Managing retail chain profitability based on local competitive conditions: preliminary analysis

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Abstract

Purpose – The purpose of this study is to describe the determinants of profitability in terms of the strategic profitability model (the Du Pont model), depicting the "route" to high profitability in grocery retail stores located in market areas possessing dissimilar competitive conditions.

Design/methodology/approach – Different physical characteristics (e.g. store formats) have traditionally been used as control criteria, but it is argued in this paper that management principles in retail chains should be based on different clusters of stores, formed from local competitive conditions. The paper proposes a clustering method based on five indicators of local competition. The research results are derived from local competitive conditions and the performance of 168 supermarkets, located in Sweden, and controlled by one retail chain.

Findings – The paper identifies four clusters of local markets labeled monopoly, fleet market, venue, and duopoly, based on local competitive conditions. The findings show that the "route" to profitability significantly differs between the clusters. In monopoly the route to high profitability goes through high-gross margin, while in fleet market the key figures are low cost, large number of shoppers per week, and high productivity. Venue and duopoly both gain from high-average transactions per shopper.

Practical implications – Supermarkets under different competitive conditions have different critical success factors and would probably be better managed, supported and evaluated on a different basis, i.e. retail chains need to adjust their approach to their supermarkets depending on local competitive conditions.

Originality/value – Based on the findings the paper proposes unique management strategies for different clusters of local markets to further enhance current strength areas.

Keywords Retail management, Profit, Supermarkets, Competitive strategy, Sweden

Paper type Research paper

Introduction
Retail store performance is usually divided into three broad categories:

(1) market-based performance, which captures how well a store succeeds in the competition for customers in the marketplace;

(2) productivity performance, which typically relates to output in terms of sales to some measure of input, e.g. selling area and labor hours; and

(3) financial performance, which captures the profit and profitability generated from a store (Dunne and Lusch, 1999).

Although retailers are ultimately concerned with their financial performance (Ingene, 1984), there is surprisingly little research reported on the antecedents of store profit and profitability. Although a vast body of research exists concerning the antecedents of store performance, measures of performance in previous studies have primarily comprised market-based or productivity performance of stores, involving measures of market share (Stanley and Sewall, 1976; Jain and Mahajan, 1979), sales (Davies, 1973; Simkin, 1989; Morphet, 1991), sales per square foot (Cottrell, 1973) or sales and sales per square foot in conjunction (Reinartz and Kumar, 1999; Kumar and Karande, 2000).

The aim of the present study is to provide insights into the antecedents of financial performance by investigating empirically, at the store level, how dissimilarities in local competition are related to revenues, costs and profit. As such, it illuminates the relative importance of management attention to various aspects of operations under various competitive conditions. Further, the study provides insights into what extent corporate management should involve in considerations of dissimilarities in local competitive characteristics of stores when setting up the management control system. Variations in the performance potential between stores call for a differentiation between the evaluation of the performance of the store manager, and performance of the store. To correctly assess store manager performance, the impact of uncontrollable factors, of which local competition constitutes a major part, on store performance need to be explicitly considered in, or extracted from the control system.

The purpose of the study is to describe the determinants of profitability in terms of the strategic profitability model (the SPM, the "Du Pont model"), depicting the "route" to high profitability in grocery retail stores located in market areas possessing dissimilar competitive conditions. This is obtained by analyzing the SPM components of a sub-sample of high profitability performing stores, from a random sample of 168 supermarkets. By analyzing to what extent different parts of the SPM should be focused under various competitive conditions in order to achieve high profitability at the store level, important managerial implications, most notably referring to issues on management control and leadership qualities, are provided.

The paper is structured as follows: in the first section we perform a literature review from retail management, especially from the perspective of productivity, profitability and competitiveness. The literature review shows that productivity management in this industry has been one of the main issues for a longer period, and large global retailers are not necessarily the most efficient ones. Quite often research papers use macro level data to explain the phenomena, and this is argued to be the case in the retail store level management as well. In the third section, we present our theoretical framework based on the SPM and the strategic resource model (SRM) (Lusch, 1986), regarding financial and productivity performance, along with a discussion of issues referring to the description of local competitive conditions of retail stores. In the fourth section, we introduce our research design and environment. Here, different profitability and productivity indicators of a store performance are introduced along with indicators of local competition, which we have collected through utilization of a geographic information system. Thereafter, we introduce the statistical analysis results; the procedure of clustering local markets based on competitive conditions is described, and the characteristics of each identified cluster along with store performance in each, are reported. The analyses show that differences in local competitive conditions is associated with significant differences in how high profitability performance at the

store level is achieved. Finally, based on a strength building approach, we provide implications for retail management, and suggest some avenues for future research.

Retail productivity and profitability

Global retail companies are relatively new phenomenon (Leknes and Carr, 2004). Going back 20 years, Wal-Mart was a rather small player in the US market, but at the moment it employs more than 1.2 million individuals worldwide (McGurr, 2002). Large organizations exist in Europe as well as in Asia: Ahold (The Netherlands) employs over 300,000, and Coles Myer (Australia) over 150,000. Although these companies have reached the critical mass in size, labor-productivity differences are still significant. McGurr (2002) shows that sales per employee is twice as large in Asia as compared to Europe and the USA. Ratchford (2003) provided a longitudinal labor-productivity analysis from the USA, arguing that after the 1970s, productivity has been on constant decline due to a number of different reasons (mainly unskilled labor and more service-oriented business). It may be that the sales-oriented nature of business management has caused a productivity paradox, as productivity is believed to be improved with growth in size, particularly in terms of sales volume (Samiee, 1990).

The large size of retailers do not provide an entirely solid hedge in business changes; Evans (2005) shows that in the history of the USA, there are a number of previously large retailers (sales account 1-3 percent from GDP of USA), which have declined considerably, or even diminished from the market. Bates *et al.* (2003) argue that size eventually does not matter, and that service quality is the driver of profitability. Aalto-Setälä (2002) further argues that increased size has not fully brought benefits from economies of scale to consumers (the case of concentrated small markets, like Finland or Sweden). It is often the case that large size stores, especially supermarkets, are the main shopping destinations of consumers in developed economies, but in emerging economies discount stores and kiosk type of formats are the *de facto* standard (Simova *et al.*, 2003; Lorentz *et al.*, 2006).

