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**SWP 14/90 PRIVATE BUSINESS SALES ENVIRONMENTS
IN THE UNITED KINGDOM**

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PRIVATE BUSINESS SALES ENVIRONMENTS IN THE UNITED KINGDOM

ABSTRACT

This research analyses the local environments of those firms in the United Kingdom choosing the most frequently used Exit Route, the private advertised sale, between 1983 and 1987. Marked spatial differences in both the absolute and relative level of sales were identified, and were associated with agglomeration economies, rurality/urbanity, personal wealth and relative well-being.

PRIVATE BUSINESS SALES ENVIRONMENTS IN THE UNITED KINGDOM

With the advent of a new "Enterprise Culture" in the United Kingdom, there is a growing recognition that a healthy economic environment is one in which there is significant corporate churning. In the small firm sector, this is reflected in both high birth rates and high, early death rates [Beesley and Hamilton 1984, Birley 1986]. However, births and deaths are only part of the churning effect which takes place in the market-place. Companies, often healthy companies, are also bought and sold as their owners change their personal and corporate strategies. Indeed, the recent growth of the British Venture Capital Industry has highlighted the importance of identifying the means by which both founders of, and investors in, successful firms realise their original investment - their EXIT ROUTES.

There is also increasing evidence of a second phenomenon in the United Kingdom - the North/South divide. Evidence to support the argument of clear economic differences are drawn from a number of sources, for example, varying house prices

[Fleming and Nellis, 1988a, 1988b] or unequal levels of unemployment [Green, 1985, 1986]. It is suggested that new service firms predominate in the south, and declining manufacturing firms in the north [Fothergill and Gudgin, 1982; Champion et al, 1987]; that there is a surplus of skilled workers in the north, and an abundance of jobs in the south [Green and Owen, 1984]. Increasingly, however, researchers are suggesting that the analysis has been too crude, that there are certainly spatial differences, but that they are likely to be directly related to specific local economic conditions [Green, 1988].

This research analyses the local environments of those firms choosing the most frequently used exit route of the private advertised sale.

PREVIOUS RESEARCH

Exit Routes; There are four choices which are open to the owner manager when deciding to exit ownership of his company.

- * Sale to a third party
- * Sale to the management and/or employees
- * Public quotation on the Stock Exchange
- * Liquidation

However, the most striking feature of a survey of the

literature is that it fails to identify any research which deals with this general phenomenon of the choice of exit routes, although certain specific mechanisms have been subjected to detailed analysis. Thus, studies have examined the recent phenomenon of management buy-outs [Coyne et al, 1987; Wright and Coyne, 1986], of newly floated public companies [Birley, 1977] of corporate acquisitions [Newbould, 1970; Franks, Brayles & Hecht, 1977]. There are no equivalent analyses of the private advertised sale.

Spatial Analysis; There is general agreement in the literature that there are regional differences in the small firm sector - the numbers of births and deaths, as well as of small firms [Gould and Keeble, 1984; Gudgin and Fothergill, 1984; O'Farrell and Crouchley, 1984; Whittington, 1984]. However, it is only recently that there has been an attempt to explain these variations. In his study of new manufacturing firms in Wales, 1979 - 1983, Westhead [1988] identified five ecological incubator environments based upon the analysis of 97 variables drawn from the literature as being associated with new firm formation.

THIS RESEARCH

This research is part of the second stage of a study of the exit routes used by owner-managers in the United Kingdom during 1983-1987. In the absence of any available

statistics, the aim of the first stage of the research was to identify those firms in which ownership had changed. Results showed that the number of firms offered for sale through advertisement was greater than those offered through all the other available exit routes, and was six times greater than the next category of management buyout [Birley and Westhead, 1988]. Moreover, these results only reflected those firms offered for sale at the national level. A separate study of one local market, that of South Wales, identified an equivalent level of activity. Since an initial scan of the data identified crude north/south differences, the aim of this part of the study was to use the methodology adopted by Westhead to explain these variations at the local level.

Finding the Firms for Sale:

Since owner-managers wishing to sell their firms are not required by law to register their intent to sell, there is no central listing of the population to be studied. Therefore, the following potential sources were investigated:

- * The business sections of the national newspapers
- * Local newspapers published daily
- * The Tuesday and Saturday editions of the Financial Times
- * Business and Assets published every Tuesday and Saturday
- * Daltons Weekly

- * Exchange and Mart published weekly

- * Stock Exchange Quarterly now the Quality of Markets Quarterly

A preliminary scan of the businesses offered for sale in each of these sources suggested that the national publications would be more likely to include the larger businesses, from a variety of industries, whilst the local sources would tend to concentrate upon local, very small retail businesses. Therefore business sales advertised in the five contrasting sources of the Financial Times, The Times, Business and Assets, and the Western Mail [a local daily newspaper published in South Wales] were extracted for the months of June and November 1987. Analysis of the data indicated the following:

- * Sales in the Daily Telegraph were concentrated in the South East and South West of England; sales in the Western Mail were almost entirely small and local to Cardiff.

- * Sales in the Daily Telegraph, the Times and the Western Mail were predominantly service businesses.

- * Sales in the Financial Times, and Business and Assets were markedly larger than those in the other three sources.

As a result of this analysis, the Financial Times was chosen as the primary source of data. A subsequent survey of intermediaries and owners advertising business sales between April and May 1988 confirmed this as the "data source which most business sellers and buyers both advertise in and read".

This research analyses those businesses advertised in every Tuesday edition of the Financial Times between 1st January 1983 and 31st December 1987. See Birley and Westhead [1988] for a more detailed discussion.

PRIVATE BUSINESS SALES AT A COUNTY LEVEL

The spatial pattern of the number of private business sales at a county scale [Figure 1] is shown in Figure 2. It is clear from this data that the activity is overwhelmingly concentrated in Greater London followed by the heavily populated areas of the West Midlands, Greater Manchester, West Yorkshire, Kent and Hampshire. Low levels of activity were recorded in the predominantly peripheral and rural counties of Dumfries and Galloway, the Highlands of Scotland, Northumberland, Northern Ireland, and the Islands of Scotland. However, these results are not necessarily surprising since they may simply reflect the magnitude of the stock of businesses potentially available for sale. Therefore, the data was further analysed in two ways. First,

for each county the expected number of business sales was calculated as below:

$$\begin{aligned} \text{Expected Number of} &= [\text{Number of Value Added Tax (VAT)} \\ \text{Private Business} &\quad \text{Registrations in County} \\ \text{Sales} &\quad \text{1983/ Total Number in 1983}] \times [\text{Total} \\ &\quad \text{Number of Private Business Sales,} \\ &\quad \text{1983 - 1987}] \end{aligned}$$

A comparison between actual sales and expected sales is shown in Figure 3. These data show a clear "over representation" in Greater London and its surrounding counties. However, only two of the previously identified five active counties, the West Midlands and West Yorkshire, show levels of activity greater than expected. Moreover, most of the rest of the areas geographically distant from the South East show lower than expected levels of activity.

The second method of analysis calculated private sales rates per county as below:

$$\begin{aligned} \text{Private Sales Rates} &= [[\text{Number of Private Business Sales in} \\ &\quad \text{county, 1983-1987}]/[\text{Total Number of} \\ &\quad \text{VAT Registrations in county 1983}]] \\ &\quad \times 1,000 \end{aligned}$$

The results show a similar pattern to those described above,

with the highest rates in Greater London, but also surprisingly in Gloucestershire, Hertfordshire, Northamptonshire, the Isle of Wight and Cheshire [See Figure 4]. Low rates are again observed in the peripheral regions of Northern Ireland, the Borders, Clwyd, the Highlands of Scotland, Gwynedd, Dyfed, and Durham. However, whilst there are certain geographic groupings in the results described above, there are no clear or obvious reasons for the delineations observed.

FACTORS ASSOCIATED WITH PRIVATE BUSINESS SALES RATES

In order to explain the variations identified above, five hypotheses were constructed. These hypotheses follow themes which Westhead [1988] explored in the context of the new firm literature, and found to be associated with geographic differences in rates of new firm formation at a labour market area level.

- * **Agglomeration Economies:** An increasing level of industrial activity in a county will be positively associated with business sales rates.

