Geographical Aspects of Consumer Behavior
in the Retail Service Area of Greater Ålborg

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Abstract

The spatial impacts and relations resulting from consumer behaviour in the retail service area of Greater Ålborg based on original data derived from sampling (1962), and the existing determination of the area published by the Danish Statistical Office (1960).

Introduction

The behavior of consumers is studied by social and behavioral scientists in reference to their specialized interests. In general, geographers have achieved this indirectly by analyzing and theorizing about central places and their tributary areas without stressing spatial patterns emanating from the actions of users of goods and services. A dual interconnection exists between a focal point and the residents in its periphery. The social and economic habits and attributes of these people have a bearing on the quality and quantity of retail and service establishments present in a central place. On the other hand, the manner in which these establishments are perceived by prospective consumers will be decisive whether or not purchases will be made in a specific central place.

This study is an attempt to describe analytically the areal patterns resulting from the spatial interactions between a central place, Greater Ålborg, and the households in its tributary area. A household is the basic consumer unit used in this study. Both original data and information from already existing sources were utilized to attain this goal. The original data were derived from a sample composed of 547 households residing in Greater Ålborg's tributary area. The collected information was used to examine: (1) the areal extent and varying consumer purchase intensities for a number of goods; and (2) spatial effects of the occupation of the head of a household on consumer behavior. Consumer purchase intensity refers to the degree

Table 1. Retail establishments in Greater Ålborg and its RSA*

Type of Establishment	Total Number of Establishments	Number of Establishments in Greater Ålborg	Percentage of Total Number of Establishments	Number of Occurrences in RSA Central Places	Ranking of Type Establishment as to Frequency
Shoe store	101	53	52.4	33	1
Savings bank	44	12	27.3	32	2
Bank**)	54	19	35.2	32	3
Furniture store	101	68	67.3	20	4
Clothing store	77	55	71.4	17	5
Radio and television store	60	40	66.7	16	6
Movie theater	25	10	40.0	15	7
Book store	33	17	51.5	15	8
Hard-, kitchen and chinaware store	46	32	69.6	11	9
Legal service	73	56	76.7	10	10
Dental service	62	50	80.6	9	11
Dry cleaning service	32	25	78.1	7	12
Fuel oil depot	10	9	90.0	2	13
Accounting service	18	18	100.0	1	14
Travel agency	9	9	100.0	1	15
Fur store	4	4	100.0	1	16
Total	749	477	63.7		

*) Stefan Ott and Hans Mammen, "A List and Enumeration of Functions of Central Places in Northern Jutland" (Copenhagen: Peter Bredsdorffs Tegnestue, 1962). (Manuscript).

**) Includes branches of financial institutions with head offices elsewhere.

Tab. 1. Detailvirksomheder i Stor-Ålborg og dens serviceopland. For 16 brancher er angivet deres totale antal, Stor-Ålborgs absolutte og procentvise andel heraf, deres forekomst i områdets andre byer samt en rangopstilling efter deres hyppighed.

to which a member of a household or households in a township obtains goods from a central place. A "good" refers to a commodity or service offered for sale by operators of a retail and/or service establishment.

Individuals acquire the majority of consumer goods in a population node; a relatively large central place such as Greater Ålborg is patronized for varied reasons. This city contains a greater variety and number of establishments than other, but smaller foci within its tributary area. (Table 1 and Fig. 1) which means that consumers are able to shop around a great deal until they find exactly that item which, in their personal estimation, will provide them with the greatest future satisfaction. Other advantages of shopping in a large multi-functional central place are: (1) the accomplishment of additional goals such as calling on relatives and/or friends, selling or

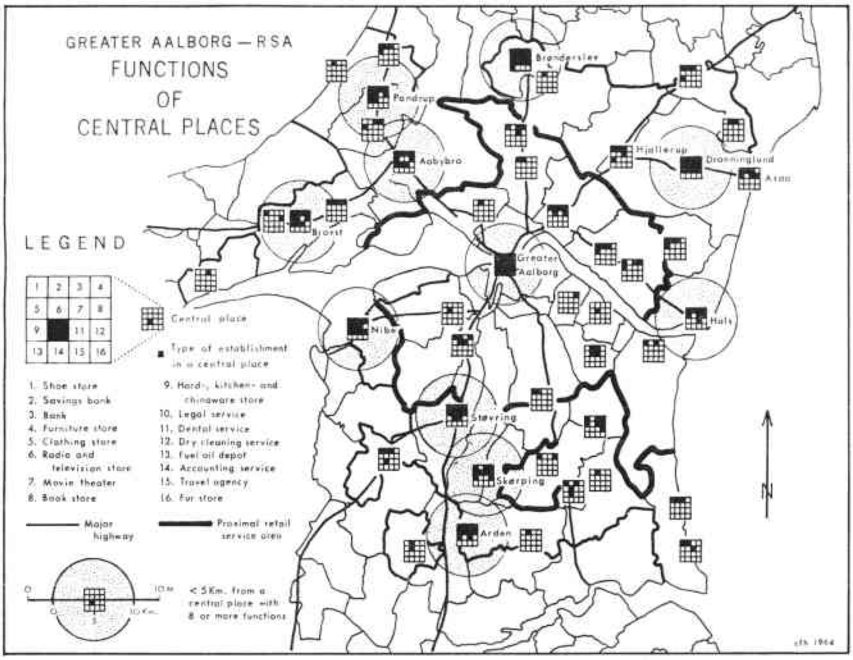


Fig. 1. Servicecentrernes funktion i Stor-Ålborgs serviceopland. I kvadratsignaturen er der med skravering angivet hvilke af tab. 1's 16 brancher, der findes i de 45 centrer.

buying livestock and other agriculturally associated items, visiting a medical and/or other professional service establishment, attending a movie, play, or concert and taking care of problems dealing with governmental matters; (2) anonymity; and (3) the accessibility to the major central place as compared to other focal points.

The Sample and the Retail Service Area

The sample of 547 households used was obtained in 1962 and originated from the 44 townships shown in Fig. 2. This area, henceforth referred to as the retail service area — RSA, does not differ greatly in areal extent and number of townships from Greater Ålborg's retail service as determined in 1960 by the Danish Statistical Office, (Fig. 3).

The sample was collected on a non-random basis and the deviations from the average Danish or regional population may be stated as follows:

(1) The sample covers only those households of which a member attends one of the educational institutions in which question-