As global retailers have increased in size, their productivity and profitability has not developed. This far, large retailers have merely shown an interest in increasing in size, and absolute profits, but have not produced sufficient return-on-investment and productivity. For example, Dubelaar *et al.* (2001) argue that in the retail sector, productivity measurement and enhancement models should incorporate demand and competition issues, since they are related to these measures and frequently cause a change in productivity. Both macro- (Ratchford, 2003) and micro- economical research (Evans, 2005) have shown that the scope, and depth, of utilized data is occasionally reported to be insufficient in the retail sector. Griffith and Harmgart (2005) argue that data used internally in retail companies is poor on the firm level, and occasionally good on the store level, and systems are just in the development phase to integrate all firm level data together. However, it should be noted that generally the service sector has not been a productivity-enhancing sector in the economy. Baumol *et al.* (1989), for example, argue that, in the long-term, all of the productivity improvements in the US economy have been gained from the manufacturing sector. About 16 years after Samiee's (1990) influential article, we could rightly argue that this sector is still just in the entry phase of a "productivity improvement race." Data envelopment analysis-based efficiency analysis completed by Keh and Chu (2003) support these arguments; efficiency differences between different stores inside of one chain located in

US Pacific Northwest were rather marginal, compared to other industries. The literature review on productivity and profitability in retailing gives insights regarding the industry. The research results this far indicate that the following two hypotheses are worth investigating:

H1. Supermarkets have overall low proportional profits and profitability.

H2. Supermarket profitability does not vary that much among different stores.

In the present study, the *H1* is tested through analyses of profit and profitability performance of 168 Swedish supermarkets, randomly selected from accounting records of a large retail chain. As our interest is focused on management of "routes" to high profitability under different local competitive conditions, we are testing the second hypothesis on a sub-sample (where $n = 84$) of high-performing stores in the overall sample.

Financial performance in retailing

The income statement of a retail store typically encompasses the following major components (Berman and Evans, 1998):

- *Net sales.* The revenues received by a retailer during a given time period after deducting customer returns, markdowns and employee discounts.
- *Cost of goods sold.* The amount a retailer has paid to acquire the merchandise that is sold during a given time period. It is based on purchase prices and freight charges, less all discounts (such as quantity, cash and promotion).
- *Gross profits.* The difference between net sales and the cost of goods sold; consists of operating expenses plus net profit.
- *Operating expenses.* The cost of running a retail business.
- *Net profit before taxes.* The profit earned after all costs have been deducted.

Profitability is, by definition, measured as profit divided by the amount invested in current and fixed assets, typically total investment in all assets required (return on assets – ROA), or the equity part of the assets (return on equity). The SPM is a frequently applied model that provides a framework for decomposing profitability measure of a business into margin and asset turnover figures. The strategic profit model has, in its most basic version, the following mathematical form:

$$\text{Return on assets} = \frac{\text{Net profit}}{\text{Total assets}} = \frac{\text{Net profit}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Total assets}}$$

In essence, the SPM combines profit margin and asset turnover figures into a single ratio that measures the productivity of the firm's assets in terms of profits. From the SPM follows that ROA can be increased through an increase in profit margin and/or an increase in turnover. An advantage of the ROA is that different types of firms can be directly compared. Net profit margin and asset turnover both depend on the characteristics of the firm and may not be appropriately comparable across different types of retail operations.

A relative to the SPM is the SRM, (Lusch and Serpkenci, 1983; Lusch, 1986). The SRM recognizes sales and gross profit as measures of output, while merchandise, space

and labor (the "resource trinity") are identified as the three most critical resources to be managed in a retail store. According to its creators, the SRM should be viewed as a complement to the SPM. The focus of the SPM is overall financial performance, and as such it does not offer the retail analyst much tangible advice regarding how to improve performance. The SRM, it is argued by Lusch (1986), is more directional because it deals with the retailer's markup strategy and the tangible resources of space, inventory and labor.

Lusch (1986, p. 16) points at the relationship between profitability and the productivity in utilization of the three resources:

> To achieve high levels of profitability, a retailer must effectively and efficiently manage this resource trinity. Importantly, this trinity of resources must be managed collectively as opposed to separately. In short, a manager cannot manage merchandise without considering the space requirements of the merchandise and the amount of labor required to sell and service the merchandise.

The evaluative measures in the SRM are sales- and gross-margin return on inventory (SALOI, GMROI), sales- and gross-margin return on selling area (SALOS, GMROS) and sales- and gross-margin return on labor (SALOL, GMROL). These measures all indicate to what extent the utilization of each of the three input factors – merchandise, space and labor – have been converted into sales and gross profit for covering costs.

Competition in retailing

Economic theory postulates perfect competition to prevail when the number of firms selling a homogeneous product is so large, and each firm's share of the market is so small, that no individual firm finds itself able to influence the product's price by varying the quantity of output it sells. At the other end of a scale, monopoly prevails when a single firm operates in the market. In between, various imperfect competitive conditions such as monopolistic competition and oligopoly have been theoretically defined for depicting market structure (Scherer and Ross, 1989; Carter and Perloff, 1999).

To empirically examine how store performance varies with competition, a need for operationalized measures of competition arises. A variety of measures have been suggested in the literature, all of which are thought to have some relation to the degree of competitiveness in a market. One frequently applied measure is market concentration, which typically is measured as a function of the market shares of some or all firms in a market. One of the most frequently applied measures of market structure is the four-firm concentration ratio, CR4 (Carter and Perloff, 1999), which is the share of market sales accounted for by the four largest firms. Alternatively, a function of all the individual firms' market shares can be used to measure market concentration. The most commonly applied function is the Herfindahl-Hirschman Index (HHI), which equals the sum of the squared market shares of each firm in the market. The HHI is generally considered as theoretically superior to concentration ratio measures, as it comprises both the number and relative size of the firms in the market. The higher the value of HHI, the more concentrated is the market and, hence, the less is the intensity of competition.

Nooteboom (1980) argues that although, at some aggregate level, there are numerous retail stores selling similar products, this does not imply that retailing satisfies the condition of perfect competition in the sense that stores are price-takers

with respect to a homogeneous product. The reason for this is that unlike, e.g. agriculture or manufacturing, retailing does not provide a physical product (utility of form) to be shipped to points of sales, but a utility of time and place at a point of sale. In the provision of the utility of place, the numerous stores serve not one market but a cluster of geographically fragmented markets. In other words, competition among retail stores is spatial in character. Space separating stores from each other introduces monopolistic elements that are absent from a spatial competition (Eaton and Lipsey, 1979). Indeed, all stores enjoy some degree of monopoly power over their immediate market area (Craig *et al.*, 1984).