- * **Rurality:** Businesses in remote and inaccessible counties will be at a competitive disadvantage relative to businesses in more accessible locations. Therefore, rural counties will have low levels of business sales.

* **Industrial Structure:** Counties with generally high levels of business activity - especially in terms of manufacturing and service businesses - will have high rates of business sales.

* **Access to Finance/Personal Wealth:** Counties in which a high percentage of individuals are credit worthy, and have access to personal and institutional wealth will have high rates of business sales.

* **Market Demand:** Counties with high increases in market demand and with relative prosperity will have high rates of business sales.

The surrogate variables used to represent the five factors are listed in Table 1. The data was drawn from various issues of Regional Trends, published by the Central Statistical Office.

Insert Table 1 About Here

Pearson product-moment correlation coefficients were calculated between private sales rates and each of the sixteen surrogate variables [See Table 2 Below].

Insert Table 2 About Here

Nine of the surrogate variables were associated with business sales rates at the 0.01 level of significance, and a further two at the 0.05 level of significance. Only two variables were not in the direction hypothesised, but these variables were also not significantly correlated.

A correlation matrix was calculated for the remaining eleven variables, and the data was subjected to the following tests to ascertain the appropriateness of a factor analysis model [Norusis 1985]:

- * Variables where more than half the correlations are less than 0.3 eliminated
- * Bartlett's test of sphericity
- * Kaiser-Meyer-Olkin measure of sampling adequacy
- * The anti-image correlation matrix
- * Test for sampling adequacy
- * Test for communality

On the basis of these tests, the two remaining variables within the industrial structure group [X4 and X5] were eliminated.

Nine variables remained in the analysis, four of which fall within the grouping of Access to Finance and to Personal Wealth. Therefore, those variables which were significant at the 0.002 level were selected for further analysis. The intercorrelations between the variables chosen are shown in Table 3 below.

Insert Table 3 About Here

DATA REDUCTION USING PRINCIPAL COMPONENT ANALYSIS

R-Mode Principal Components analysis [PCA] was used in order to produce new combinations of the original data which could then be used as new independent and orthogonal reference axes [or variables] in a classification of counties using cluster analysis.

The unrotated direct extraction of orthogonal reference axes by PCA did not adequately illuminate the inter-relationships between the collection of variables. As a consequence the reference axes were rotated in order to isolate more meaningful dimensions. After varimax rotation the first three factors accounted for 82.1% of the total variance [See Table 4].

Insert Table 4 About Here

On the basis of the factor loadings, the three factors were given the following descriptive labels:

- * Factor 1: High levels of personal wealth and relative prosperity
- * Factor 2: Urban counties with high agglomeration economies
- * Factor 3: Rural counties with low levels of personal wealth and declining levels of prosperity

The spatial patterns of component scores are mapped in Figures 5 - 7. For factor 1, high positive scores are recorded mainly in the South East of England in the counties of Greater London, Surrey, Berkshire, Hertfordshire and Buckinghamshire. As expected, factor 2 concentrated high scores in the metropolitan areas of Greater London, the West Midlands, Merseyside, Tyne and Wear, and Greater Manchester. Contrary to expectation Strathclyde recorded a modest negative score. Finally, the high scores for factor 3 are overwhelmingly concentrated in the rural and peripheral counties of Grampian, Powys, the Highlands, the Borders, North Yorkshire, Lincolnshire, Dyfed and Cornwall. It is clear from this evidence that the linked trends isolated in the factor structure do have geographic expression in terms of spatial pattern.

CLASSIFICATION OF COUNTIES INTO REGIONAL TYPES

The simple mapping of factor scores is useful in that it describes the pattern of each single basic factor, but nothing other than intuitive classification can be attempted. Therefore, to obtain a classification of business sales environments in the United Kingdom, Ward's Method of cluster analysis was used to group similar counties [Ward 1963]. In this study, no contiguity constraint was built in, and what is produced by Ward's method is a grouping of relatively homogeneous counties which have maximum between-group variance and minimum within-group variance. A dendrogram was drawn to display each stage in the grouping process. (Figure 8) At step fifty-eight the grouping procedure was stopped with the sixty five counties being reduced to only seven business sales environmental types, and with only a 32.9% loss of original detail.

In order to give a descriptive label to each of the seven clusters [or business sales environments] the cluster means for each surrogate variable was compared to the respective global mean for that variable [See Table 5]. The clusters are mapped in Figure 9.

Insert Table 5 About Here

- * Cluster 1 is a large group of 28 counties scattered throughout England and central Scotland, both rural and urban, with moderate levels of personal wealth but some counties suffer from moderately high levels of personal deprivation.
- * Cluster 2 is a group of 8 suburban counties surrounding Greater London with high levels of personal wealth and low levels of unemployment. Lothian in Scotland is a notable exception to the pattern.
- * Cluster 3 contains 4 urban metropolitan counties of Greater Manchester, Merseyside, Tyne and Wear, and the West Midlands which have high levels of agglomeration and unemployment.
- * Cluster 4 contains 10 urban counties in the traditional industrial areas of the north of England, Northern Ireland and Wales, with low levels of personal wealth and high levels of unemployment, which are tending to decrease.
- * Cluster 5 is Greater London - an urban county with very high levels of personal wealth and modest unemployment rates.
- * Cluster 6 groups the 4 remote rural counties of the Borders, Grampian and the Highlands of Scotland, and Powys

in Wales which have low levels of personal wealth and dramatic increases in the rate of unemployment.

* Cluster 7 is a scattered group of 10 rural counties with low levels of personal wealth and high and increasing levels of unemployment and deprivation.

PRIVATE BUSINESS SALES IN PRIVATE BUSINESS SALES ENVIRONMENTS

The final stage of the analysis compares levels of both private business sales, and private business sales rates in the seven ecological incubator environments.

Private Business Sales [Table 6]: The counties with tight cluster membership around the cluster mean are those in cluster 2 surrounding Greater London. By contrast, there is high variation in the levels of sales in the urban counties in the industrial areas associated with cluster 4 and in the remote counties in cluster 6. However, results from an Analysis of Variance test indicates that the variation between clusters is significantly different [$F = 8.21$, $V1 = 58$, $V2 = 6$, Significance Level = 0.000]. Moreover, only in cluster 5 was the volume greater than that expected from the VAT registrations in 1983. (Table 7)

Insert Tables 6 and 7 About Here

Private Business Sales Rates [Table 8]: Analysis of private business sales rates showed a more cohesive group of business sales environments, as indicated by more modest coefficients of variation about the cluster means. As was the case for absolute levels of private business sales, sales rates between clusters were significantly different [F = 208.88, V1 = 58, V2 = 6, Significance Level = 0.000].

Insert Table 8 About Here

INDUSTRIAL VARIATION

Earlier crude analysis of the data had identified significant differences in the types of firms which were offered for sale in the north and the south [See Birley and Westhead 1988]. Therefore, these data were subjected to further analysis using the seven clusters [See Table 9].

Insert Table 9 About Here

The results showed a significant difference between the clusters [Chi-Squared = 142.35, d.f. = 12, SL = 0.0000: the agriculture and production categories were combined in order

to satisfy the assumptions for the test]. From Table 8, it can be seen that the majority of sales of agriculturally based firms are not located in the remote rural regions, but rather in cluster 1. The majority of sales of production companies are also found in cluster 1, although Greater London (cluster 5) also shows a surprisingly high number of companies in this group. As expected, however, more than a third of all firms offered for sale in the construction and service industries are located in Greater London. Overall the results show that clusters 1, 2, 3 and 4 are basically areas where production sales predominate; in Greater London, (cluster 5) more than 64% of sales are sales of service firms; and in the essentially rural and peripheral clusters 6 and 7 sales are evenly split between production and service firms.

Moreover, particular clusters recorded more business sales in certain industries than expected (Table 10). In Greater London (cluster 5) marginally more business sales from service industries were recorded than that expected, with the actual number of sales from production and construction industries also being higher than expected though at a lower level. Lower than expected numbers of sales from production industries were recorded in clusters 2, 3, 4 and 6. Moderately higher than expected numbers of business sales from construction industries were recorded in clusters 2 and 4.

Insert Table 10 About Here

Variations in actual minus expected rates are recorded in Table 11. Once again, Greater London demonstrates higher than expected rates of sales in both the production and service sectors. Surprisingly, larger than expected rates of both production and service firms are found in the mainly rural counties in clusters 6 and 7, whilst clusters 2 and 4 show higher than expected rates of sales of construction firms.