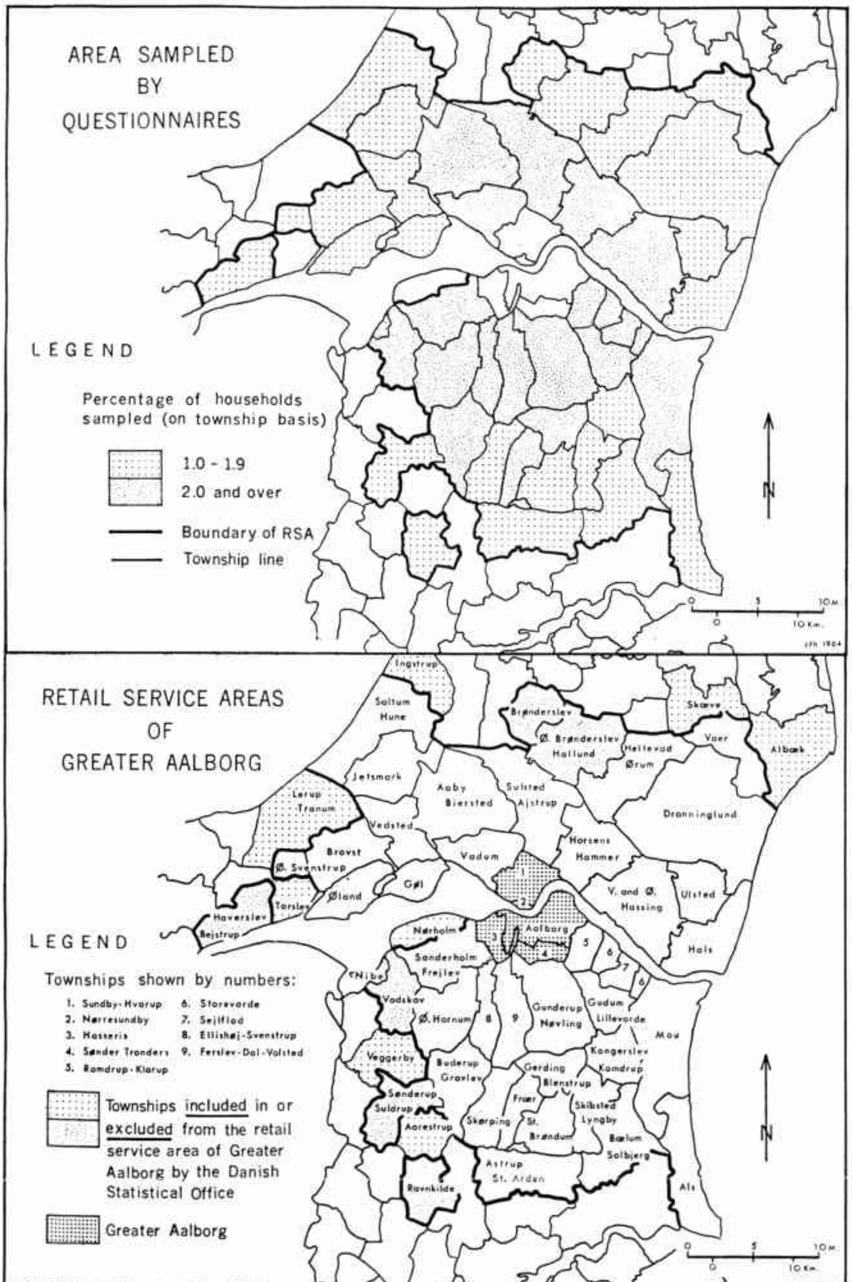


Fig. 2. Kommuner, der er inddraget i undersøgelsen med angivelse af procenten af adspurgte husstande.

Fig. 3. Samme areal sammenlignet med det af Statistisk Departement fastlagte serviceopland.

naires were distributed. These educational institutions were: Ålborghus Statsgymnasium, Ålborg Kathedralskole, Ålborg Studenterkursus, Ålborg Seminarium, Ålborg Børnehaveseminarium, Ålborg Tekniske Skole, and Ålborg Handelsskole.

(2) The youngest respondent was born in 1947, i. e. was 15 years of age when the sampling was carried out. It could be assumed that the youngest set of parents was at least 35 years of age. From the above it may be concluded that households without children, or offspring under 15 years of age are not represented in the subsequent analyses.

(3) The occupational composition of the sample shows that a relatively greater number of income-earning heads of these 547 households belong to the professional and managerial classes than would be expected in the total population.

(4) An indication that the households constituting this sample are economically better off than the average population is derivable from the fact that 347 households or 63.6 per cent of the sample owned motor vehicles, whereas the national average is one motor vehicle for every three households, or 33.3 per cent (1961).

Although this sample does not fully represent the average regional household, it presents advantages such as (1) differentiation between occupational groups, and (2) original information hitherto not available.

Variations in Consumer Purchase Intensities

The retail service area of a central place is generally depicted as a homogeneous region lacking internal variation in consumer purchase intensities for goods. Assuming that users of goods have different images of individual goods and services and the foci where these can be obtained, both of which play a role in their decision-making, it follows that consumer purchase intensities should vary accordingly. Using this assumption and on the basis of aggregate data derived from the sample, it should not only be possible to determine the spatial range of commodities but also the varying purchase intensities that exist for them in reference to Greater Ålborg. Moreover, it is possible to establish the degree to which consumers in the RSA use central places other than Greater Ålborg, the spatial patterns resulting from such use, and their association with other spatially varying phenomena such as transportation.

Table 2. Average consumer purchase intensities for goods in the Greater Ålborg RSA.

Rank	Good(s)	Number of Households of the Total of 547 in the RSA Purchasing a Good in Greater Ålborg	The Average Purchase Intensity or Per Cent of Total Sample
1	Ladies' apparel	403	73.7
2	Shoes	392	71.6
3	Men's clothing	375	68.6
4	Dry cleaning service	364	66.5
5	Books	355	64.9
6	Dental service	336	61.4
7	Furniture	297	54.3
8	Hosiery	282	51.6
9	Movie house attendance ...	254	46.4
10	Radio and television	228	41.7
11	Hard-, kitchen-, and chinaware	226	41.3
12	Legal service	221	40.4
13	Accounting service	198	36.2
14	Banking service	182	33.3
15	Motor vehicles	175	32.0
16	Pharmaceuticals	136	24.9
17	Savings banking service ...	118	21.6
18	Beautician's service	102	18.6
19	Automotive repair service	90	16.4
20	Barber's service	71	13.0

***Tab. 2.** Gennemsnitlig købsintensitet for 20 varegrupper i Stor-Ålborgs detailserviceområde beregnet efter hvor mange af de 547 husstande, der angiver Ålborg som indkøbssted for disse varer.*

Purchase intensities of households (on a township basis) for goods obtainable in Greater Ålborg were computed by use of the following formula:

$$I = \frac{h}{g}$$

where I is the purchase intensity, expressed as a percentage, h is the number of households sampled in a township purchasing a particular good in Greater Ålborg, and g represents the total number of households sampled within that township.

Purchase intensities were determined for each of the 20 goods used in this study and for each of the 44 townships comprising the RSA. The 20 goods were: (1) ladies' apparel; (2) shoes; (3) men's clothing; (4) hard-, kitchen-, and chinaware; (5) hosiery; (6) radio and television; (7) books; (8) furniture; (9) pharmaceuticals; (10) motor vehicles; (11) dental service; (12) legal service; (13) accounting service; (14) barber's service; (15) beautician's service; (16) banking service; (17) savings banking service; (18) automotive repair service; (19) movie house tickets; and (20) dry cleaning ser-

Goods with high average purchase intensities are: (1) those which the public desires in many varieties (both as to quality and quantity) such as ladies' apparel, shoes, men's clothing, books; and (2) those that usually are available only in a sizable focal point, such as dry cleaning service, dental service and accounting service. The last named reflect the fact that a relatively large number of consumers is needed to make establishments offering such services profitable. Some goods and services (motor vehicles, legal service, accounting service, automotive repair service) have relatively low average purchase intensities because not all of the households sampled use them.

Goods with high average purchase intensities in the RSA also have the greatest spatial dispersion. The first percentage quartile, as expected, is found in the townships that border Greater Ålborg. Moreover, households residing in these townships buy a greater proportion of goods which generally rank low (based on average purchase intensity) in Greater Ålborg. This indicates that this city's centripetal force varies in strength within the RSA.

