

CROSS-SHOPPING PATTERNS IN POWER CENTERS

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■ Introduction

Power shopping centers are a rapidly growing form of retail development in the United States, providing shoppers with an alternative to other types of shopping centers including the regional mall. Power centers typically range in size from 250,000 to 700,000 sq. ft. of floorspace, are not enclosed, and are dominated by a few large destination-type stores known as "power" tenants (Casey, 1994). Typical power tenants include discount department stores, home center retailers, warehouse club stores, "category killers" that carry considerable depth in a merchandise category, and other superstore formats. Unlike other types of shopping centers such as regional malls, community centers, and off-price and outlet centers, the power centers contain very little small-shop space. The success of the power centers can be attributed to several factors including convenience, value orientation, and the depth and breadth of merchandise offerings provided by the category killer stores and other tenants. This success perhaps signals a shift in consumer shopping behavior in which consumers seeking fashion are drawn to regional malls, while the value oriented consumers are attracted to power centers and other destinations such as off-price or outlet centers.

The strength of a power center is indicated by the number of shoppers attracted to the center and the degree to which they cross-shop stores within the center. These performance measures can be affected by a number of factors including the attraction of the anchor or power tenants, and the spatial arrangement and functional mix of stores within the center. Although cross-shopping obviously is important to the performance of individual stores and to the center as a whole, no studies have been published that examine this phenomenon in power centers. A recent article by a major organization for the shopping center industry indicated that cross-shopping in power centers was an area that warranted study (ICSC, 1994a).

■ Research Problem

The purpose of this research is to determine the extent of cross-shopping within power centers and to identify those factors that affect the amount of cross-shopping between stores. This study will help determine whether individual stores in a power center function largely as separate facilities, or whether there is considerable functional integration among the stores in terms of strong cross-shopping flows or shopping linkages. Answers to these questions will reveal if the power center functions as a loosely connected group of stores or as a more strongly integrated shopping center. Similar research questions have been posed for a form of retail development or center in the United Kingdom known as a "retail warehouse park" (Bromley and Thomas, 1988).

Although there is a lack of published studies on the topic, the consensus among shopping center officials seems to be that little cross-shopping occurs in power centers. The type of merchandise sold and the physical configuration of the center are cited as reasons (ICSC, 1994a; Primo and Wedeven, 1993). We expect to find less cross-shopping within power centers than in regional malls. The design of the regional mall is intended to maximize the cross-shopping between stores. Because of their drawing power, department stores are positioned at the ends of the mall with small shops located between the anchors to benefit from the flow of shoppers between the department stores. Cross-shopping occurs between the department stores themselves because of the comparison shopping opportunities provided to the shopper. The large amount of functional overlap and complementarity among small shops in the regional mall also contributes to the amount of cross-shopping. By comparison, the power center is dominated by a few, large tenants that function individually as shopping destinations. This condition, along with the minimal functional overlap and complementarity that frequently exist among these power tenants, suggest relatively low levels of cross-shopping. The lack of small shop space in the power center further reduces the opportunity or need for cross-shopping.

A key focus of this study is to identify the factors which affect the degree of cross-shopping between stores. We expect that the amount of cross-shopping between stores is influenced by several factors including spatial proximity, functional complementarity, functional overlap, and store size. Cross-shopping between stores will likely be maximized when they are spatially close to each other, are complementary, and overlap in their function or merchandise. Spatial proximity increases customer convenience and, therefore, should lead to more cross-shopping. In situations where stores are functionally complementary, shop-

pers who visit one store may have a need or desire to visit the other. Stores that overlap in their function or merchandise (e.g., two ladies' apparel stores) provide the shopper with the opportunity to engage in comparison shopping, thus leading to a high level of cross-shopping. Finally, we expect cross-shopping flows to be high from smaller to larger stores, reflecting the greater drawing power and attraction of the larger store as a shopping destination.