Insert Table 11 About Here

CONCLUSION

This paper has identified marked spatial differences in both the absolute and the relative level of private advertised sales in the United Kingdom over the period 1983 to 1987. Differences are associated with agglomeration economies, rurality/urbanity, personal wealth and relative well-being.

On the basis of eight surrogate incubator variables found to be significantly associated with business sales rates it was possible to classify the sixty five counties in the United

Kingdom into seven business sales environments on a logical and consistent basis.

Significant differences were recorded between the hypothesised business sales environments with regard to the absolute level as well as the rate of business sales. Further, from the evidence presented in this paper, it is concluded that the level and rate of private business sales is a function of the existing volume and stock of businesses. Thus, metropolitan clusters 3 and 5 will continue to have the highest absolute and relative levels of private business sales, whilst the levels in the peripheral clusters 6 and 7 will continue to be relatively low.

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Table 1 Factors Hypothesised to be Associated with Private Business Sales Rates in Counties

| Factors | Surrogate variables | Hypothesis positively / negatively associated with private business sales rates |
|--|--|---|
| 1. Agglomeration economies | X1 Employees in employment, 1981 as a proportion of the total land area (km ²) (AGGLOM) | Positively |
| 2. Rurality | X2 Total population, 1981 as a proportion of the total land area (km ²) (PERSONS) | Negatively |
| | X3 Percentage of total employees employed in agriculture, forestry and fishing, 1981 (Division 0) (AGRIC) | Negatively |
| 3. Industrial structure | X4 Percentage of total employees employed in energy and water supply, 1981 (Division 1) (ENERGY) | Negatively |
| | X5 Percentage of total employees employed in manufacturing, 1981 (Divisions 2, 3 & 4) (MANUF) | Positively |
| | X6 Percentage of total employees employed in construction, distribution, transport & communications, 1981 (Divisions 5, & 6) (CON) | Positively |
| | X7 Percentage of total employees employed in other services, 1981 (Divisions 8 & 9) (SERV) | Positively |
| 4. Access to finance / personal wealth | X8 Percentage of households in 1981 in owner-occupied accommodation (OWNER) | Positively |
| | X9 Average domestic rates paid £ p.a. per hereditament, 1982/83 (DOMRATE) | Positively |
| | X10 Domestic average rateable value (£), 1/4/83 (DOMAVG) | Positively |
| | X11 Men aged 21 and over average gross weekly earnings (full-time) (£), April 1983 (GROSS83) | Positively |
| 5. Market demand | X12 Percentage total employment change, 1981-84 (TEMP) | Positively |
| | X13 Percentage manufacturing employment change, 1981-84 (Divisions 2, 3 & 4) (TEMP) | Positively |
| | X14 Percentage service employment change, 1981-84 (Divisions 8 & 9) (SEMP) | Positively |
| | X15 Percentage unemployment rate, October 1982 (RATE82) | Negatively |
| | X16 Percentage unemployment rate change, 1982-87 (UMPCHG) | Negatively |

Table 2 Correlation Coefficient between Private Business Sales Rates (Y) and Selected Independent Variables (n= 65)

| Independent variables | Pearson correlation coefficient (r) | Coefficient of determination (r ²) | Significance of 't' - t values | Relationship in the hypothesised direction |
|---|-------------------------------------|--|--------------------------------|--|
| AGGLOMERATION | | | | |
| X1 Agglomeration, 1981 (AGGLOM) | 0.538 | 0.287 | 0.000 | YES |
| RURALITY | | | | |
| X2 Persons per sq. km, 1982 (PERSONS) | 0.513 | 0.263 | 0.000 | YES |
| X3 Percentage employed in agriculture, forestry and fishing, 1981 (AGRIC) | -0.433 | 0.187 | 0.000 | YES |
| INDUSTRIAL STRUCTURE | | | | |
| X4 Percentage employed in energy, water, 1981 (ENERGY) | -0.209 | 0.044 | 0.049 | YES |
| X5 Percentage employed in manufacturing, 1981 (MANUF) | 0.217 | 0.047 | 0.042 | YES |
| X6 Percentage employed in construction, 1981 (CON) | 0.108 | 0.012 | 0.198 | YES |
| X7 Percentage employed in services, 1981 (SERV) | 0.037 | 0.001 | 0.388 | YES |
| ACCESS TO FINANCE / PERSONAL WEALTH | | | | |
| X8 Percentage owner-occupied accommodation, 1981 (OWNER) | 0.303 | 0.092 | 0.007 | YES |
| X9 Average domestic rates paid, 1982 / 1983 (DOMRATE) | 0.361 | 0.123 | 0.002 | YES |
| X10 Domestic average rateable value, 1983 (DOMAVG) | 0.515 | 0.266 | 0.000 | YES |
| X11 Male average gross weekly earnings, 1983 (GROSS83) | 0.388 | 0.157 | 0.001 | YES |
| MARKET DEMAND | | | | |
| X12 Total employment change, 1981-84 (TEMP) | 0.000 | 0.000 | 0.500 | NO |
| X13 Total manufacturing employment change, 1981-84 (MEMP) | -0.085 | 0.008 | 0.228 | NO |
| X14 Total service employment change, 1981-84 (SEMP) | 0.089 | 0.006 | 0.282 | YES |
| X15 Percentage unemployment rate, 1982 (RATE82) | -0.377 | 0.142 | 0.001 | YES |
| X16 Unemployment change rate, 1982-1987 (UMPCHG) | -0.381 | 0.130 | 0.002 | YES |

Table 3 Correlation Matrix

| Independent variables | Independent variables | | | | | | | |
|--|-----------------------|--------------|--------------|--------------|--------------|--------------|--------|--------|
| | AGGLOM | PERSONS | AGRIC | DOMRATE | DOMAVG | GROSS83 | RATE82 | UMPCHG |
| Agglomeration, 1981 (AGGLOM) | 1.00 | | | | | | | |
| Persons per sq. km, 1982 (PERSONS) | 0.99 *** | 1.00 | | | | | | |
| Percentage employed in agriculture, forestry and fishing, 1981 (AGRIC) | -0.43 *** | -0.47 *** | 1.00 | | | | | |
| Average domestic rates paid, 1982 / 1983 (DOMRATE) | 0.49 *** | 0.49 *** | -0.52 *** | 1.00 | | | | |
| Domestic average rateable value, 1983 (DOMAVG) | 0.21 | 0.17 | -0.18 | 0.82 *** | 1.00 | | | |
| Male average gross weekly earnings, 1983 (GROSS83) | 0.42 *** | 0.38 ** | -0.35 ** | 0.57 *** | 0.53 *** | 1.00 | | |
| Percentage unemployment rate, 1982 (RATE82) | 0.06 | 0.11 | -0.14 | -0.31 | -0.52 *** | -0.44 *** | 1.00 | |
| Unemployment change rate, 1982-1987 (UMPCHG) | -0.27 ** | -0.31 ** | 0.54 *** | -0.44 *** | -0.13 | -0.04 | -0.07 | 1.00 |

Notes: * Significant at the 0.05 level of significance;
 ** Significant at the 0.01 level of significance;
 *** Significant at the 0.001 level of significance.