Preferred Service Centers

Each household sampled also mentioned the central place it considered its preferred service center (indkøbsby). About three-fifths of the sample (338 households or 61.8 per cent) mentioned Greater Ålborg; the remaining 209 households chose 59 other localities. These are mainly small, local retail centers, although some of these localities have eight or more of the functions used in describing the central places of the RSA (Table 1 and Fig. 1). Places selected by six (approximately one per cent of the sample) or more households are shown by name in Fig. 1. There are 12 such places: Åbybro, Arden, Aså, Brovst, Brønderslev, Dronninglund, Greater Ålborg, Hjallerup, Nibe, Pandrup, Skørping, and Støvring. Two of these, Aså and Hjallerup, had less than eight of the functions used in determing the central places of the region. Hals which has eight of these functions was considered by only two households as their preferred service center.

Some evidence of graded evaluation or hierarchical perception of central places was noted. For example, Brønderslev had an average purchase intensity of ten per cent for the 20 goods but 44.4 per cent of the households from this town mentioned Greater Ålborg as their preferred service town. Of course, these data reflect environmental interpretations of households and their validity as far as application is concerned can be questioned.

Table 3. Quartile frequency of occurrence of purchases of specified goods in Greater Ålborg by township.

Good(s)	Quartile				
	First a)	Second	Third	Fourth	No. of Town-ships b)
	No. of Town-ships	No. of Town-ships	No. of Town-ships	No. of Town-ships	
1. Ladies' apparel	24	15	3	2	0
2. Shoes	24	15	4	1	0
3. Men's clothing	21	12	7	4	0
4. Dry cleaning service	21	10	7	5	1
5. Books	20	14	5	3	2
6. Dental service	18	13	6	5	2
7. Furniture	14	7	16	7	0
	11	11	12	8	2
9. Movie house attendance	9	12	7	13	3
10. Radio and television	7	12	15	7	2
11. Hard-, kitchen-, and chinaware	8	8	13	13	2
12. Legal service	11	8	8	5	12
13. Accounting service .	2	11	23	5	3
14. Banking service ...	8	7	4	12	13
15. Motor vehicles	2	7	19	10	6
16. Pharmaceuticals ...	5	4	2	11	22
17. Savings banking service	2	6	5	13	18
18. Beautician's service	0	4	10	15	15
19. Automotive repair service	0	2	11	17	14
20. Barber's service	0	2	8	14	20

a) The quartiles from first to fourth are respectively (75,0–100,0%), (50,0–74,9%),25,0–49,9%), 0,1–24,9%).

b) The last column indicates townships in which the households do not purchase specified goods or services in Greater Ålborg.

Tab. 3. Købsintensitet udregnet for kommuner og opstillet i kvartiler.

a) Kvartilerne første til fjerde betyder 75-100%, 50-74,9%, 25-49,9% og 0,1-24,9%.

b) Den sidste søjle angiver antallet af kommuner, hvorfra ingen husstande køber de resp. varer i Stor-Ålborg.

vice. These goods were chosen because consumers engage primarily in a non-programmed decision-making process in obtaining these goods. The values obtained were subsequently grouped into percentage quartiles which were mapped to reveal the areal distribution of consumer purchase intensities. Averages of the latter are enumerated in Table 2 and the number of times a good occurred in any of the percentage quartiles is shown in Table 3.

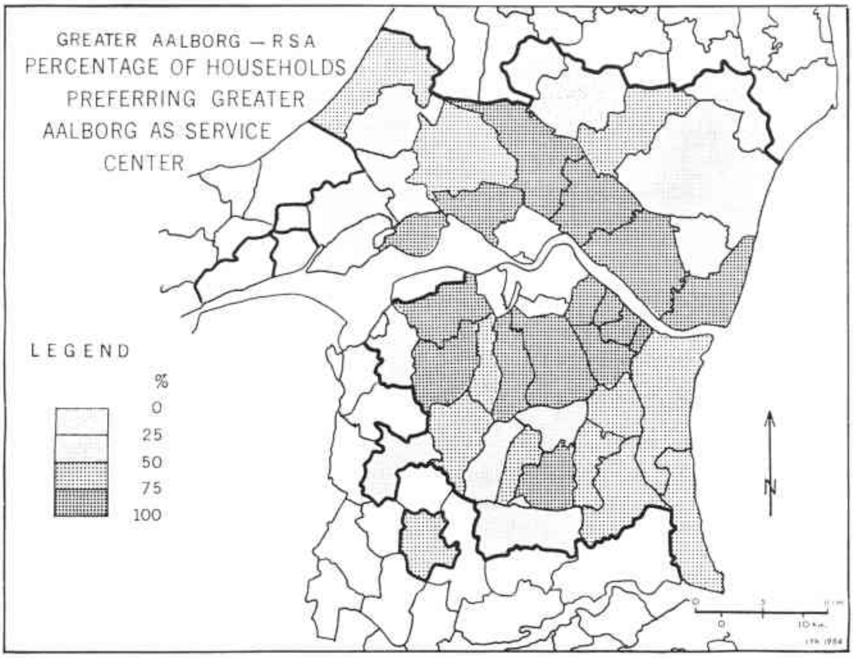


Fig. 4. Den procentvise fordeling af husstande, der foretrækker Stor-Ålborg som servicecenter.

The spatial distribution, on a percentage basis, of consumer units preferring Greater Ålborg as their service center is shown in Figure 4. Generally, the highest percentages occur contiguously in townships in the immediate vicinity of Greater Ålborg with the exception of Ellishøj-Svenstrup township. Store Brøndum township is an exclave of the pattern described above. The overall areal distribution elucidates the lack of sizable central places around Greater Ålborg and the strong links between this metropolitan area and the residents in its nearby surroundings. Moreover, the southeastern part of the RSA is also relatively intimately tied to Greater Ålborg because it lacks major central places excepting Hobro and Hadsund which are beyond the boundaries of the RSA.

Comparing the areal configuration of this pattern with that of Figure 5, similarities are observed in that the households in townships with high consumer purchase intensities also preponderously prefer Greater Ålborg as their preferred service center. A combination of these areal distributions shows the magnitude of Greater Ålborg's centripetal force.

Subregions of the RSA

It is apparent that the RSA, until here, considered as a homogeneous area can be subdivided into subregions. This was done by establishing, on a township basis, the frequency of occurrence of the first quartile of consumer purchase intensity for each of the 20 goods (Table 4 and Figure 5). The first quartile of consumer purchase intensity occurred seven or more times in 16 townships adjacent to Greater Ålborg with the exception of Store Brøndum, Mou and Gøl townships. The 16 communities are in what has been termed the proximal retail service area on which Greater Ålborg exercises a greater centripetal force than on the townships of the peripheral retail service which is at a greater distance from Greater Ålborg. The reason for inclusion of Mou and Gøl townships in the proximal retail service area, although they are somewhat distance from Greater Ålborg, is that their densities of population are too low for supporting sizable central places and that their consumers have reasonably good access to Greater Ålborg for shopping purposes. Store Brøndum was not only noted as an exception in its choice of preferred service center but also stands out here. Adequate reasons for these deviations from the general pattern are not available. It is thought that the socio-economic structure of the sampled households causes this anomaly.