In other words, due to the spatial character of retail competition, there may be partial monopolies within, e.g. a national food retail market seemingly possessing "perfectly competitive" conditions. On the other hand, seemingly oligopolistic competitive conditions in the aggregate might be decomposed into fierce competition at local level. The relevant question is not "How many stores are involved in supplying a given group of people?" but "Between how many stores do people in that group usually make their choice?" (Nooteboom, 1980). Partial spatial monopolies occur when the distances between competitors are large relative to the distances that consumers are willing or able to travel.

Financial performance and competition in retailing

Based on the SPM and SRM models of performance, we propose three hypotheses that take local competition conditions into consideration. Different competitive conditions are most easily described using terms from economic theory, where monopoly and perfect competition are the extreme forms. These extreme forms do hardly exist in retailing, but as theoretical concepts they are useful to define the ends of the scale of competition. We argue that stores facing low level of competition have different routes to high profitability than stores facing high level of competition. Under low level of competition, it is possible to keep the prices (and by extension gross margin) high and not necessary to increase productivity, in order to reach high profitability. Consequently, we propose the following hypothesis based upon the SPM model:

> *H3.* Gross margins are kept high with higher prices under low level of competition.

Under conditions of high level of competition, on the other hand, the option to keep high prices (and gross margin) is constrained. Hence, to achieve high profitability, stores have to focus on the other part of the SPM formula, i.e. to increase productivity in order to gain competitive advantages. Consequently, we propose the following hypothesis:

> *H4.* In order to ensure profitability, supermarkets are forced to use productivity improvement (internally and externally) in highly competitive environments.

Under high level of competition one way to increase profitability is to increase the number of shoppers visiting the store. Under moderate competition there might exist partial monopolies due to the spatial character of retail competition, which provide opportunities to increase profitability by increasing the average transaction per shopper. Consequently, we propose the following hypothesis:

H5. Profitability is ensured with higher shopping transaction size when competition is moderate.

As the purpose of this study is to depict the route to high store profitability under various conditions of local competition, each of the above hypotheses concerning competition and profitability will be tested on high-performing stores. This is in contrast to a study aiming at explaining the antecedents of high vs low performance. To the extent different routes to high profitability performance are identified for different local competitive conditions, important managerial implications for further development of high-performing stores are provided based on local competitive conditions.

Research design and environment
A cross-sectional design is adopted for the study. A unique set of data is constructed from pooling income statements and balance sheets, local environment data and survey data of 168 supermarkets in Sweden, ranging in size from 400 to 2,000 square meters. The supermarkets are affiliated to the same retail chain and each supermarket is managed and owned by an individual retailer, strongly reducing measurement problems, e.g. from allocation of central costs and dissimilar accounting routines and procedures. The data provided permits a complete description of financial and productivity performance, at the store level, in terms of the SPM (the Du Pont model) and the SRM.

Financial performance
Based upon the SPM, descriptives of profitability performance of the stores are reported in Table I. The average store performs a ROA of 11.5 percent, with a net margin of 1.1 percent and turnover in assets of 8.6.

Costs and profits are reported in Tables II and III, while productivity performance is in Table IV. In Table II, costs and profits are expressed as absolute values, while in Table III they are reported as a percentage of sales, providing cost percentages and margins in accordance with the SPM. Data are ordered by sequentially reducing various cost items from sales, providing five levels of profit; gross profit, operating profits "I" "II" and "III" and net margin. The average store performs a gross margin of 20.8 percent for covering operating costs. Net margin after reduction of all costs averages 1.1 percent, with a minimum of -7.2 percent and a maximum of $+9.1$ percent.

Already at this descriptive stage of the analyses, we confirm that supermarkets have an overall low-proportional profits and profitability. This confirms our research *H1*.

	Mean	Median	SD	Minimum	Maximum
Return on assets	11.5	11.5	23.4	-60.7	113.3
Net margin	1.1	1.2	2.7	-7.2	9.1
Turnover in assets	8.6	8.6	2.4	2.6	14.8

Note: $n = 168$

Table I.
Descriptive measures of profitability performance

Absolute gross values ('000 SEK)	Mean	Median	SD	Minimum	Maximum
Sales	38,031	31,077	23,211	6,058	168,034
Cost of sold goods	30,167	24,882	18,458	4,861	131,511
Gross profit	7,863	6,531	4,823	1,197	36,523
Promotion cost	431	329	373	36	2,756
Operating profit I	7,432	6,197	4,511	1,081	33,767
Labor cost	4,067	3,488	2,266	771	16,136
Other operating cost	585	511	374	92	2,730
Operating profit II	2,780	2,173	2,099	103	15,075
Rent cost	1,561	1,254	1,094	263	6,691
Administration cost	132	114	78	33	547
Operating profit III	1,087	833	1,318	−3,156	8,519
Depreciation cost	354	257	372	15	3,245
Leasing cost	151	39	290	0	1,542
Profit before financial income and cost	582	454	1,178	−4,252	7,448
Financial income	109	57	138	2	814
Financial cost	−212	−146	260	−2,100	0
Net profit	479	423	1,276	−4,527	7,639

Note: $n = 168$

Table II.
Descriptive measures
of profit performance

Percentage of net sales	Mean	Median	SD	Minimum	Maximum
Sales (percent)	100.0	100.0	NA	100.0	100.0
Cost of sold goods (percent)	79.2	79.3	1.7	73.5	83.3
Gross margin (percent)	20.8	20.7	1.7	16.7	26.5
Promotion cost (percent)	1.1	1.0	0.5	0.2	2.3
Operating margin I (percent)	19.7	19.6	1.9	14.7	25.1
Labor cost (percent)	11.0	10.8	1.3	8.2	15.8
Other operating cost (percent)	1.6	1.6	0.4	0.4	2.7
Operating margin II (percent)	7.2	7.0	2.0	0.6	14.0
Rent cost (percent)	4.1	4.1	1.1	1.3	8.8
Administration cost (percent)	0.4	0.4	0.2	0.1	1.0
Operating margin III (percent)	2.7	2.9	2.2	−5.7	9.1
Depreciation cost	0.9	0.8	0.6	0.1	4.6
Leasing cost	0.4	0.1	0.7	0.0	4.8
Profit margin before fin. Income and cost	1.4	1.6	2.3	−6.4	8.1
Financial income	0.3	0.2	0.3	0.0	1.4
Financial cost	−0.6	−0.5	0.6	−2.9	0.0
Net margin	1.1	1.2	2.7	−7.2	9.1

Note: $n = 168$

Table III.
Descriptive measures of
profit performance as a
percentage of net sales

Competition
A key issue for achieving appropriate measures of competition and market potential
facing a store is the definition of its trade area. In this study, the trade area of each store
has been defined as the geographic area within a circle surrounding each store, with a
radius defined by the retailer of the store. Hence, the individual retailer's perception of
his store's trade area is applied in the analyses. The utilization of perceived elements of
competition is considered appropriate, since it is instrumental in a retailer's decision on

how to compete (Gripsrud and Gronhaug, 1985), i.e. in his (hers) decisions referring to retail mix elements.