Table 4 Private Business Sales, 1983-1987 Varimax Rotated Factor Matrix

| Variables | Varimax rotated factors | | | |
|--|-------------------------|---------|---------|-------------------------------|
| | 1 | 2 | 3 | Communality (h ²) |
| Agglomeration, 1981 (AGGLOM) | 0.1060 | 0.9584 | -0.1782 | 0.9615 |
| Persons per sq. km, 1982 (PERSONS) | 0.0568 | 0.9521 | -0.2364 | 0.9656 |
| Percentage employed in agriculture, forestry and fishing, 1981 (AGRIC) | -0.0806 | -0.3642 | 0.7588 | 0.7141 |
| Average domestic rates paid, 1982 / 1983 (DOMRATE) | 0.7052 | 0.3335 | -0.5286 | 0.8879 |
| Domestic average rateable value, 1983 (DOMAVG) | 0.8808 | 0.0665 | -0.2087 | 0.8225 |
| Male average gross weekly earnings, 1983 (GROSS83) | 0.7095 | 0.4319 | -0.0214 | 0.8904 |
| Percentage unemployment rate, 1982-1987 (RATE87) | -0.8080 | 0.1682 | -0.2005 | 0.7214 |
| Unemployment change rate, 1982-1987 (UMPCHG) | 0.0024 | -0.0586 | 0.8995 | 0.8125 |
| Eigenvalue | 2.4500 | 2.2916 | 1.8353 | |
| Per cent of variance | 30.6 | 28.6 | 22.9 | |
| Cumulative percentage of variance | 30.6 | 59.2 | 82.1 | |

Table 5 Classification of Private Business Sales in Counties in the United Kingdom, 1983-1987

| Independent variables | Clusters | | | | | | | Total | |
|--|----------|--------|------------------------|--------|-------------------------|----------------------|--------|--------|--------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Mean | Standard Deviation |
| Agglomeration, 1981 (AGGLOM) | 0.10 | 0.17 | 0.94 ^{**} | 0.20 | 2.23 ^{***} | 0.01 | 0.02 | 0.19 | 0.34 |
| Persons per sq. km, 1982 (Persons) | 270.28 | 439.01 | 2,359.28 ^{**} | 558.55 | 4,303.40 ^{***} | 26.70 | 76.55 | 481.20 | 738.14 |
| Percentage employed in agriculture, forestry and fishing, 1981 (AGRIC) | 2.65 | 1.48 | 0.15 | 1.03 | 0.00 | 7.83 | 6.62 | 2.99 | 2.75 |
| Average domestic rates paid, 1982 / 1983 (DOMRATE) | 249.32 | 331.25 | 293.50 | 209.00 | 400.00 ^{**} | 190.75 | 182.30 | 244.32 | 59.50 |
| Domestic average rateable value, 1983 (DOMAVG) | 194.11 | 256.13 | 176.50 | 134.20 | 285.00 ^{**} | 183.50 | 152.60 | 185.80 | 47.20 |
| Male average gross weekly earnings, 1983 (GROSS83) | 159.01 | 171.88 | 159.88 | 158.40 | 200.10 ^{***} | 172.55 | 150.83 | 160.28 | 10.92 |
| Percentage unemployment rate, 1982 (RATE82) | 12.17 | 9.10 | 16.40 | 16.53 | 9.10 | 10.50 | 13.11 | 12.72 | 3.23 |
| Unemployment change rate, 1982-1987 (UMPCHG) | 8.65 | 0.13 | -0.59 | 2.61 | 8.44 | 41.03 ^{***} | 25.10 | 10.63 | 13.53 |
| Number of counties | 28 | 8 | 4 | 10 | 1 | 4 | 10 | 65 | |

Notes: * Deviate by more than one standard deviation from the respective total mean
 ** Deviate by more than two standard deviations from the respective total mean.
 *** Deviate by more than three standard deviations from the respective total mean.

Table 6 Number of Private Business Sales by Cluster Type, 1983-1987

| Cluster | Descriptive statistics | | | |
|---------|------------------------|--------|--------------------|--------------------------|
| | Number of counties | Mean | Standard deviation | Coefficient of variation |
| 1 | 28 | 39.04 | 22.03 | 56.43 |
| 2 | 8 | 44.50 | 22.12 | 49.71 |
| 3 | 4 | 84.00 | 51.40 | 61.19 |
| 4 | 10 | 25.50 | 32.92 | 129.10 |
| 5 | 1 | 975.00 | 0.00 | 0.00 |
| 6 | 4 | 9.00 | 8.22 | 91.33 |
| 7 | 10 | 17.60 | 13.68 | 77.73 |
| Total | 65 | 49.65 | 119.48 | 240.66 |

Table 7 Actual Minus Expected Numbers and Rates of Private Business Sales, 1983-1987 by Cluster Type

| Cluster | Actual number of private sales (A) | VAT registered units stock, 1983 (a) | Expected number of private sales (E) | Actual minus expected number of private sales (A - E) | Actual minus expected rate of private sales (A - E) |
|---------|------------------------------------|--------------------------------------|--------------------------------------|---|---|
| 1 | 1,093 | 515,221 | 1,236 | -143 | -0.28 |
| 2 | 356 | 156,706 | 376 | -20 | -0.13 |
| 3 | 336 | 141,238 | 339 | -3 | -0.02 |
| 4 | 255 | 171,560 | 412 | -157 | -0.91 |
| 5 | 975 | 195,076 | 466 | 507 | 2.60 |
| 6 | 36 | 32,652 | 78 | -42 | -1.29 |
| 7 | 176 | 132,610 | 318 | -142 | -1.07 |

Notes (a) Source: Ganguly (1985).

Table 8 Private Business Sales Rates by Cluster Type, 1983-1987

| Cluster | Descriptive statistics | | | |
|---------|------------------------|------|--------------------|--------------------------|
| | Number of counties | Mean | Standard deviation | Coefficient of variation |
| 1 | 28 | 2.11 | 0.69 | 32.70 |
| 2 | 8 | 2.22 | 0.56 | 26.13 |
| 3 | 4 | 2.23 | 0.49 | 21.97 |
| 4 | 10 | 1.56 | 0.77 | 49.36 |
| 5 | 1 | 5.00 | 0.00 | 0.00 |
| 6 | 4 | 0.92 | 0.36 | 39.13 |
| 7 | 10 | 1.19 | 0.51 | 42.86 |
| Total | 65 | 1.87 | 0.86 | 45.99 |

Table 9 Actual Number of Private Sales, 1983-1987 by Cluster Type and Industrial Category

| Cluster | Industrial categories | | | | | | | | Total | |
|---------|-----------------------|-------|------------|------|--------------|------|----------|-------|-------|-------|
| | Agriculture | | Production | | Construction | | Services | | No | % |
| | No | % | No | % | No | % | No | % | | |
| 1 | 18 | 75.0 | 558 | 99.3 | 33 | 26.6 | 471 | 29.4 | 1,080 | 34.1 |
| 2 | 3 | 12.5 | 164 | 11.5 | 19 | 15.3 | 162 | 10.1 | 348 | 11.0 |
| 3 | 0 | 0.0 | 181 | 12.7 | 6 | 4.8 | 143 | 8.9 | 330 | 10.4 |
| 4 | 0 | 0.0 | 120 | 8.4 | 18 | 12.9 | 105 | 6.6 | 241 | 7.6 |
| 5 | 0 | 0.0 | 290 | 20.4 | 46 | 37.1 | 614 | 38.4 | 950 | 30.0 |
| 6 | 0 | 0.0 | 18 | 1.3 | 0 | 0.0 | 17 | 1.1 | 35 | 1.1 |
| 7 | 3 | 12.5 | 90 | 6.3 | 4 | 3.2 | 86 | 5.5 | 185 | 5.8 |
| Total | 24 | 100.0 | 1,421 | 99.9 | 124 | 99.9 | 1,600 | 100.0 | 3,169 | 100.0 |

Table 10 Actual Minus Expected Numbers of Private Sales, 1983-1987 by Cluster Type and Industrial Category

| Cluster | Industrial categories | | | | | | | | | | | |
|---------|-----------------------|----|-------|------------|-----|-------|--------------|----|-------|----------|-----|-------|
| | Agriculture | | | Production | | | Construction | | | Services | | |
| | A | E | (A-E) | A | E | (A-E) | A | E | (A-E) | A | E | (A-E) |
| 1 | 18 | 11 | 7 | 558 | 511 | 47 | 33 | 50 | -17 | 471 | 589 | -118 |
| 2 | 3 | 1 | 2 | 184 | 180 | -16 | 19 | 18 | 1 | 162 | 193 | -31 |
| 3 | 0 | 0 | 0 | 181 | 215 | -34 | 6 | 14 | -8 | 143 | 187 | -44 |
| 4 | 0 | 4 | -4 | 120 | 164 | -44 | 18 | 15 | 1 | 105 | 196 | -91 |
| 5 | 0 | 0 | 0 | 290 | 250 | 40 | 46 | 14 | 32 | 614 | 285 | 329 |
| 6 | 0 | 2 | -2 | 18 | 19 | -1 | 0 | 2 | -2 | 17 | 27 | -10 |
| 7 | 3 | 6 | -3 | 90 | 82 | 8 | 4 | 11 | -7 | 88 | 123 | -35 |