It is obvious from Figures 4 and 5 that the areal extent of preference for Greater Ålborg as a service center of high consumer purchase intensities is greater in the area south of the Limfjord. This emanates from: (1) households in this area are more strongly attracted to Greater Ålborg than those living north of the Limfjord; (2) the past and present influence of the boundary between Ålborg and Hjørring counties, a boundary that partly coincides with the limits of the proximal retail service area; and (3) the better accessibility of Greater Ålborg by several routes from the south. The highway bridge connecting Ålborg with Nørresundby is a traffic bottle-neck, its carrying capacity being too small to accommodate the present flow of traffic. Moreover, 26 per cent of the households in the proximal retail service area south of the Limfjord, travel more than 52 times annually to Greater Ålborg as compared to 16.5 per cent of those residing in the proximal retail service area north of this body of water. These are some of the reasons of the stronger tie-in of Greater Ålborg with the southern portion of the RSA as compared to the northern part.

In the peripheral retail service area two townships, Hellevad-Ørum

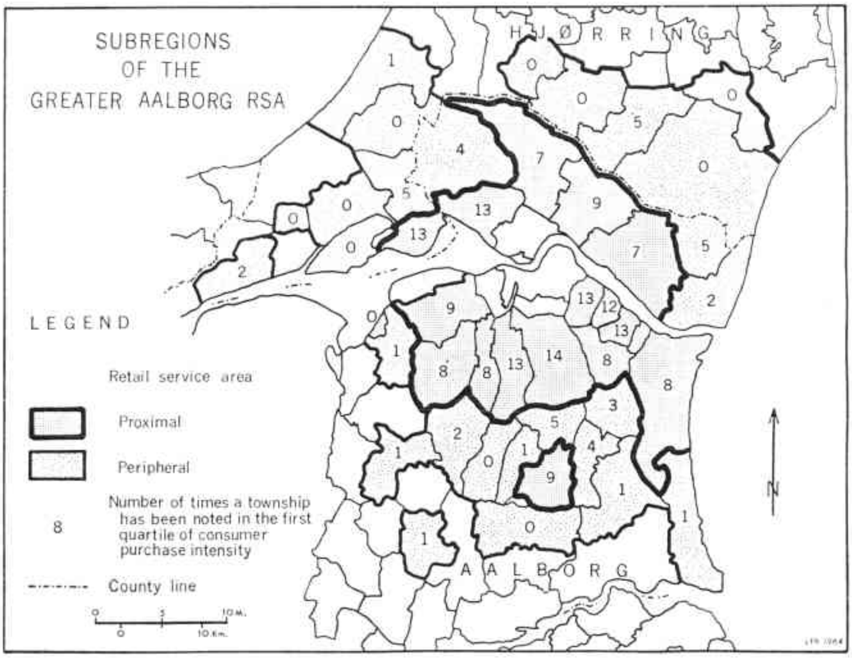


Fig. 5. Opdeling af detail-serviceoplandet i et proximalt og et perifert område på basis af tab. 4.

and Vedsted, stand out. Both have a greater number in the first quartile of consumer purchase intensities than communities east or west of them. Their deviation from the general pattern as well as that of the afore-mentioned townships (Store Brøndum, Mou and Gøl) is also a result of the social structure of the sample. In these townships this sample consisted mainly of farmers, independent merchants, and master craftsmen. This may indicate that households in which the heads pursue this type of non-salaried occupation, coupled with good transportation facilities to the major central place, by-pass the nearest central place when on a purchasing trip, and travel directly to the major regional focal point.

Transportation and the RSA

The region has a well developed transportational network. Two aspects of transportation will be considered: (1) the type and frequency of transportation used by the examined sample households, and (2) time-distance comparisons of various carriers utilized within the Greater Ålborg RSA.

The households' purchasing agents travelled to Greater Ålborg by

Table 4. Quartile ratings of townships on basis of relative frequency of purchase of 20 selected goods.

Township	Quartiles			
	First	Second	Third	Fourth
Åby-Biersted	4	7	6	3
Als	1	3	7	2
Astrup-Stor Arden	0	5	5	8
Brovst	0	9	9	16
Brønderslev	0	0	1	14
Buderup-Gravlev	2	4	9	5
Bælum-Solbjerg	1	6	4	4
Dronninglund	0	2	6	11
Ellishøj-Svenstrup	8	6	2	4
Ferslev-Dal-Volsted	13	5	2	0
Fræer	1	5	8	0
Gerding-Blenstrup	5	5	4	4
Gudum-Lillevorde	8	3	5	3
Gunderup-Nøvling	14	3	3	0
Gøl	13	3	2	0
Hals	2	7	1	5
Haverslev-Bejstrup	2	1	4	3
Hellevad-Ørum	5	2	5	5
Horsens-Hammer	9	5	3	3
Jetsmark	0	4	6	3
Kongerslev	3	4	6	6
Mou	8	4	5	3
Nibe	0	0	5	4
Ravnkilde	1	4	5	3
Romdrup-Klarup	13	4	3	0
Saltum-Hune	1	6	7	3
Seilflod	13	2	2	2
Skibsted-Lyngby	4	5	1	5
Skørping	0	2	9	5
Store Brøndum	0	3	7	0
Storvorde	12	5	1	2
Sulsted-Ajstrup	7	7	3	3
Sønderholm-Frejlev	9	8	3	0
Sønderup-Suldrup	1	4	5	8
Ulsted	5	6	2	6
Vadum	13	4	3	0
Vedsted	5	9	2	3
Vester and Øster Hassing	7	2	7	4
Voer	0	3	2	9
Øland	0	8	5	0
Øster Brønderslev	0	0	0	10
Øster Hornum	8	5	2	5
Øster Svenstrup	0	1	5	11

Tab. 4. De enkelte kommuners købsintensitet for 20 varegrupper opstillet i kvartiler.

automobile, bus or train. Automotive use is by far predominant as 347 households owned motor vehicles. However, 44 buyers from these consumer units used buses and three trains, either because they did not know how to operate a motor vehicle or because the vehicle was

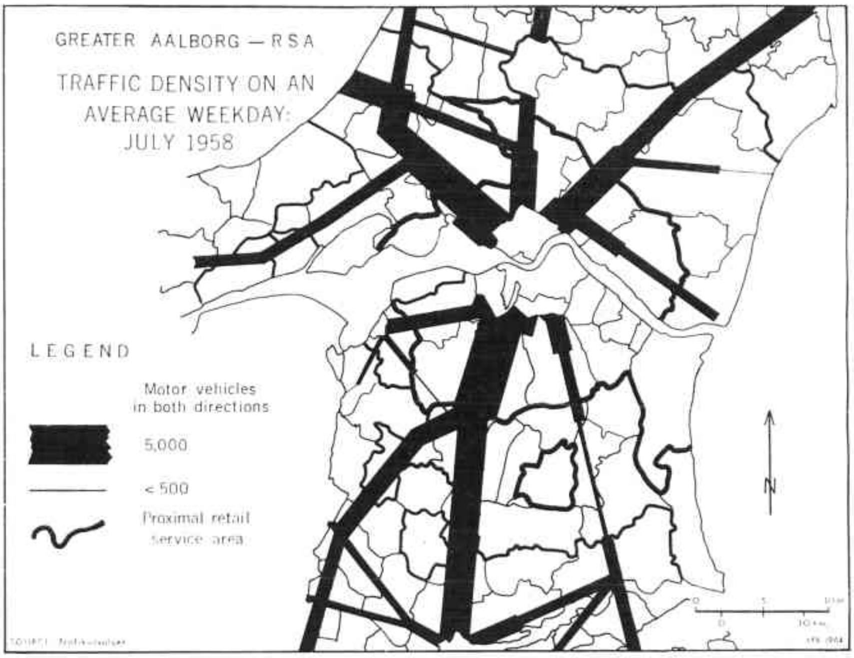


Fig. 6. Trafiktæthed (motorkøretøjer i begge retninger) på en tilfældig hverdag i juli 1958.

used by another member of the household in pursuit of his occupation.