With the size of the trade area thus defined for each of the 168 supermarkets, an inspection of the characteristics of competition in the 168 areas was conducted, by the utilization of a complete list of food retail stores in Sweden, and processing each store's address through a geographic information system (GIS) software. In a subsequent step to this procedure, a computer program was constructed, collecting information about which stores that are located within the boundary of the trade area of each of the 168 supermarkets.

In the present study, competition is operationalized by five measures (see Table V for descriptives). First, the gross number of competing stores is applied to depict the overall availability of alternatives in the trade area for consumers to patronize. Second and third, two measures of concentration of competition are calculated:

(1) the Herfindahl index between stores; and
(2) the Herfindahl index between chains.

The indices are calculated by applying the market shares of the stores (chains) present in each defined market area. In the following, however, the numbers-equivalent measure (Martin, 2001) of store concentration is applied. This measure is calculated as the inverse of the Herfindahl index and thus carries the same information about concentration, but expresses concentration in terms of the number of equally sized stores (chains) that would yield the original Herfindahl index. As such, it is here applied as it is considered to offer a more straightforward interpretation of concentration. Fourth, to depict the each store's position in its local market, the selling area (square meters) is related to the total amount of selling area of all stores in the market. That is, if the store is the only store in the market, this figure amounts to 100 (percent), while if the store is one of two equally sized stores; it amounts to 50 (percent). Fifth, the degree of spatial monopoly possessed by a store is operationalized by the

	Mean	Median	SD	Minimum	Maximum
Sales per inventory investment (SALOI)	18.2	17.4	5.0	8.1	38.8
Sales per square meter (SALOS)	48,573	45,421	15,957	15,144	100,083
Sales per employee (SALOL; '000 SEK)	2,135.3	2,092.0	301.1	1,398.6	3,571.1

Table IV.
Descriptive measures of productivity performance and resource "intensity" utilization

Notes: SEK; $n = 168$

	Mean	Median	SD	Minimum	Maximum
Number of competing stores	8.4	6.0	7.9	0	50
Numbers-equivalent of stores (HHI inverse)	4.4	3.2	4.0	1.0	34.7
Numbers-equivalent of chains (HHI inverse)	2.3	2.3	0.7	1.0	4.3
Distance to nearest competitor	2,954	776	5,312	0	28,002
Store's share of total selling area	35.5	31.5	23.9	3.9	100.0

Table V.
Descriptive measures of local competition

Note: $n = 168$

distance separating it from its nearest competitor with at least 400 square meters selling area, i.e. the nearest store with at least the size of a supermarket.

Results – the route to high profitability

Cluster analysis is applied to data, facilitating a categorization of the local markets of each store with respect to characteristics of competition. The "route" to high profitability performance in various categories is analyzed based on a description of highly profitable stores' performance on various intermediate cost- and profit-levels of the SPM, as well as on productivity performance measures of the SRM. With these various "routes" to high profitability as a fundament, different critical success factors are defined under different local competitive conditions.

Cluster analysis

To categorize the local market areas on competitive intensity, cluster analysis using the *K*-means cluster analysis procedure of SPSS was applied to data. The algorithm for this procedure is as follows. The first *k* cases (markets) in the data file, where *k* is the number of clusters requested, are selected as temporary centers. As subsequent cases are processed, a case replaces a center if its smallest distance from the case to a center is larger than the smallest distance between that center and all other centers. Again, it replaces the center closest to it. Hence, cluster centers are updated in an iterative process. All cases are grouped into the cluster with the closest center. Then, average values for the variables are computed from the cases that have been assigned to each cluster and the cases that were the initial cluster centers. This process of assigning cases and recomputing cluster centers is repeated until no further changes occur in cluster centers or until the maximum number of iterations has been reached.

A three-, four-, and five-cluster solution were inspected by an interpretation of cluster means. A comparison of the characteristics of the cluster added sequentially between the analyses showed that moving from three to four clusters significantly identified a cluster of markets differing by the "store's share of selling area" variable. Moving from four to five clusters identified a fifth cluster on the spatial monopoly dimension (distance to nearest competitor). As the four cluster-solution contains significant and substantial differences between clusters on this variable, the four cluster-solution is selected for further analysis of how store performance differs between the clusters, and to what extent the route to high profitability differs between the four clusters.

Output from the four-cluster solution is provided in the Appendix, showing the initial cluster solution, iteration history, final cluster centers, and ANOVA of cluster mean squares.

The selected four-cluster solution contains clusters of 20, 84, 12 and 52 trade areas, respectively. Average values of the measures of competition in each cluster are used to describe the competitive conditions in each category. One-way ANOVA tests were conducted for testing the equality of means between the clusters, with Tukey *post hoc* test for the difference between individual clusters. Significant differences between individual groups are denoted as exponents in each cell (Table VI).

Based on this clustering, we propose the following clusters:

- Cluster 1 is denoted as a monopoly; these supermarkets face little competition. On the average, there are one or two competitors in the local market, representing

	Cluster 1, monopoly ($n = 20$)	Cluster 2, fleet market ($n = 84$)	Cluster 3, venue ($n = 12$)	Cluster 4, duopoly ($n = 52$)	One-way ANOVA
Number of competing stores	1.4[C2]	13.1[C1,3,4]	4.7[C2]	4.3[C2]	$p < 0.01$
Numbers-equivalent of stores	1.4[C2]	6.3[C1,3,4]	2.3[C2]	2.8[C2]	$p < 0.01$
Numbers-equivalent of chains	1.3[C2,4]	2.7[C1,3,4]	1.7[C2]	2.1[C1,2]	$p < 0.01$
Distance to nearest competitor	8,222[C2,3,4]	583[C1,3]	18,933[C1,2,4]	1,069[C1,3]	$p < 0.01$
Share of total selling area	76.8[C2,3,4]	16.1[C1,3,4]	50.0[C1,2]	47.5[C1,2]	$p < 0.01$

Table VI.
Four clusters of stores

Notes: C^n – value is significantly different from cluster n; $C^{n,y}$ – value is significantly different from clusters n and y

one or two retail chains. The degree of spatial monopoly is high – the nearest competitor is located at more than eight kilometers distance from the store. In this cluster, the store dominates its trade area: more than 75 percent of the total amount of grocery store selling area in the market is represented for by the store itself. In terms of Huff's law, supermarkets in monopoly have highest probability in the region overall to attract customers (Albaladejo-Pina and Aranda-Gallago, 1998).