A= Actual number of private sales E= Expected number of private sales (A-E)= Actual minus expected number of private sales

Table 11 Actual Minus Expected Rate of Private Sales, 1983-1987 by Cluster Type and Industrial Category

| Cluster | Industrial categories | | | | | | | | | | | |
|---------|-----------------------|--|--|------------|--|--|--------------|--|--|----------|--|--|
| | Agriculture | | | Production | | | Construction | | | Services | | |
| 1 | 0.09 | | | 1.03 | | | -0.21 | | | -0.38 | | |
| 2 | 0.19 | | | -0.99 | | | 0.03 | | | -0.31 | | |
| 3 | 0.00 | | | -1.77 | | | -0.36 | | | -0.45 | | |
| 4 | -0.14 | | | -2.99 | | | 0.04 | | | -0.89 | | |
| 5 | 0.00 | | | 1.79 | | | 1.42 | | | 2.20 | | |
| 6 | -0.15 | | | 0.99 | | | -0.52 | | | 0.71 | | |
| 7 | -0.07 | | | 1.09 | | | -0.40 | | | 0.54 | | |



Figure 1 Sub-divisions of the United Kingdom

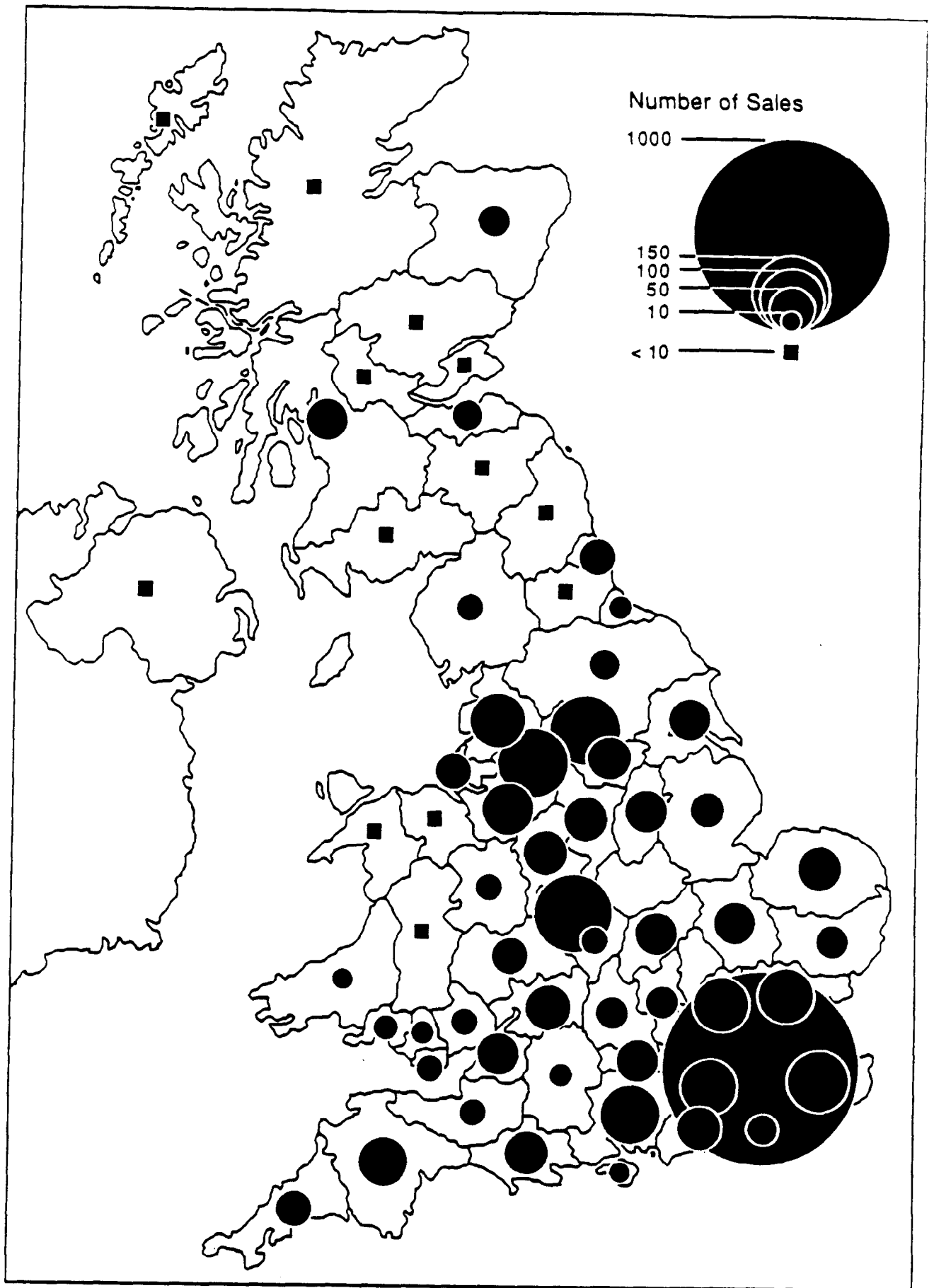


Figure 2 Number of Private Business Sales listed in the Financial Times, 1983-1987

Source: [illegible]

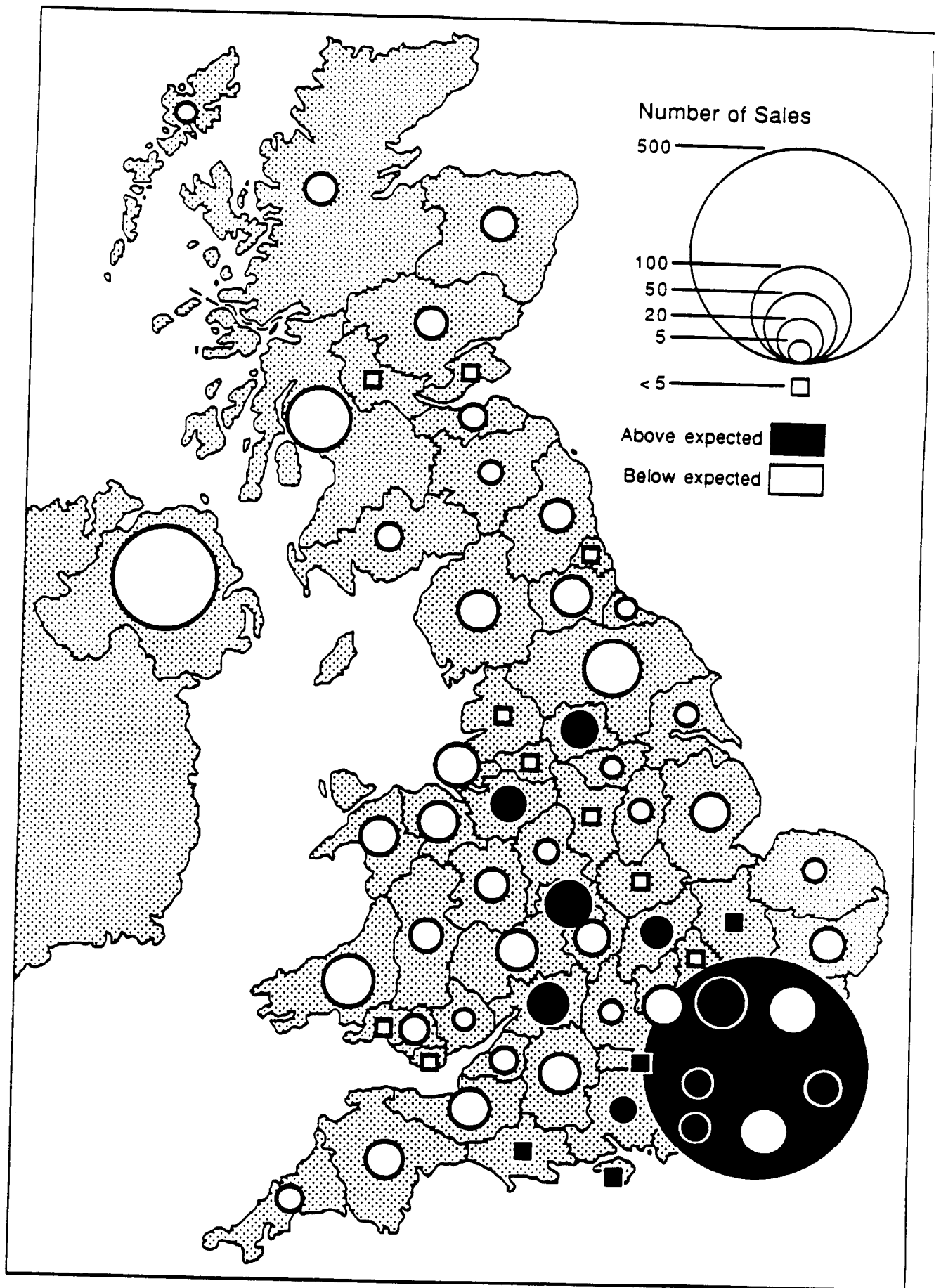


Figure 3 Number of Private Business Sales, 1983-1987: Actual minus Expected.

