Self-employment	0.052	0.899	0.049	0.062	0.876	0.062
Non-employment	0.160	0.010	0.830	0.152	0.011	0.837
<i>Ergodic</i>	0.657	0.062	0.281	0.606	0.060	0.333
<i>Steady-state rate of self-employment</i>	0.086			0.090		

Table 5. A comparison of inflows, outflows and years in self-employment in urban and rural areas

		Urban areas (n = 13489)	Rural areas (n=5725)
Number of transitions per individual into self-employment in 1987-1999; % (also includes those who were self-employed in the first year of the period, 1987)	0	88.1	80.8
	1	9.7	15.8
	2	1.8	2.9
	≥ 3	0.3	0.5
	All	100.0	100.0
Number of transitions per individuals out of self-employment in 1987-1999, %	0	92.6	87.4
	1	6.2	10.4
	2	1.1	1.9
	≥3	0.1	0.3
	All	100.0	100.0
Years in self-employment in 1987-1999, %	0	88.1	80.8
	1	2.1	2.5
	2-4	3.5	4.8
	5-7	2.2	3.9
	8-12	2.6	4.8
	13	1.5	3.2
	All	100.0	100.0
Average years in self-employment in 1987-1999 (among those who have been self-employed)		5.7 years	6.7 years
The percentage of those who were in self-employment throughout the period (1987-1999) among self-employed in 1999		25.9%	40.4%

Table 6. Basic data on different working careers in 1987-1999 in urban and rural areas

		Urban areas	Rural areas
In paid-employment	All years	37.4%	29.7%
	No years	6.9%	12.3%
In self-employment	All years	1.5%	3.2%
	No years	88.1%	80.8%
In non-employment	All years	4.1%	6.7%
	No years	42.0%	37.6%
<u>Only</u> in paid-employment or in self-employment		86.8%	79.5%
Both in paid-employment and self-employment		9.1%	13.7%
- average years in paid-employment		5.6 years	5.3 years
- average years in self-employment		4.5 years	5.1 years
Both in self-employment and non-employment		7.4%	11.3%
- average years in self-employment		4.3 years	4.8 years
- average years in non-employment		4.6 years	4.4 years
In all three labour market states		6.0%	9.0%
- average years in paid-employment		5.0 years	4.8 years
- average years in self-employment		3.6 years	4.2 years
- average years in non-employment		4.3 years	4.0 years

Table 7. A typology of alternating working careers¹

Cluster description ¹ (number of observations)	Average years in:			Distribution; %		
	paid-employment	self-employment	non-employment	urban areas	rural areas	urban areas: hypothetical ²
1. From brief paid-employment to self-employment (n=427)	3.3	9.1	0.6	19.9	17.9	13.1
2. From long-time self-employment to paid-employment (n=396)	4.3	7.4	1.4	12.7	24.5	8.4
3. From long-time paid- & non-employment to self-employment (n=470)	6.6	3.5	2.9	20.5	17.1	13.5
4. Mostly non-employment, in the beginning paid- & self-employment (n=520)	3.1	2.6	7.2	22.0	20.0	14.5
5. Mostly paid-employment, in the beginning self- & non-employment (n=561)	9.4	2.0	1.6	24.8	20.5	16.3
All	5.5	4.6	2.9	100.0	100.0	65.8

Notes: ¹ The typology of alternating working careers is based on the TwoStep Cluster Analysis. The data set consists of those individuals who have changes in their working careers (n=2374), i.e. who have been in both paid-employment and self-employment during the study period 1987-1999.

² The hypothetical distribution of urban areas is calculated on the assumption that the number of individuals who have alternating working careers would have been at the same level in urban as rural areas.