The greater frequency of those travelling by automobile to Greater Ålborg is not only a matter of convenience but also of proportional cost. In relation to personal income, the cost of travel to the buyer who uses his own car plays a less important decision-making role than it does to the bus-or-train user. Of these two modes of transportation, bus travel is preferred. Moreover, bus-users visit Greater Ålborg more often than train-users. This differentiation must be viewed with caution because too few riders of trains are represented in the sample (Table 5).

In relaton to distance, the greatest number of trips to Greater Ålborg originate in the proximal retail service area. Analysis of Figure 6 offers conclusions that are somewhat difficult to draw because increasing traffic densities about Greater Ålborg are, to an unknown degree, caused by the convergence of roads. East of Store Brøndum township and south of the boundary of the proximal retail service area, traffic densities decrease indicating the diminishing drawing power of Greater Ålborg and the effect of competing central

Table 5. Type and frequency of use of means of transportation in the RSA in Travel to Greater Ålborg.

Type of Transportation	Frequency per Year																Totals		
	> 52		26-52		18-25		12-17		6-11		3-5		2		0				
	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons	Percentage of Group	Number of Persons in Group	Percentage	Percentage of Total Sample (547)
Auto-mobile	53	17.7	70	23.4	55	18.3	46	15.3	47	15.7	21	7.0	7	2.3	1	.3	300	100.0	54.9
Bus	23	11.4	24	11.9	32	15.8	28	13.8	44	21.8	44	21.8	7	3.5	–	–	202	100.0	36.9
Train	–	–	7	15.6	7	15.6	7	15.6	10	22.2	11	24.4	2	4.4	1	2.2	45	100.0	8.2
Totals	76	13.9	101	18.5	94	17.2	81	14.8	101	18.5	76	13.9	16	2.8	2	.4	547	100.0	100.0

Tab. 5. Rejsehyppigheder og deres fordeling på transportmidler (bil, bus, tog) angivet ved antallet af personer og procent af gruppen.

places such as Hobro and Hadsund. In the northwest, the high density is due to traffic to the coast in pursuit of recreation on the beach.

Since straightline distance is an unrealistic measurement, time-distance mapped in the form of isochrones, has been used. The isochrones indicate the amount of time needed to cover a distance by various means of transportation. In reality the time-distance is doubled because each trip must be figured as a round trip. *Emery Troxel*, Economics of Transport (New York: Rinehart and Company, Inc., 1955), pp. 144-145.

In terms of one-way travel by automobile, most of the proximal retail service area falls into the 15-minute zone, however, in the eastern part of this area this increases to 30 minutes and for Mou township to 45 minutes. This time-distance is also applicable to the remainder of the RSA. Als township has the greatest time-distance to Greater Ålborg, namely, 60 minutes (Figure 7). The same general pattern is noticeable with bus-travel but in this case the time-distance from most locations to Greater Ålborg is about twice as great as that for automobiles, because of the slower speeds and the frequent stops of the buses (Figure 8).

Occupations and Spatial Characteristics of Consumer Behavior

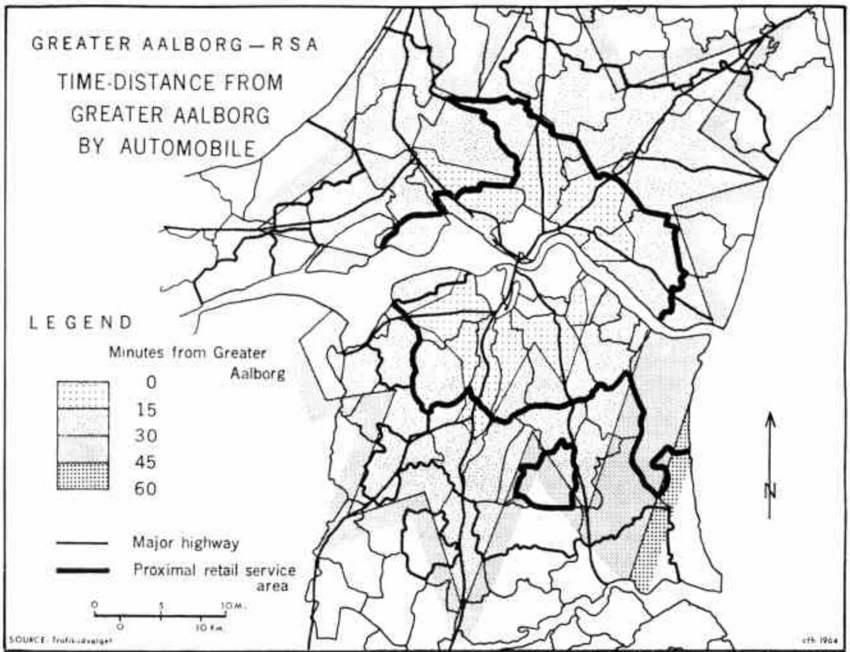
In describing spatial patterns resulting from the aggregate behavior of individuals it was assumed that the sampled households had identical images of each good. This assumption is not necessarily true.

The hypothesis here is that households or groups of more or less similar households have dissimilar images of specific goods and of environment. Consequently, the image and use of Greater Ålborg to obtain a good or goods may vary as may the time-distance concept and frequency of travel to this city.

To validate the above ideas, the population of the sample is divided into seven groups based on the occupation of the head of the household, because his/her work indicates social status (Table 6).

Variations in Consumer Purchase Intensities, in Selection of Greater Ålborg as a Preferred Service Center, and in the Use of Means of Transportation within Occupational Groups

It is apparent from Table 7 that each of the seven occupational groups has different purchase intensities, expressed as percentages, for each of the 20 goods. Table 7 also shows the number of times