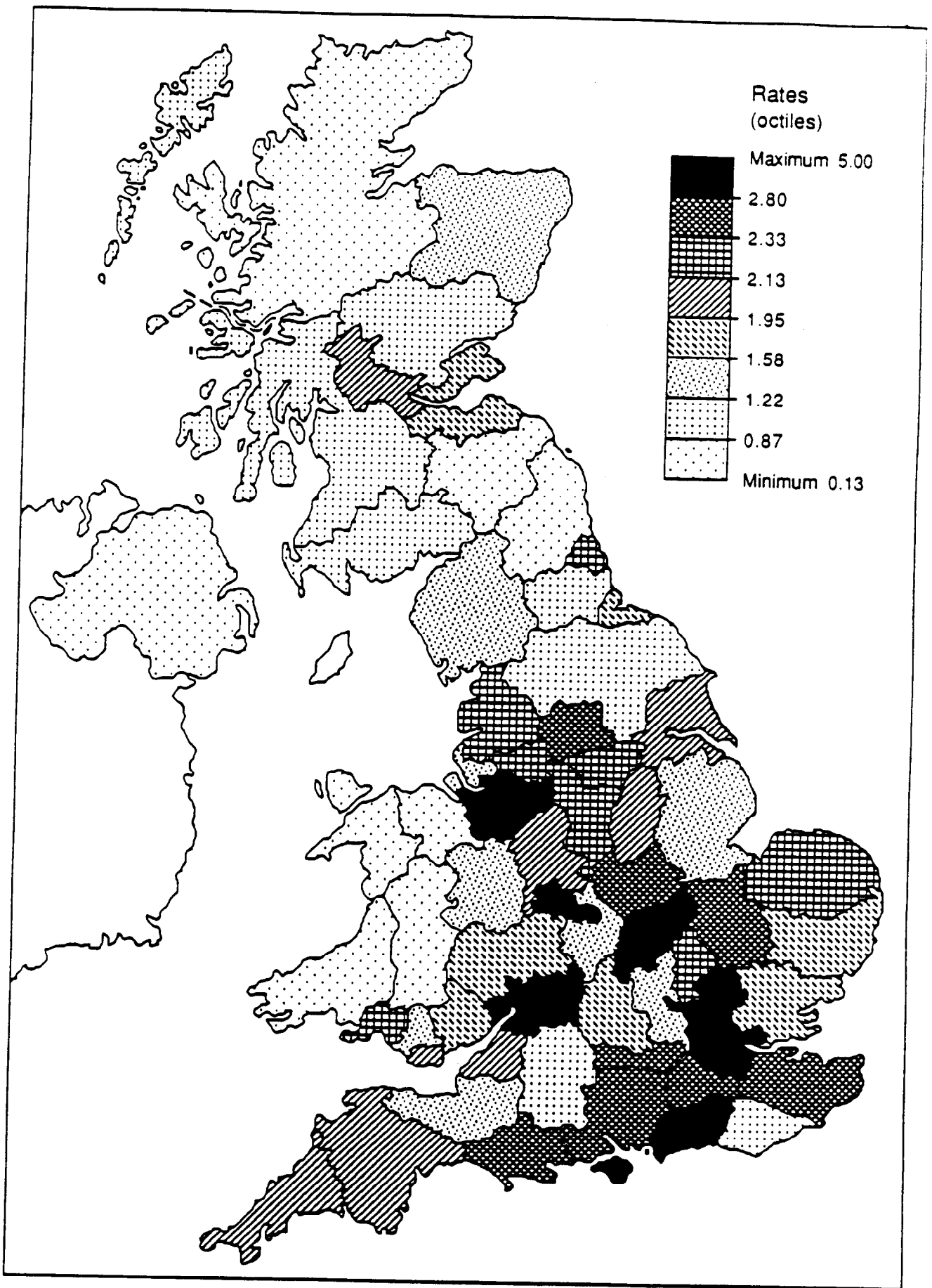


Figure 4 Private Business Sales Rates in the United Kingdom, 1983-1987

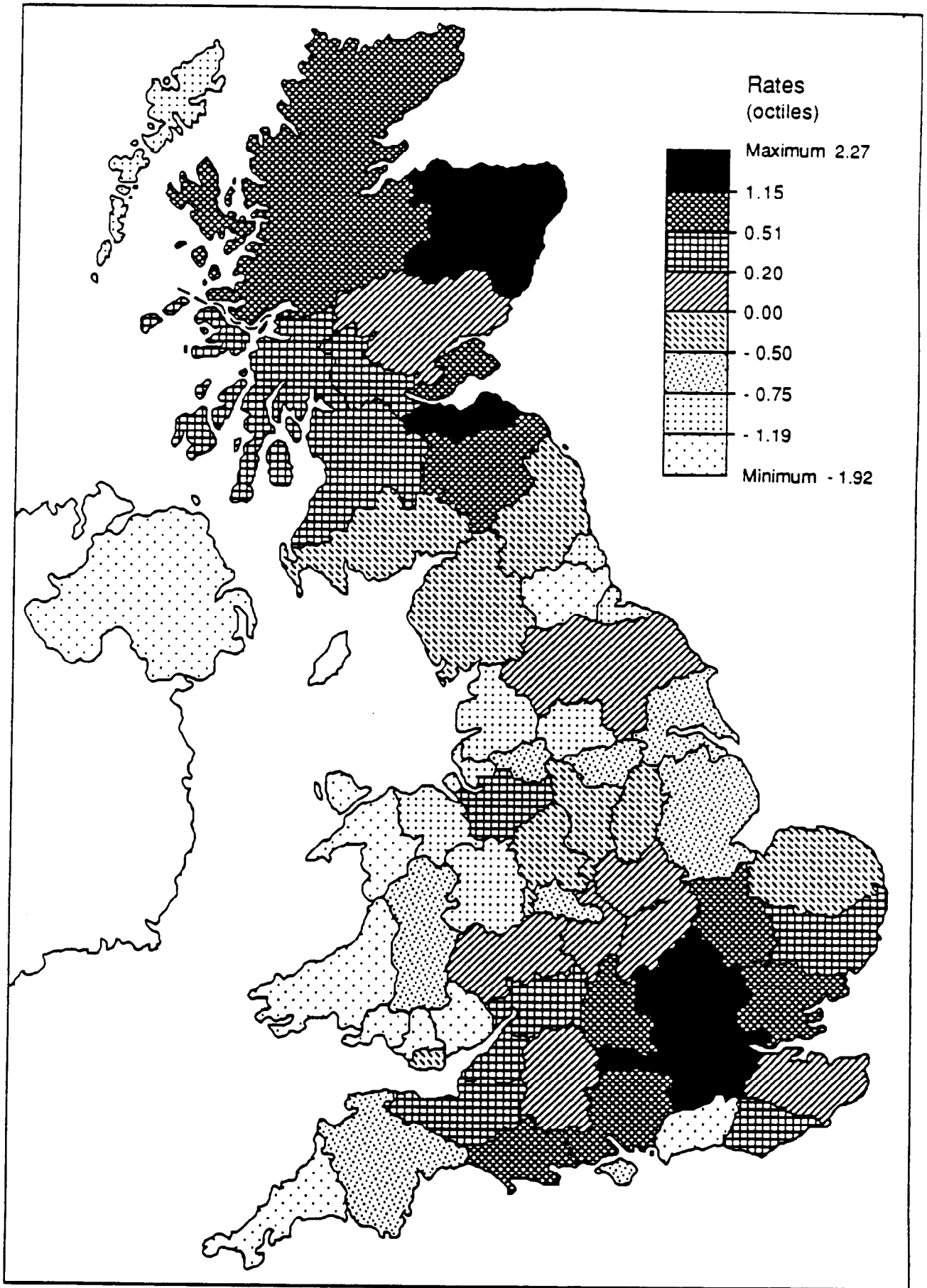


Figure 5 Less Industrialised Counties with High Levels of Personal Wealth and Relative Prosperity