- Cluster 2 is denoted as a fleet market; these supermarkets are operating under the most intense competitive conditions. They face competition from an average of 13 other stores in the local market, affiliated to three different chains. The average distance to the most proximate competitor is less than 600 meters. Thus, stores in fleet market operate in markets where, apparently, consumers have the opportunity to choose among a large set of alternative stores from various retail chains. The situation in fleet market reminds of Fock's (2001) research, where he concluded that a photo processing chain was forced to put together number of customer outlets near of each other due to easy substitution of competitors (sales cannibalization), if service was unavailable (another example from Huff's law; increasing probability for sales in a chain).

- Cluster 3 is denoted as a venue; in this group the supermarket is the only store of at least supermarket size within approximately 20 kilometers distance – in terms of Huff's law, the probability of people to shop here is the highest in the region. Correspondingly, this means that the supermarkets in this cluster face competition from stores that are smaller in physical size.

- Cluster 4 is denoted as a duopoly; in this case another supermarket exists approx. in 1 kilometer distance, and they compete with each other nearly equally.

In a subsequent step to the cluster analysis, the 168 supermarkets were sorted ascendently by performance in terms of profitability, i.e. ROA. Applying the median as cut-off value provides two groups stores with either "low" or "high" profitability.

A cross-tabulation of this categorization into "low" and "high" performing stores and the categorization of stores based on the cluster analysis, c.f. above, is reported in Table VII. This cross-tabulation provides a first indication of the impact of competition on profitability performance. Of the 20 stores in monopoly, i.e. the cluster of stores located in the least intensely competitive markets, 15 perform "high" on profitability, while a majority of the stores ($n = 47$) of the 84 stores in fleet market – the stores located in the most intensely competitive markets – perform "low" profitability. In clusters venue and duopoly, with an intensity of competition in-between clusters monopoly and fleet market, the number of stores with "low" equals the number of stores with "high" profitability.

During the research process local competition was more thoroughly investigated. In Sweden the main grocery retail sales is going through supermarkets, but discount stores, hypermarkets and fuel stations do represent intertype competition to supermarkets. Such intertype, or indirect, competition to supermarkets is not explicitly recognized in the cluster analysis. However, as Figure 1 shows, due to all measures of competition embrace all store formats in local markets the analysis implicitly takes into consideration this intertype aspect of retail competition.

As could be noticed, monopoly faces only minor indirect competition from fuel stations and in rare cases from hypermarkets. The most intense competition was related to fleet market, and that is also the case with indirect competition – they either

		Monopoly ($n = 20$)	Fleet market ($n = 84$)	Venue ($n = 12$)	Duopoly ($n = 52$)
Return on assets	Low	5	47	6	26
	High	15	37	6	26

Table VII.
Number of stores with "low" and "high" profitability in clusters
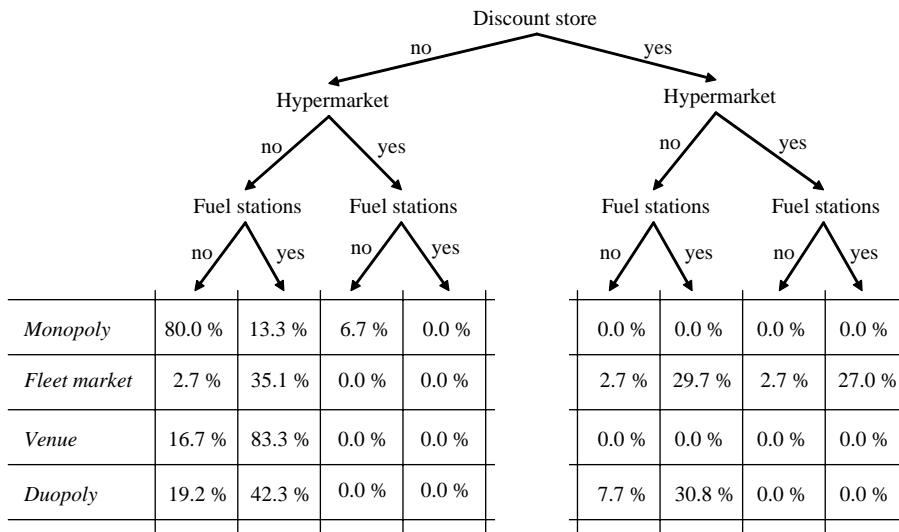
Figure 1.
Indirect competition characteristics supports chosen clusters

have fuel stations, fuel stations and discount stores or all competing simultaneously. In the case of venue, indirect competition appears only from fuel stations. Duopoly seems to need to cope among fuel stations, also increasingly with discount stores. However, all in all it could be concluded that established four clusters also reflect indirect local competition faced by supermarkets.

The route to high profitability

To focus on high performance, the stores with "low" profitability from Table VII in the previous section were in the next step eliminated from the sample. Thus, 84 stores remain from the original samples, all performing a ROA above the median value of the 168 stores. This provides prerequisites for analyzing if the "route" to high profitability differs among stores with dissimilarities in the competition they face in their local market. First, a check for difference in average profitability between the remaining "highly" profitable stores in the four clusters was conducted (Table VIII). There is no difference in average performance between the 84 stores in the four clusters. Hence, all stores are similar from a profitability performance point of view. The remaining part of this section is devoted to an analysis of how this profitability is accomplished in the four clusters.

Revenues, costs and profit margins

First, an inspection of net margin and "operating margin III" report no significant differences in profit margins between the clusters. However, dissemination into gross margin and operating costs (both as a percentage of sales), uncovers interesting dissimilarities between the clusters of competitive conditions.