The results of this research will be useful to developers, owners, managers, and tenants of power centers. Perhaps there is both an optimal mix and spatial arrangement of tenants that will maximize cross-shopping flows and the sales performance of the center. A recent study by the International Council of Shopping Centers surveyed the preferences of a national sample of consumers to identify the "best" tenant mix for small strip centers (ICSC, 1994c). Our study, rather than investigating consumer preferences, examines the actual behavior of shoppers resulting from tenant mix and store location conditions. Hopefully, the findings of this study can provide valuable insights on the importance of these factors in cross-shopping and can assist decision makers in identifying the optimal tenant mix and location of tenants for maximizing center performance.

■ Literature Review

Cross-shopping research has been conducted at both the inter- and intra-center scales. A study in the Atlanta metropolitan area examined cross-shopping flows among regional malls and found that the level of cross-shopping between malls was affected by distance, tenant mix, size of mall, and the socioeconomic makeup of shoppers (Lord, 1986). Recent research has examined cross-shopping between regional malls and power centers located in close proximity to each other (ICSC, 1994b). The research found that regional malls were cross-shopped more heavily by power center shoppers than vice versa. This finding suggests that regional malls may benefit more from the proximity than do power centers. Therefore, a strong power center located near a regional mall might help produce additional sales for the latter. Other research also has examined cross-shopping between different types of centers and has found it to be a dominant form of shopping behavior (Stoltman, 1995). The tendency to cross-shop varied significantly by merchandise selection and the non-product facets of shopping situations. The findings of the study bring into question the appropriateness of categorizing consumers as "mall shoppers," "power center shoppers," etc.

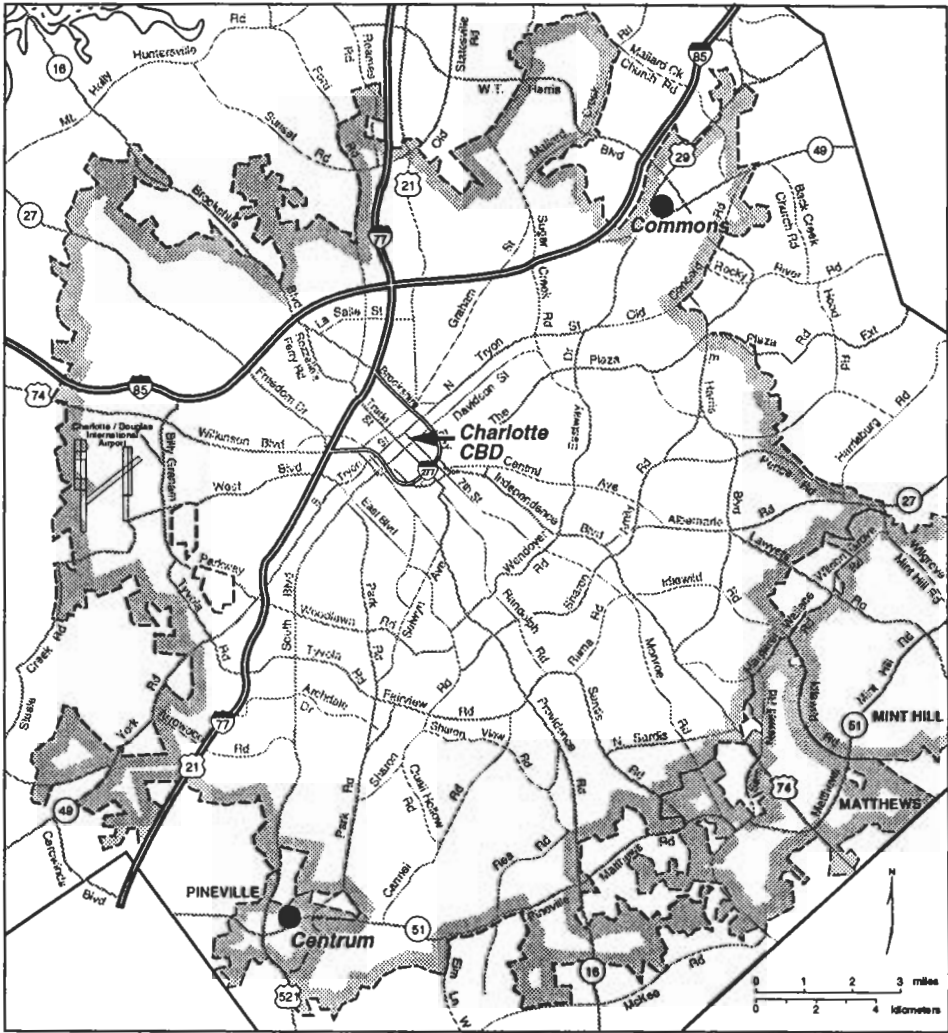
Although we are not aware of any previous research that has examined cross-shopping within power centers, cross-shopping studies have been conducted for other types of centers and provide a basis for comparison with our results from power centers. Several studies have been conducted in Wales and Northern Ireland of the shopping linkages between stores in retail warehouse parks (Bromley and Thomas, 1988; Bromley and Thomas, 1989; Brown, 1989). The retail warehouse park includes several warehouse-type stores and superstores in either a planned or unplanned nucleation. Although this type of center does not exist in the United States, the power center is perhaps the type of center most similar to it. In fact, some of the major tenants in the retail warehouse park are the same ones found in power centers (e.g., large home center retailers and toy superstores). The studies of cross-shopping or shopping linkages in retail warehouse parks found that the centers functioned more as loosely structured collections of stores than as strongly integrated shopping centers. Factors that were found to have an effect on the amount of cross-shopping included the spatial form of the center, the precise location of stores, the spatial proximity between stores, the compatibility of store types, comparison shopping opportunities, and the ease of movement between stores. Bromley and Thomas (1989) stressed the need to combine spatial, functional, and transportation considerations in order to maximize inter-store shopping linkages and enhance the efficiency of the retail warehouse park. No doubt the same considerations are just as important in the design and tenancing of power centers if they are to operate in the most efficient and competitive manner.