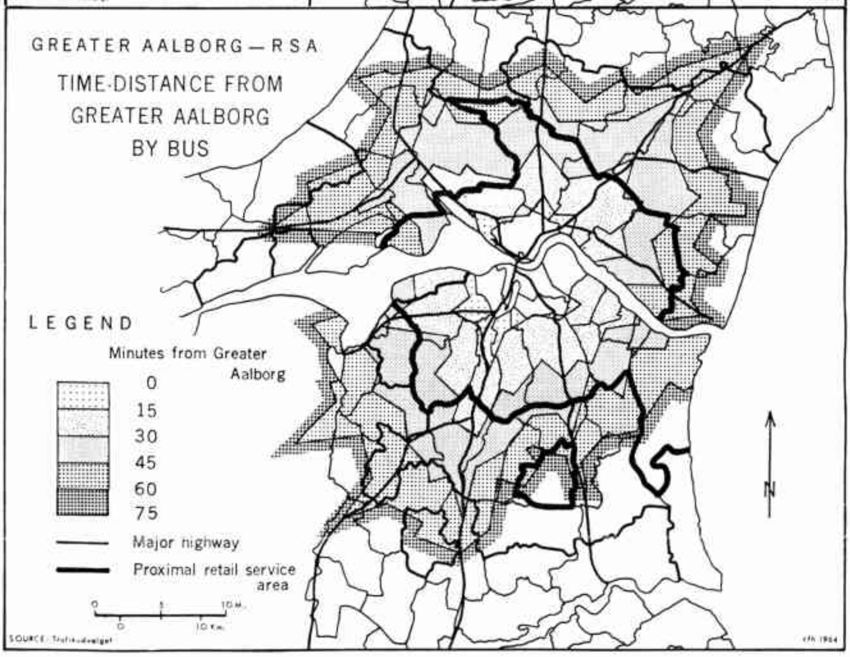


Fig. 7. Tidsafstand i minutter med bil fra Stor-Ålborg.
Fig. 8. Tidsafstand i minutter med bus fra Stor-Ålborg.

that an occupational group attained the first or second highest purchase intensity of a good. Moreover, the selection of Greater Ålborg as a preferred service center also varies from group to group (Table 8). A similar observation can be made in regard to frequency of travel to Greater Ålborg (Table 9).

Some of these variations in purchase intensities, in choice of preferred service center, and in the frequency of travel can be explained on the basis of what is known about these seven groups and their points of view about goods. However, a number of the observable differences may be affected by the group either being too small in number or too diverse in its occupational and social composition. Further, the wants of individual households comprising a group may vary greatly, or the differences in purchase intensities of the groups may be too minuscule to be of great significance. Therefore, Groups 5, 6, and 7 (skilled, semi-skilled, and unskilled labor) have been generally omitted from the analysis that follows.

Observations about Occupational Group 1

Group 1 (professional and managerial) has the greatest total number of highest purchase intensities (Table 6). This group has also the greatest preference for Greater Ålborg as its service center (Table 7). However, in frequency of travel to Greater Ålborg, this group, measured in percentage of the group, occupies second place after Group 2 (shopkeepers, merchants, and master craftsmen), see Table 8.

The goods and services for which Group 1 has the highest purchase intensities are: (1) ladies' apparel; (2) shoes; (3) hosiery; (4) hard-, kitchen-, and chinaware; (5) banking; (6) savings banking; and (7) automotive repairs. Generally, these are goods for which a consumer desires to have a wide range of selection before deciding to make a purchase. Savings banks are generally local institutions whereas banks are branches of financial institutions in Ålborg and Copenhagen.

The levels of education and incomes of the households comprising this group may be assumed to be higher than those of the six other groups. This presumably results in greater knowledge and appreciation of the real worth and a greater availability of money that can be spent for travel. Hence these households are more sophisticated in the use of their milieu. Their desires are not easily satisfied in relatively small service centers. The fact that this group occupies first place in selecting Greater Ålborg as its preferred service center indicates this (Table 7).

Table 6. Occupational groups.

Occupational Group	Number of Households	Per Cent of Sample
1. Professional and managerial	78	14.3
2. Shopkeepers, merchants, and master craftsmen	144	26.3
3. Farmers	181	33.1
4. Office and government employees	27	4.9
5. Skilled labor	40	7.3
6. Semi-skilled labor	5	.9
7. Unskilled labor	72	13.2
Totals	547	100.0

In this classification income data were not considered. Information on income was not asked because it was felt that if such confidential information was included, many would not answer; especially so, because many of the questionnaires could be traced to the respondent.

Tab. 6. Erhvervsgrupper (se dansk resumé). I klassifikationen er der ikke taget hensyn til indkomstens størrelse, da dette spørgmål muligvis ville have afholdt mange fra at svare overhovedet.

The above might lead to the conclusion that Group 1 has greater mobility within the RSA than the other groups, which is somewhat contradictory as it has already been noted that this group travels less frequently to Greater Ålborg than Group 2. Also the proportion of households owning motor vehicles is less than in Group 2 (Tables 9 and 10). In analyzing the questionnaires, however, it was noted that several of the households in Group 1 did some of their purchasing in Copenhagen. In many cases, this is influenced by the fact that the head of the household obtained part of his education in Denmark's capital. This indicates that households in this group may travel further to obtain certain goods than the remainder of the sample.

Observations about Occupational Group 2

Group 2 (shopkeepers, merchants, and master craftsmen) has generally received less education than Group 1. However, some households in Group 2 may have a higher income than some households in Group 1. Group 2 had only two first places in highest purchase intensity, viz., accounting service and the purchase of motor vehicles (Table 7). Accounting establishments are not available in the RSA except in Greater Ålborg. Thus in Group 2, many households that use accounting services in their businesses obtain these in Greater

Table 7. Percentage of goods purchased in Greater Ålborg by occupation of head of household.

Occupational Groups	1 Professional and Managerial		2 Shopkeepers, Merchants and Master Craftsmen		3 Farmers		4 Office and Government Employees		5 Skilled Labor		6 Semi-skilled Labor		7 Unskilled Labor		Totals	
Number of	78		144		181		27		40		5		72		547	
Good(s)	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group	No. of Households	Per-Cent of Group
Ladies' apparel	68	87.2*	100	69.4	142	78.4**	19	70.4	29	72.5	3	60.0	42	58.3	403	73.7
Shoes	63	80.8*	103	71.5	140	77.3**	17	63.0	24	60.0	3	60.0	42	58.3	392	71.6
Men's clothing	58	74.4**	93	64.6	133	73.5	18	66.7	25	62.5	4	80.0*	44	61.1	375	68.6
Dry cleaning service	53	67.9	97	67.4	124	68.5	19	70.4**	30	75.0*	2	40.0	39	54.2	364	66.5
Books	53	67.9	88	61.1	132	72.9*	19	70.4**	22	55.0	3	60.0	38	52.8	355	64.9
Dental service	44	56.4	82	56.9	123	68.0*	18	66.7**	25	62.5	2	40.0	42	58.3	336	61.4
Furniture	39	50.0	71	49.3	117	64.6*	16	59.2**	22	55.0	2	40.0	25	34.7	297	54.3
Hosiery	49	62.8*	71	49.3	104	57.5**	13	48.1	17	42.5	0	—	28	38.9	282	51.6
Movie house attendance	46	59.0**	69	47.9	86	47.5	17	63.0*	16	40.0	0	—	20	27.8	254	46.4
Radio and television	33	42.3	53	36.8	69	38.1	17	63.0*	23	57.5	3	60.0**	30	41.7	228	41.7
Hard-, kitchen-, and chinaware	43	55.1*	56	38.9	83	45.8**	11	40.7	12	30.0	1	20.0	20	27.8	226	41.3
Legal service	28	35.9	54	37.5	89	49.2**	14	51.8*	14	35.0	2	40.0	19	26.4	221	40.4
Accounting service	28	35.9	75	52.1*	62	34.2	10	37.0**	8	20.0	0	—	15	20.8	198	36.2
Banking service	34	43.6*	42	29.2	71	39.2**	8	29.6	12	30.0	1	20.0	14	19.4	182	33.3
Motor vehicles	33	42.3**	70	48.6*	48	26.8	10	37.0	7	17.5	1	20.0	6	8.3	175	32.0
Pharmaceuticals	22	28.2	30	20.8	52	28.7	8	29.6*	13	32.5**	0	—	9	12.5	136	24.9
Savings banking service	23	29.5*	21	14.6	50	27.6**	4	14.8	10	25.0	0	—	10	13.9	118	21.6
Beautician's service	22	28.2**	25	17.4	35	19.3	8	29.6*	6	15.0	0	—	8	11.1	102	18.6
Automotive repair service	25	32.1*	31	21.5**	25	13.8	5	18.5	3	7.5	0	—	1	1.4	90	16.4
Barber's service	13	16.7**	17	11.8	25	13.8	7	25.9*	6	15.0	0	—	3	4.2	71	13.0
No. of time in highest percentage	7		2		3		6		1		1		—			
No. of time in second highest percentage	5		1		7		5		1		1		—			

*) Highest percentage. **) Second highest percentage.