Gross margin, i.e. the span between prices charged and prices paid for the goods sold, is the highest in stores of monopoly, which comprises the stores facing the least intense competition.

This indicates a relationship between price and competition, leaving store managers in this kind of markets with an opportunity to set higher prices and thus making more money of every unit of sales. The stores facing the most intense competition – fleet market – perform the lowest gross margin, indicating effects from competition on price in the battle for customers.

Despite this difference in gross margin, "operating margin III" does not differ between the clusters. The explanation for this emanates from a difference in operating costs. Total operating costs are the lowest in stores located in the most competitive market areas, while they are highest in stores facing the least intense competition.

Stores in clusters venue and duopoly – with a competitive intensity in the local markets in between the stores of clusters monopoly and fleet market – perform gross margin and total costs at levels in between the performance of stores in clusters monopoly and fleet market (Table IX).

Next, operating costs are investigated at cost item level in Table X. From this table is disclosed that promotion cost and labor costs are the only cost items significantly

	Monopoly ($n = 15$)	Fleet market ($n = 37$)	Venue ($n = 6$)	Duopoly ($n = 26$)	One-way ANOVA
Return on assets	34.3	28.5	22.9	26.9	NS

Table VIII.
Average profitability of four different clusters with "high profitability"

differing between the stores in the four clusters. That is, the difference in total operating costs emanates from a difference in these two cost items, while all other cost items appear unaffected by competition. Stores in areas with the most intense competition (fleet market) spend a significantly higher share of sales on promotion costs as compared to the other clusters. Apparently, promotion intensity is related to competitive intensity. The joint impact of competition on gross margin and promotion costs is further reflected in a significant difference in "operating margin I" between the groups. There is a nearly 2 percent unit difference between the stores in the most and least competitive markets (monopoly and fleet market).

Labor cost is the most substantial item among operating costs, constituting more than 60 percent of total operating costs. From Table X is made evident that the difference in labor costs is the major contribution for compensating the differences in gross margin between the four clusters. Average labor costs in fleet market, i.e. the stores facing the most intense local competition, is substantially more than 1 percent unit below labor costs of the stores in the least competitive markets (monopoly).

To summarize at this stage: Tables II and III above showed substantial variation in bottom line profit and profit margins between the stores in the overall sample of 168 supermarkets. Hence, these findings suggest a rejection of *H2*, that profitability between supermarkets do not vary much, but after analyzing the performance of a sub-sample of high profitability supermarkets in four different clusters, we find that profitability among supermarkets in different clusters of competitive conditions do not vary that much in the end. However, it should be strongly emphasized that the strategies to achieve this high profitability are significantly different – this observation is discussed below. Hence, with regard to this sub-sample of high-performing supermarkets, the *H2* is supported.

	Monopoly (n = 15)	Fleet market (n = 37)	Venue (n = 6)	Duopoly (n = 26)	One-way ANOVA
Gross margin	22.3	20.7	21.7	22.0	$p < 0.01$
Operating costs	18.0	16.9	17.6	17.6	$p < 0.10$
Operating margin III	4.3	3.8	4.1	4.4	NS
Net margin	3.4	2.8	2.6	3.3	NS

Table IX.
Average gross margin and operating costs in stores with "high" profitability

	Monopoly (n = 15)	Fleet market (n = 37)	Venue (n = 6)	Duopoly (n = 26)	One-way ANOVA
Gross margin (percent)	22.3	20.7	21.7	22.0	$p < 0.01$
Promotion cost (percent)	0.8	1.1	0.8	0.9	$p < 0.05$
Operating margin I (percent)	21.5	19.7	20.9	21.1	$p < 0.01$
Labor cost (percent)	11.6	10.3	11.5	11.0	$p < 0.01$
Other operating cost (percent)	1.4	1.5	1.4	1.4	NS
Operating margin II (percent)	8.5	7.9	8.1	8.7	NS
Rent cost (percent)	3.9	3.7	3.7	4.0	NS
Administration cost (percent)	0.4	0.4	0.3	0.4	NS
Operating margin III (percent)	4.3	3.8	4.1	4.4	NS

Table X.
Average operating costs and operating margins in stores with "high" profitability

Productivity

Among the stores with "high" profitability, asset turnover is found to be highest in clusters monopoly and fleet market, while lower in stores of clusters venue and duopoly (Table XI).

Table XII reports productivity performance among the "highly" profitable stores in each of the four clusters. These results provide further insights into the route to profitability in markets with various competitive conditions.

Productivity appears to be of greater importance for profitability in markets with intense competition. Stores in fleet market perform higher inventory productivity and higher space productivity, compared to stores in the other clusters.

Inventory productivity is the lowest among stores in venue, i.e. the stores with the nearest competitor with at least 400 square metres selling area located some 20 kilometers away. This indicates that stores operating such market conditions carry a wider assortment, with higher shares of slower-moving product categories. The role of the supermarket in these market areas may be other than the role of the supermarket in more competitive areas.

Productivity is, thus, most important for high profitability among the stores facing the most intense competition, while least important in stores in venue, i.e. the stores facing competition from small stores but possessing a high degree of spatial monopoly with respect to competition from stores of at least supermarket size.

Sales per square meter may be decomposed into two components:

(1) number of shoppers per square meter; and

(2) average transaction per shopper.

Table XIII provides information about these components in the four clusters. Clearly, high productivity in fleet market is created from a large number of shoppers, while average transaction is low, presumably due to the opportunities for shoppers of shopping around in the large number of alternative stores in the local market. Further, Table XIII shows that the route to high profitability in stores located in markets of venue and duopoly goes through high-average transaction size per shopper, while the number of shoppers is low.

Table XI. Average turnover in stores with "high" profitability	Monopoly ($n = 15$)	Fleet market ($n = 37$)	Venue ($n = 6$)	Duopoly ($n = 26$)	One-way ANOVA
Turnover in assets	9.7	10.0	8.9	8.5	$p < 0.05$

	Monopoly ($n = 15$)	Fleet market ($n = 37$)	Venue ($n = 6$)	Duopoly ($n = 26$)	One-way ANOVA
Sales per inventory	18.6	20.9	15.4	18.2	$p < 0.05$
Sales per square meter	45,774	59,168	43,010	45,783	$p < 0.01$
Sales per FTE	2,084	2,243	2,018	2,214	NS

Table XII.
Average productivity in stores with "high" profitability

Stores facing the least competition, i.e. stores in monopoly, perform an average transaction size that is similar to that of fleet market, but the number of shoppers is less, although higher than the case in venue and duopoly.