Table 8. Logit and multinomial logit estimations

Variable	Logit model: Coeff. (S.E.)	Multinomial logit model: coefficients (standard errors)				
		Category 1	Category 2	Category 3	Category 4	Category 5
Rural	0.42*** (0.06)	0.28* (0.12)	1.05*** (0.13)	0.31* (0.12)	0.32** (0.12)	0.23* (0.11)
High unemployment	-0.01 (0.06)	-0.19 (0.12)	-0.24 (0.12)	-0.03 (0.12)	0.32** (0.12)	0.02 (0.11)
Service-dominated municipality	-0.10 (0.07)	-0.29* (0.14)	-0.30 (0.17)	0.06 (0.14)	0.09 (0.13)	-0.10 (0.13)
Female	-0.55*** (0.05)	-0.88*** (0.12)	-0.51*** (0.12)	-0.64*** (0.12)	-0.52*** (0.11)	-0.29** (0.10)
Old	-0.27*** (0.06)	-0.22 (0.13)	-0.10 (0.13)	-0.92*** (0.15)	0.23* (0.11)	-0.52*** (0.12)
Swedish-speaking	0.04 (0.11)	-0.04 (0.24)	0.13 (0.23)	-0.23 (0.27)	-0.16 (0.27)	0.23 (0.21)
Intermediate level of education	0.15** (0.05)	0.39** (0.12)	0.16 (0.13)	0.14 (0.12)	0.28* (0.11)	-0.15 (0.11)
Field of education: commercial	0.29*** (0.07)	0.59*** (0.14)	0.24 (0.16)	0.36* (0.14)	0.05 (0.15)	0.23 (0.13)
Field of education: technical	-0.10 (0.07)	-0.05 (0.14)	-0.13 (0.15)	-0.00 (0.14)	-0.29* (0.14)	-0.04 (0.13)
Married or cohabiting	0.29*** (0.06)	0.64*** (0.16)	0.48** (0.15)	0.44** (0.15)	-0.27* (0.12)	0.40** (0.13)
Family with children	0.22*** (0.06)	0.36** (0.13)	0.05 (0.13)	0.30* (0.13)	0.18 (0.12)	0.19 (0.11)
Constant	-2.34*** (0.08)	-3.65*** (0.38)	-3.49*** (0.39)	-4.24*** (0.41)	-3.58*** (0.39)	-3.58*** (0.34)
Number of individuals	19214	19182				
Number of individuals who have alternating working careers	2007	382	347	383	425	463
-2 log likelihood	12525.5	4751.0				
Model khii2	333.3***	546.4***				

Logit model: dependent variable has (=1) / has not (=0) had changes in working career (been in both paid-employment and self-employment). Multinomial logit model: dependent variable a typology (1-5) of alternating working careers (see Table 7), reference category “no alternating working career”.

***/**/* statistically significant at the 0.001/0.01/0.05 level.

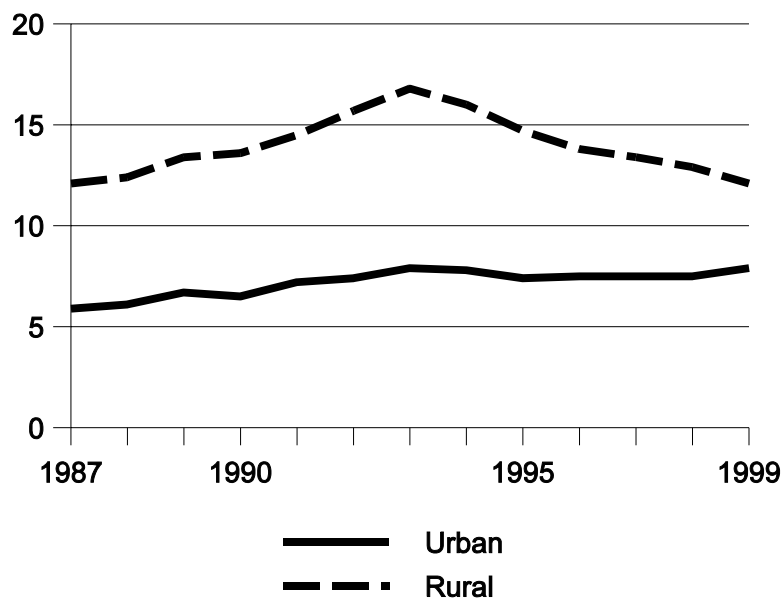


Figure 1. Non-agricultural self-employment rates (%) in urban and rural labour markets 1987-1999

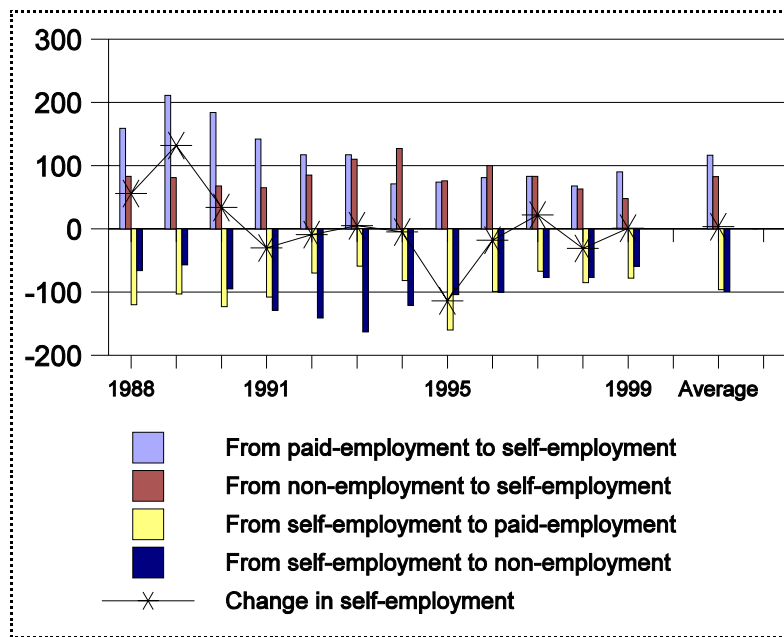


Figure 2a. Flows into and out of self-employment in 1987-1999; labour markets as a whole