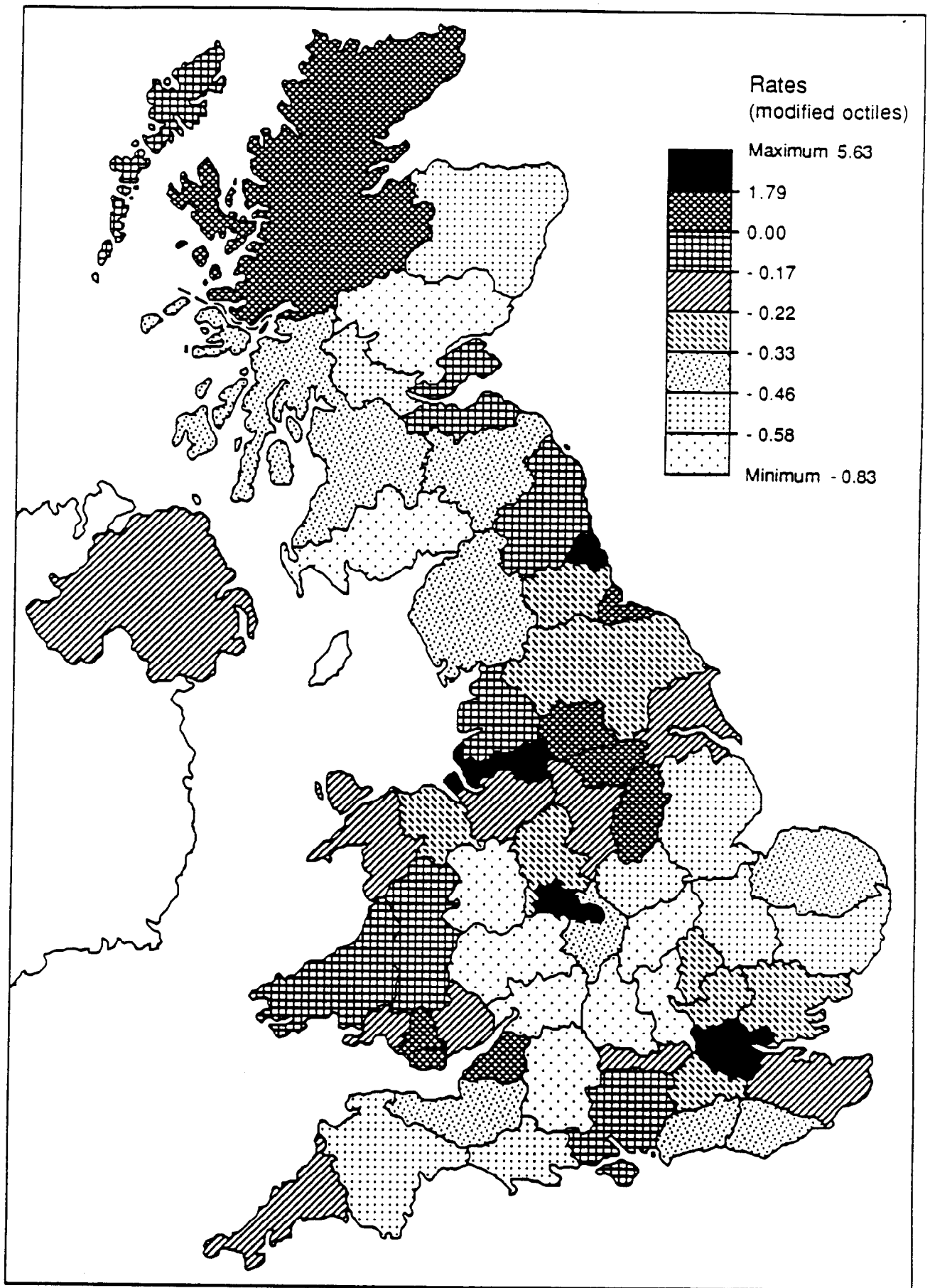


Figure 6 Urban Counties with Agglomeration Economies and Personal Wealth.

Figure 7
Rural Counties with Low Levels of Personal Wealth and Declining
Levels of Prosperity and Well-being.