The route to profitability – a summary
To summarize the findings of previous sections, the routes to high profitability are summarized in Table XIV.

These further analyses of routes to high profitability among four different clusters support *H3*, *H4*, and *H5*. Based on our sample from the Swedish market, supermarkets facing low competition have higher gross margins (in the end, higher prices). As the most important input item in supermarkets is purchase of merchandise, and we here are analyzing only stores of one retail chain, the business terms of purchasing do not vary that much between different outlets (centralized purchasing; full pallet loads will yield some small benefit for larger stores), and as the proportion of labor costs in monopoly is highest among the analyzed four groups, we conclude that gross margins are kept high through high prices under low levels of competition. Thus, *H3* is supported. Support for *H4* is traced from Table X, which shows that the stores facing most intense competition, i.e. the cluster fleet market have the lowest labor cost. Further, stores in fleet markets also report the highest asset turnover in Table XI, as well as the highest sales per inventory and sales per square meter. External efficiency is justified with the highest quantity of shoppers per week (per 100 square meters). Justification for the approval for *H5* appears in Table XIII, where average transaction size in clusters of moderate competition, i.e. venue and duopoly, scores significantly higher on average, compared to monopoly and fleet market.

Managerial implications
The four different clusters of local market conditions identified in previous section represent different competitive conditions, under which stores operate. It was shown that stores with non-significant different, high, profitability move along significantly different "routes" to profitability. Thus, despite the fact that we deal with the same type of stores (supermarkets) from one and the same retail chain, a case can be made that we have different challenges for store management depending on competitive conditions,

	Monopoly ($n = 15$)	Fleet market ($n = 37$)	Venue ($n = 6$)	Duopoly ($n = 26$)	One-way ANOVA
Shoppers per week (per 100 sqm)	1,022	1,344	821	898	$p < 0.01$
Average transaction per shopper	127	126	146	143	$p < 0.05$

Table XIII.
Average operating costs and operating margins in stores with "high" profitability

Monopoly ($n = 15$)	Fleet market ($n = 37$)	Venue ($n = 6$)	Duopoly ($n = 26$)
High gross margin (percent)	Low cost (percent)	High-average transaction per shopper	High-average transaction per shopper
	Large number of shoppers per week		
	High productivity		

Table XIV.
The "route" to high profitability under various competitive conditions. A summary

as different routes to high profitability means different critical success factors (Hardaker and Ward, 1987) for similar stores, operating under different competitive conditions. Different challenges call for different strategic focus and, hence, imply different challenges for store management. In this section, we will try to identify the different challenges for management under the competitive conditions identified in the previous section, and provide suggestions for strategic focus. However, as we concentrate on the store level, our main focus is on strategic choices directed internally. The other three possible directions (horizontal, vertical and migrational directions), using McDowell's (1994) conceptual topology of directions in strategic choice, fall beyond the scope of the present study.

Strategic focus and employees

Schein (1994) identifies the most important components of a leadership situation as subordinates' characteristics, the leader's characteristics and the task/situational characteristics. His description of the leadership situation is an over-simplification as the situational characteristics include such diverse issues as the organization in itself, the organizational environment and the more abstract institutional environment and managerial discourse, etc. (Andersson, 2005). However, it captures the two dimensions of people and tasks in the managerial job, which have gained a lot of attention in management research (e.g. Blake and Mouton's (1969) Managerial grid and the contingency approach to this division as in Hersey and Blanchard (1988)).

The leadership situation we define in this study is from the view of the manager on the store level. The store manager is defined as the leader and the subordinates as the followers. As the 168 stores on the whole have similar tasks and similar situational characteristics, the focus here has been to stretch the differences between them, i.e. focus parts of the task and situational characteristics that might differ between the clusters. Thereby we have translated task with critical success factor, as it determines which activities, competencies and resources are required (Porter, 1985).

Strategic focus – activities, competencies and resources

The four different routes to profitability identified previously imply different critical success factors, i.e. different strategic focus, which requires different activities, competencies and resources.

In monopoly, where (as the name imply) the stores possess almost a monopoly situation, gross margin and operating costs are significantly higher. In the short run, as long as there is limited competition, the focus would be to keep high prices and "sufficient" service. The stores are not under pressure to increase their productivity.

In fleet market, with a high level of competition, operating costs are significantly lower, although promotion costs are significantly higher. As Parsons and Ballantine (2004) point out, the stronger competition the greater effectiveness of local promotional activities compared to group promotional activities. Thus, promotion activities and competences connected to these activities appear essential, but also the creative use of space and the ability to keep labor costs low in order to keep operating costs low.

In venue, the store is located far from the nearest competitor of the same size. Here, gross margin is high, but also the labor costs. This implies that the strategic focus should be directed at efforts to increase the basket size of shoppers, e.g. by offering a wider merchandise mix comprising a higher share of slow-moving product categories.

Accordingly, this is reflected by the low inventory productivity of stores in this cluster. To succeed under this competitive conditions a high ability to understand the consumers' needs and wants is probably required.

In duopoly, there is another seemingly equal store located very close. In comparison with venue, it is not likely that the store will hold such a wide assortment, but still wider than in monopoly and fleet market. An important success factor would be to differentiate from the "neighbor-store." Probably, these stores will divide the market of slower-moving product categories between each other. An ability to differentiate the "extra" assortment would be important.

Store employees – manager and subordinates

The strategic focus discussed in previous section requires certain competences, which must be represented in the store, by the manager or the subordinates.

In monopoly, the requirements of specific competences are not that high. As long as the "almost monopoly situation" remains the focus will be to keep high prices.

In fleet market, the competencies that are needed are mainly connected to promotion and utilization of the store space. The activities connected to these competencies are most naturally placed on a managerial level. The store as a whole should preferably act like a slimmed machine, where the subordinates rather are at the desk than on the store floor serving the consumers.

In venue, a higher level of service is required to increase the average basket size. These competences must be on staff level, as it requires instant interaction with the consumers. The creativity when it comes to assortment mix is crucial here and the staff must relate in such a direct way to the consumers that they obtain knowledge about the consumers' needs and wants. The store has the ability to complement their merchandise mix with articles that not self-evidently are found in a "normal" supermarket. The managerial competence required is above all connected to evaluating the profitability of having different articles in the assortment and supporting the staff in their interactions with the consumers.