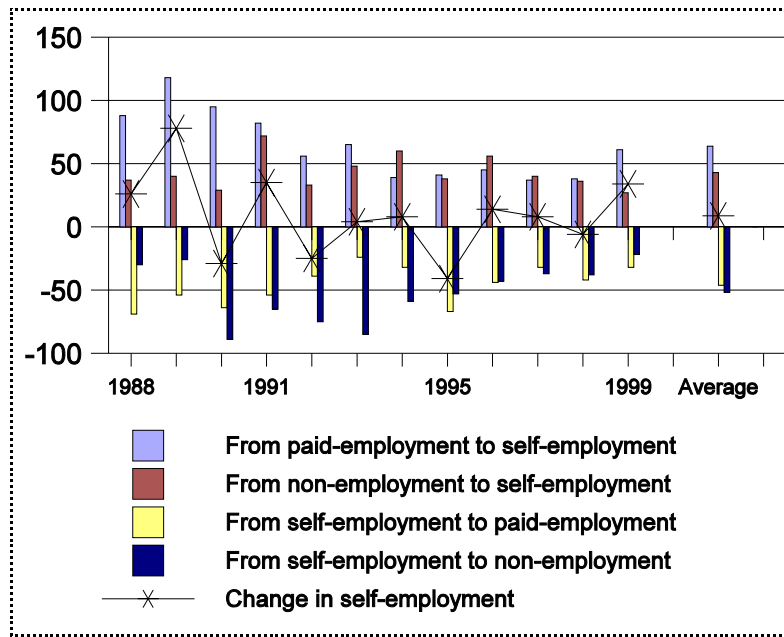


Figure 2b. Flows into and out of self-employment in 1987-1999; urban labour markets

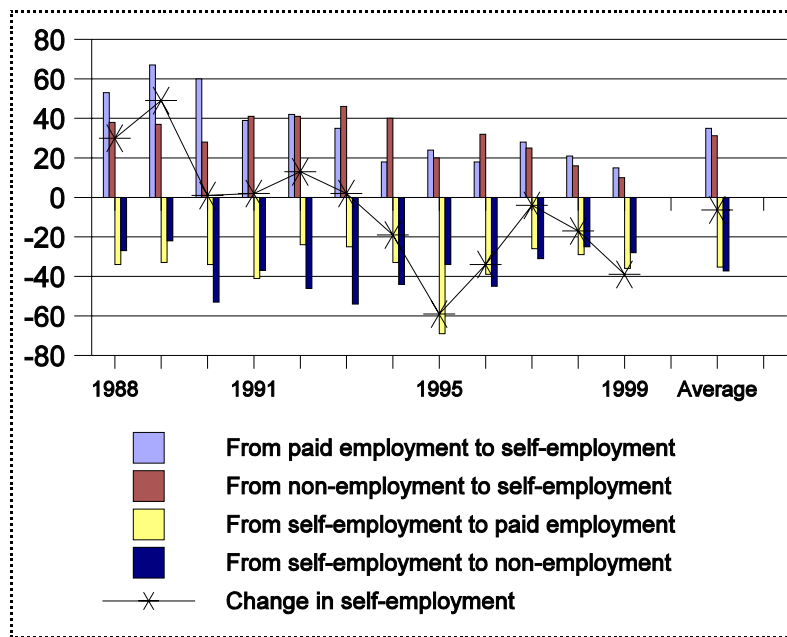


Figure 2c. Flows into and out of self-employment in 1987-1999; rural labour markets

Appendix. Descriptions for explanatory variables and their means

Variable	Description	Mean
Rural	1 if an individual resided in rural areas throughout the study period 1987-1999, 0 if in urban areas	0.2980
High unemployment	1 if unemployment rate in the travel-to-work area belonged to the worst third of all travel-to-work areas in any year of the study period 1987-1999, 0 otherwise	0.5735
Service-dominated municipality	1 if proportion of services in the municipality of residence (1990) belonged to the highest third of all municipalities, 0 otherwise	0.4678
Female	1 if female, 0 if male	0.5089
Old	1 if age between 40-52 in 1987, 0 if age between 18-39	0.3316
Swedish-speaking	1 if Swedish-speaking, 0 otherwise (1998)	0.0478
Intermediate level of education	1 if secondary education (1998, equivalent of 10-12 years of education), 0 otherwise	0.3805
Field of education - reference category other fields		
- commercial	1 if field of education commercial (1998), 0 otherwise	0.1522
- technical	1 if field of education technical (1998), 0 otherwise	0.2443
Married or cohabiting	1 if married or cohabiting (1998), 0 if single	0.7200
Family with children	1 if more than two persons in the household (1998), 0 otherwise	0.5127