Other research has investigated the number of stores visited on shopping trips to regional malls and the patterns of cross-shopping patronage (Stillerman Jones & Company, Inc., 1992). This research found that the shoppers visited an average of 2.6 stores per trip to a regional mall in 1991. Annual surveys by Stillerman Jones & Company, Inc. have revealed that the number of stores visited by shoppers in regional malls declined from 3.6 in 1982 to 2.6 a decade later (Morgenson, 1993). Research also found that cross-store patronage levels in regional malls were highest between complementary types of stores (Stillerman Jones & Company, Inc., 1992).

■ Data and Methods

Data on cross-shopping within power centers were obtained from intercept surveys of shoppers at two power centers, Commons and Centrum, in the Charlotte, North Carolina, market (Figure 1). The Commons shopping center contains 311,360 sq. ft. of GLA and is located in the

FIGURE 1. LOCATION OF THE COMMONS AND CENTRUM POWER CENTERS IN CHARLOTTE, NORTH CAROLINA



northeast Charlotte market (Figure 2). The major tenants include a discount department store (Kmart), a home center retailer (Home Depot), an off-price apparel chain (Marshall's), and a category killer in consumer electronics (Circuit City). The remaining three stores are a footwear store (Famous Footwear), a copy center (Kinko's), and a store selling party items (Party City). The Centrum shopping center contains 421,720 sq. ft. of GLA and is located in the south Charlotte area (Figure 3). Major tenants include Kmart, Home Depot, a catalog showroom (Service Merchandise), two off-price apparel chains (Stein Mart and