Tab. 7. Varekøb foretaget i Stor-Ålborg af de 7 erhvervsgrupper, angivet for antal husstande og som procent af gruppen.
****) højeste procent. **) næsthøjeste procent.***

Table 8. Selection of preferred service center by occupation of head of household.

Occupational Groups	Greater Ålborg		Local Service Centers	
	No. of House-holds	Per Cent of Group	No. of House-holds	Per Cent of Group
1. Professional and managerial	59	75.6	19	24.4
2. Shopkeepers, merchants and master craftsmen	92	63.9	52	36.1
3. Farmers	102	56.4	79	43.6
4. Office and government employees	20	74.1	7	25.9
5. Skilled labor	23	57.5	17	42.5
6. Semi-skilled labor	1	20.0	4	80.0
7. Unskilled labor	41	56.9	31	43.1
Totals	338	61.8	209	38.2

Tab. 8. Erhvervsgruppernes valg af servicecenter.

Ålborg. The greater intensity of purchases of motor vehicles probably results from the need for special types of motor vehicles used by the heads of these households in exercising their occupation.

The frequency of travel of Group 2 to Greater Ålborg appears to be higher than that of Group 1, but this does not seem to lead to higher purchase intensities. Group 2 makes apparently many trips to Greater Ålborg for business purposes, such as calling on wholesale establishments, obtaining merchandise, and so on, without making purchases of goods for the household. Other consideration for the relatively low purchase intensities of this group is that its households do a great deal of their shopping locally, because their livelihood depends to a certain degree on the goodwill towards them in their home communities. Some of these households in Group 2 may even have a number of the goods used in this study available in their own businesses.

Observations about Occupational Group 3

Group 3 (farmers) has only three first places in highest purchase intensities in Greater Ålborg, viz., (1) books; (2) dental service; and (3) furniture. On the other hand, seven second places are noted, viz., (1) ladies' apparel; (2) shoes; (3) hosiery; (4) hard-, kitchen-, and

Table 9. The annual frequency of trips to Greater Ålborg by occupation of head of household.

Occupational Group	> 52		26-52		18-25		12-17		6-11		3-5		2		0		Totals		
	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households	Per Cent of Group	Number of Households in Group	Per Cent	Per Cent of Total Sample (547)
1.**	15	19.2	21	26.9*	14	17.9	13	16.7	11	14.1	4	5.1	–	–	–	–	78	100.0	14.3
2.	30	20.8*	26	18.0	20	13.9	21	14.6	23	16.0	18	12.5	4	2.8	2	1.4	144	100.0	26.3
3.	13	7.2	31	17.1	40	22.9	29	16.0	35	19.3	28	15.5	5	2.8	–	–	181	100.0	33.1
4.	5	13.5	6	22.2*	4	14.8	2	7.4	3	11.1	6	22.2*	1	3.7	–	–	27	100.0	4.9
5.	6	15.0	7	17.5	7	17.5	5	12.5	10	25.0*	5	12.5	–	–	–	–	40	100.0	7.3
6.	–	–	1	20.0	–	–	1	20.0	3	60.0*	–	–	–	–	–	–	5	100.0	.9
7.	7	9.7	9	12.5	9	12.5	10	13.9	16	22.2*	15	20.8	6	8.3	–	–	72	100.0	13.2
Tl.	76	13.9	101	18.5	94	17.2	81	14.8	101	18.5	76	13.9	16	2.8	2	0.4	547	100.0	100.0

*) Highest percentage in the occupational group.
**) 1. Professional and managerial; 2. Merchants and master craftsmen; 3. Farmers; 4. Office and government employees; 5. Skilled labor; 6. Semi-skilled labor; 7. Unskilled labor.

Tab. 9. Antal rejser til Stor-Ålborg pr. år for erhvervsgrupperne 1-7, se tab. 6.

Table 10. Motor vehicle ownership presented on basis of occupuational groups.

Occupational Group	Total Number of Households in Group	Number of Motor Vehicle Owners	Per Cent of Group
1. Professional and managerial	78	65	83.3
2. Shopkeepers, merchants, and master craftsmen	144	127	88.2
3. Farmers	181	101	55.8
4. Office and government employees	27	20	74.1
5. Skilled labor	40	17	42.5
6. Semi-skilled labor	5	1	20.0
7. Unskilled labor	72	15	20.8
Totals	547	346	63.3

Tab. 10. Antal ejere af motorkøretøjer i erhvervsgrupperne og procenten i hver gruppe.

chinaware; (5) legal service; (6) banking; (7) savings banking (Table 7). This group's level of education and income is generally lower than that of Groups 1 and 2. The relatively smaller percentage of motor vehicle ownership, as compared to Groups 1 and 2, is one indicator of the lower income (Table 10).

This group also travels less frequently to Greater Ålborg than Groups 1 and 2 (Table 9). The author observed while doing the field work in Greater Ålborg that farmers are sometimes accompanied by their wives, indicating that many of their trips to this central place have a multiple purpose. Moreover, many of their purchases in Greater Ålborg may be in answer to needs accumulated over a period of time. Although many of the households in this group selected relatively small central places as preferred service centers (Table 8), their proportion of purchases in Greater Ålborg is rather high (Table 7). It may be assumed that some of these households by-pass their local service centers and purchase in Greater Ålborg a variety of the 20 goods used. The Ålborg Livestock Exchange holds markets on Tuesdays and Fridays which results in a somewhat larger number of shoppers in the main shopping streets of Greater Ålborg. It can be assumed that households of other occupational groups also make multi-purpose trips to this city. This could not be observed because members of these consumer units have similar appearances as inhabitants of Greater Ålborg.

Observations about Occupational Group 4

Group 4 (office and government employees) is rather small and thus the data collected may not be fully representative. First places in consumer purchase intensity are noted for (1) movie house attendance, (2) radio and television, (3) legal service, (4) pharmaceuticals, (5) beautician's service, and (6) barber's service, (Table 7). Sociologically, this group could be classified as "white collar". In Denmark, persons belonging to this group tend, at times, to emulate and aspire to those things done and obtained by Group 1 (professional and managerial). This is also evident from the choice of a preferred service center (Table 8). Government employment carries a certain degree of status but this is not necessarily reflected in high income. Some government employees often travel to Greater Ålborg on official business and may combine the visit with a purchase.

The diversity in the frequency of travel to Greater Ålborg indicates that the drawing power of this city varies for the different components of this group (Table 8). It is probable that government employees tend to travel more often to Greater Ålborg than those who are among office employees in private businesses.