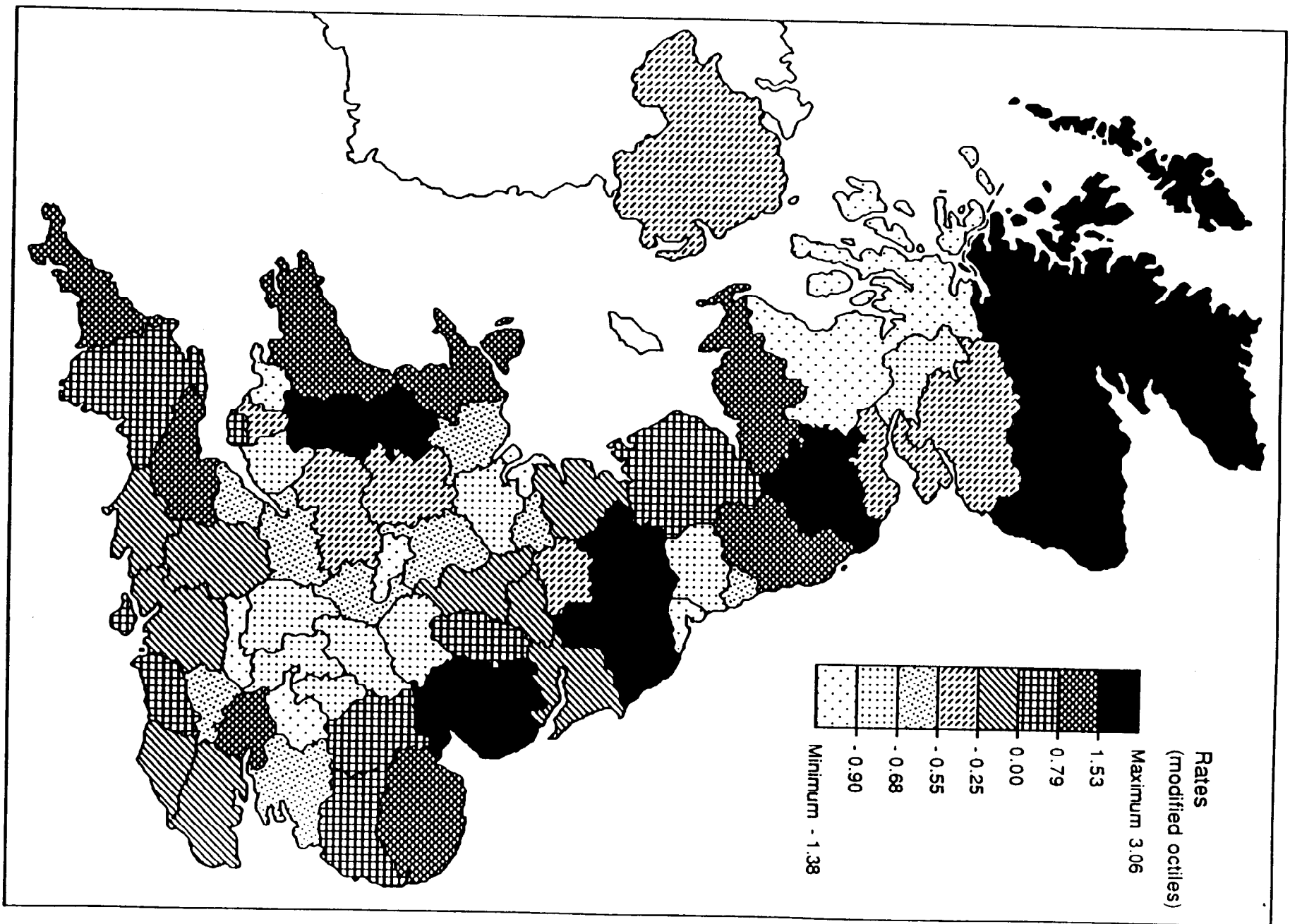
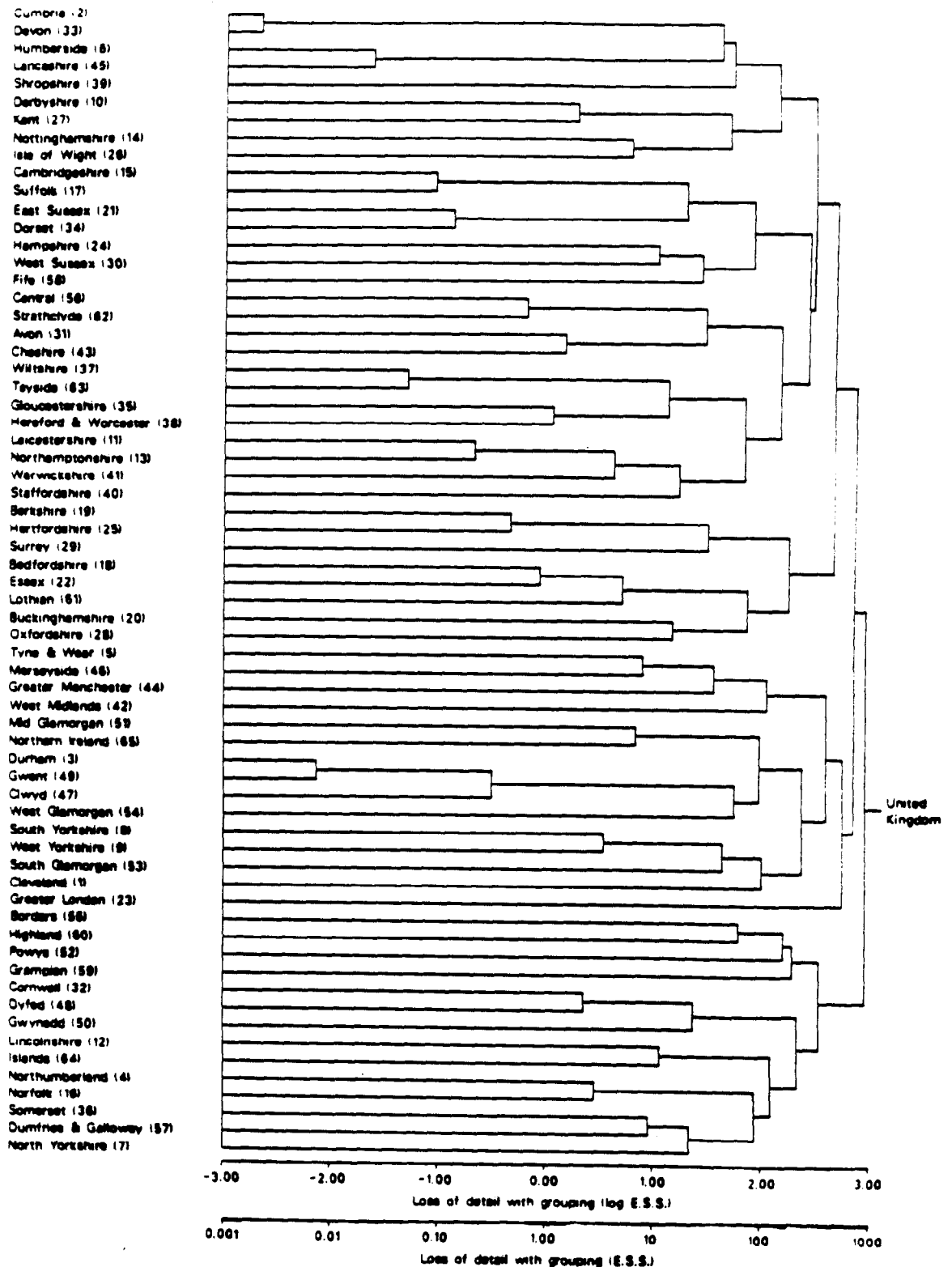


Figure 8

Linkage Tree Grouping of Business Sales Environments in the U.K. by Ward's Grouping Method



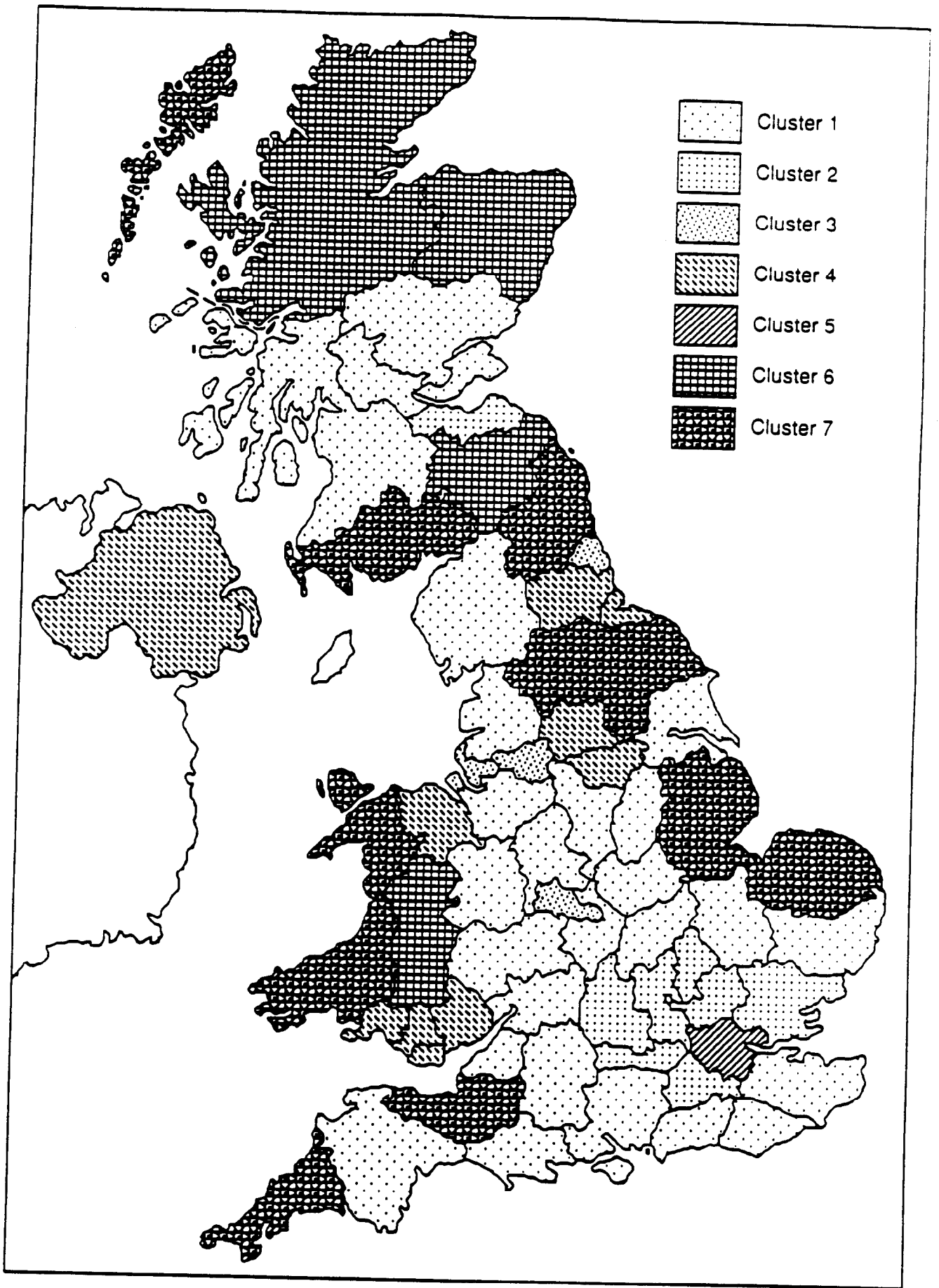


Figure 9 Classification of Private Business Sales Environments.