In duopoly, the situation is similar to venue, but a difference would be that the creativity when it comes to differentiate from the "neighbor-store" is important. From a managerial point of view an on-going "negotiation" with the "neighbor-store" concerning division of the market of slower-moving product categories would be an important activity.

Implications for competences

Different competitive conditions mean different critical success factors, despite seemingly similar stores. Accordingly, different competences are required to match these different critical success factors. The competence factor is the most important in fleet market, venue, and duopoly, but in these three different clusters stores have presumably very different requirements when it comes to which competences are essential. In fleet market, competences connected to promotion are important, but also competences regarding productivity. These are mainly managerial issues, i.e. the managerial competence would presumably be more important than staff competence. This differs from venue and duopoly, where the requirements for staff competence would be higher. Both would focus on maximizing the average purchase, by holding a wide assortment. This requires instant interaction between staff and consumers,

i.e. a communication and relating competences on staff level, and on managerial level skills to evaluate different product mixes. However, a competence on use of the spatial dimension in order to maximize the average buy is also important. In summary, different competitive conditions call for different competences. However, it is not self-evident to have them on store level. Furthermore, different competences needed mean need of different people, which will influence the recruitment processes for both store managers and staff. However, it is not self-evident whether the responsibility for recruitment and training should be on store (SBU) level or corporate level, or a combination of the two.

These two last issues lead to next section regarding responsibilities on corporate and store level, respectively.

Implications for responsibilities – corporate support or store autonomy

Different competences are needed at different SBUs (stores) working under different competitive conditions, but it is not self-evident whether these competences should be hold by the stores themselves or be provided by the corporate parent. In deciding this, a parenting matrix (Goold *et al.*, 1994) would be useful, i.e. match the fit between the critical success factors of the SBUs and the corporate parent, but also the fit between the parenting opportunities and the corporate parent. However, the role of the parent when it comes to skill transfers and activity shares between the SBUs (Porter, 1987) would also be an important issue to address.

Firstly, the corporate support should be differentiated depending on which competitive conditions the stores are working under.

Secondly, the different competences that are required under different competitive conditions could be hold by the store or the corporate parent. For example, communication and relating skills required in venue and duopoly should probably be on store level. However, if the demand for "extra" assortment could be assumed to be similar for different stores in these clusters, this information should probably best be collected at store level and analyzed at corporate level. The corporate parent would than be responsible for providing all stores in these clusters with this information.

Thirdly, this explicit example shows the importance of the parent in the role as skill transfer between the different stores working under similar competitive conditions.

Implications for the management control system

In this study, we have showed that different competitive conditions mean different routes to profitability, despite seemingly similar stores. Hence, the critical success factors would be depending on different competitive conditions and the managers would better be evaluated on actions supporting their critical success factors, respectively. Accordingly, different store managers should be evaluated based on different performance indicators depending on different competitive conditions. The management control system must support using different types of performance indicators depending on classifications of the competitive conditions of the stores.

Conclusions

Most retail chains have a similar approach to their stores, or if there is a differentiation it is typically made on the basis of store format, geographical location, or size. In the case of the retail chain to which the supermarkets in this study are affiliated to,

corporate level support is organized by store format. That is, in the present case, all 168 stores, as units of the same format, are provided with similar support. However, this study shows that depending on different competitive conditions the routes to profitability are very different. Thus, as a consequence, stores under different competitive conditions have different critical success factors and should probably better be managed, supported and evaluated on different basis. In the discussion part we have proposed that the four identified clusters – monopoly, fleet market, venue, and duopoly – should be managed through their current strengths; strategies, tactical issues, and eventually operations should be organized accordingly. We argue that clusters represented in this study are general by their nature, and they could be found from other countries as well (although Sweden represents a concentrated market). This is of course, one natural direction for further research.

Our research provides normative recommendations for retail chains to manage their business through clusters, and if these four identified clusters are generic, our proposed profitability enhancement methods are worth of implementation in the future. However, we need more country specific proof for these clusters, as well as profitability enhancement implementation program experiences to assure this point of view. Our research also supported that store level data exists, but it is rather fragmented, and needs further human processing and integration. Therefore, we are looking forward to have financial reporting and GIS to be integrated in store reporting to further understand the affecting phenomena behind financial indicators. We also recommend that daily operative measures should be incorporated with financial reports and GIS, e.g. employee reward systems should take into account local competition to better understand roots to higher productivity and profitability. This is also a fruitful avenue for further research.

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Appendix. Iterative cluster analysis results from SPSS

| | Cluster | | | |
	1	2	3	4
n_ttrd	0	50	6	1
hhi_tn	1.00	17.86	1.42	2.46
hhi_rn	1.00	2.58	1.42	2.46
q_dist	100.0	13.49	167.34	35.78
d_yttrd	100.0	11.0	62.1	68.1

Table AI.
Initial cluster centers

Iteration	Change in cluster center			
	1	2	3	4
1	22.307	37.518	32.735	25.875
2	6.018	2.374	0.000	3.378
3	0.000	0.577	0.000	1.065
4	0.000	0.000	0.000	0.000

Table AII.
Iteration history

Notes: Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is 0.000. The current iteration is 4. The minimum distance between initial centers is 71.757

	Cluster			
	1	2	3	4
n_ttrd	1	13	5	4
hhi_tn	1.43	6.30	2.32	2.83
hhi_rn	1.34	2.75	1.71	2.13
q_dist	89.04	20.63	136.97	27.52
d_yttrd	76.8	16.1	50.0	47.5

Table AIII.
Final cluster centers

Notes: n_ttrd – Number of competing stores in local market; hhi_tn – number equivalent of stores in local market; hhi_rn – number equivalent of chains in local market; q_dist – distance to nearest competitor; d_yttrd – store's share of selling area in local market

	Cluster Mean square	df	Error Mean square	df	F	Significance
n_ttrd	1275.908	3	39.606	164	32.215	0.000
hhi_tn	219.895	3	11.893	164	18.489	0.000
hhi_rn	13.596	3	0.310	164	43.890	0.000
q_dist	66811.668	3	228.405	164	292.514	0.000
d_yttrd	25316.746	3	118.902	164	212.921	0.000

Table AIV.
ANOVA

Notes: The F-tests should be used only for descriptive because the clusters have been chosen to maximum the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpretedas tests of the hypothesis that the cluster means are equal

Cluster		1	20.000
		2	84.000
		3	12.000
		4	52.000
Valid			168.000
Missing			0.000

Table AV.
Number of cases in each cluster

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