Summary

The spatial patterns of consumer behavior in the retail service area of a population node as Greater Ålborg are not homogeneous. The highest purchase intensities are effected by buyers from townships in the immediate vicinity of a central place. In the aggregate, their pattern of areal behavior conforms quite well to the distribution of the preferred central places selected by the sampled participants. The drawing power of Greater Ålborg as regards retailing does not extend evenly into its retail service area. The unevenness is grouped into two subdivisions called proximal and peripheral retail service areas. The rapid decrease of Greater Ålborg's drawing power is mainly caused by increasing time-distance and competition from other central places.

Moreover, the centripetal force depends on the social structure of the households in the RSA. Occupational groupings play a significant role in the type and magnitude of purchases made in Greater Ålborg by households in its RSA. The occupation of a head of a household also influences the frequency of trips made to this central place, and in the selection of preferred service centers by the households. Thus, the drawing power of a central place will be greater not only for those households in its immediate vicinity, but also for consumers who have a relatively high social status.

Acknowledgements

The field work on which this study is based was made possible by a Fulbright Fellowship to Denmark during 1961-62. Professor Niels Nielsen of the Geographical Institute of the University of Copenhagen steered me to Ålborg. In due course, this proved to be an ideal location to execute the field work, especially because of the pleasant and invaluable co-operation I received from the municipal authorities. I am also indebted to Dr. Lawrence M. Sommers of Michigan State University whose continuing interest in this project and invaluable constructive comments provided constant inspiration.

DANSK RESUMÉ

Den gensidige vekselvirkning mellem regionscentret Stor-Ålborg og befolkningen i dets opland er analyseret og det derved fremkomne arealmønster beskrevet. Undersøgelsen er baseret på originale studier i 1962 og på Statistisk Departements fastlæggelse af Stor-Ålborgs opland for detailservice i 1960. De førstnævnte bygger på 547 udvalgte husstande i oplandet og beskæftiger sig dels med areal og købsintensitet for en række varegrupper og tjenesteydelser, dels med den indflydelse familieoverhovedets erhverv har på købsvanerne.

Tabel 1 viser detailvirksomheder i Ålborg og ovennævnte opland samt selve Ålborgs andel heraf. Det ses, at Ålborg har en større variation og med undtagelse af banker og sparekasser et større antal forretninger i de enkelte brancher, d.v.s. flere valgmuligheder for kunden. Dertil kommer, at et indkøbsbesøg her kan kombineres med benyttelse af byens andre service-tilbud, afsætning af landbrugsprodukter, besøg hos speciallæge, biograf etc.

På fig. 2 ses de udvalgte husstandes hjemkommuner og til sammenligning bringes det af Statistisk Departement fastlagte opland. Husstandene er valgt på følgende måde: 1) Et af medlemmerne benytter et undervisningssted, hvor der er uddelt spørgeskemaer, 2) Familier uden børn eller med børn, der alle er under 15 år, er ikke repræsenterede, 3) Et større antal tilhører grupperne „uddannede" og „ledere" end gennemsnitligt for Danmark. 4) 63,6 % har bil, den gennemsnitlige økonomiske status ligger altså over landets som helhed.

Disse afvigelser medfører en større spredning i beskæftigelse og derfor forskellige behov for varer og service.

Indføres begrebet købsintensitet, I, kan følgende forhold benyttes: $I = \frac{h}{g}$ hvor h er det antal husstande i en oplandskommune, der køber en bestemt vare i Ålborg, og g er alle adspurgte husstande i kommunen. I 44 kommuner er I beregnet for 20 varer og sammen med den gennemsnitlige købsintensitet anført i tabel 2, mens den hyppighed, hvormed de enkelte varer optræder, er angivet i procentkvartiler i tabel 3. Højest ligger ud-

valgsvarer og serviceydelser, som kun fås i større byer, da deres rentabilitet kræver en stor kundekreds. Varer med høj gennemsnitlig I-værdi har stor geografisk spredning, men med højeste procenter i Ålborgs nabokommuner, som desuden køber mange varer med lav gennemsnitsintensitet i byen.

Ca. 3/5 af husstandene angav Ålborg som deres foretrukne indkøbsby, resten fordelte sig på 59 andre, hvoraf 12 er indført på fig. 1.

Fig. 4 viser den procentvise fordeling af forbrugsenheder, der foretrækker Ålborg. Ellishøj-Svenstrup kommune ligger lavere end den normale feltstyrkevirkning, mens St. Brøndum danner en exklave med høj procent, men generelt belyser kortet manglen på større centrer i nærheden af Ålborg, fig. 1, samt regionsinddelingen i fig. 5.

Inddelingen i underregioner opnås ved at optælle 1. kvartiler af indkøbsintensitet for hver af de 20 „varer". Det ses, at inderregionen har større udstrækning syd for end nord for Limfjorden, hvilket både kan skyldes tradition, amtsgrænsens forløb samt bedre trafikforbindelser. Afvigelser fra disse regionstræk henføres til den sociale struktur i indsamlingsmaterialet.

For at få klarhed over, hvordan købsvanerne påvirker det beskrevne mønster er de udvalgte husstande delt i 7 grupper efter erhverv, tabel 6:

1) Akademikere o. l. samt virksomhedsledere
2) Handlende og håndværksmestre
3) Landmænd
4) Kontorpersonale
5) Faglærte arbejdere
6) Delvis faglærte
7) Ufaglærte.

Af tab. 7 fremgår det, at hver af dem har forskellig købsintensitet, udtrykt i procent for hver af de 20 varegrupper, ligesom Ålborg spiller forskellig rolle; også hyppigheden af indkøbsrejser varierer, tabel 9. En svaghed ved dette materiale er, at nogle af grupperne har få repræsentanter, hvorfor tallene kan være misvisende, bl. a. af den grund er gruppe 5, 6 og 7 udelukket fra den videre undersøgelse.

Ved at sammenholde tabel 6, 7 og 8 ses det, at gruppe 1 har højest købsintensitet og størst afhængighed af Ålborg, mens den kommer efter gruppe 2 i rejsehyppighed. De dominerende varer er udvalgsvarer, hvilket uden tvivl hænger sammen med et højt indkomstniveau og en kræsen smag.

Gruppe 2 ligger, vel ifølge professionen, med højest intensitet i regnskabsservice og køb af motorkøretøjer samt i rejsehyppighed. Gruppen finder det opportunt at foretage andre varekøb lokalt.

Det lavere indkomstniveau, indiceret ved færre bilejere i gruppe 3, forklarer delvis dens mindre købsintensitet, og det er karakteristisk, at den køber ind for længere perioder, og at en rejse til Ålborg tjener flere formål.

Gruppe 4 er på grund af det ringe antal næppe repræsentativ, men viser dog højeste købsintensitet i 6 brancher.

Undersøgelsen fører til følgende konklusion: Stor-Ålborgs oplandskundekreds er ikke homogen. Højest købsintensitet findes i nabokommunerne, hvorfor oplandet deles i 2 områder, det proximale og det perifere. Byens hurtigt aftagende tiltrækningskraft skyldes den voksende tidsafstand og konkurrencen fra andre byer. Den varierer desuden med husstandenes sociale placering udtrykt ved overhovedets erhverv, der betinger både købsvaner og rejsehyppighed, således at de højeste sociale lag viser den største afhængighed.

R. H. J.