FIGURE 2. PHYSICAL LAYOUT AND TENANTS OF THE COMMONS SHOPPING CENTER, CHARLOTTE, NORTH CAROLINA

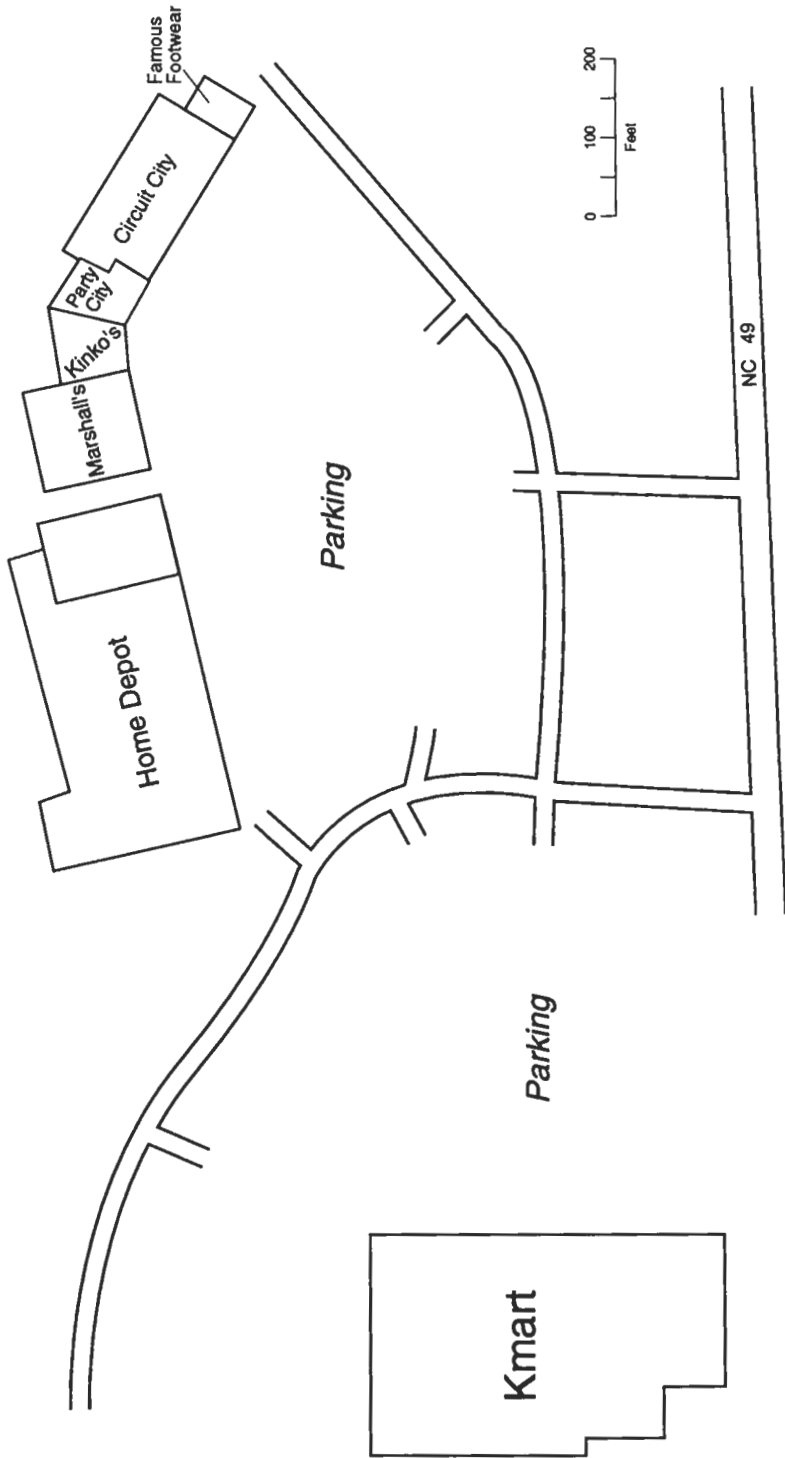
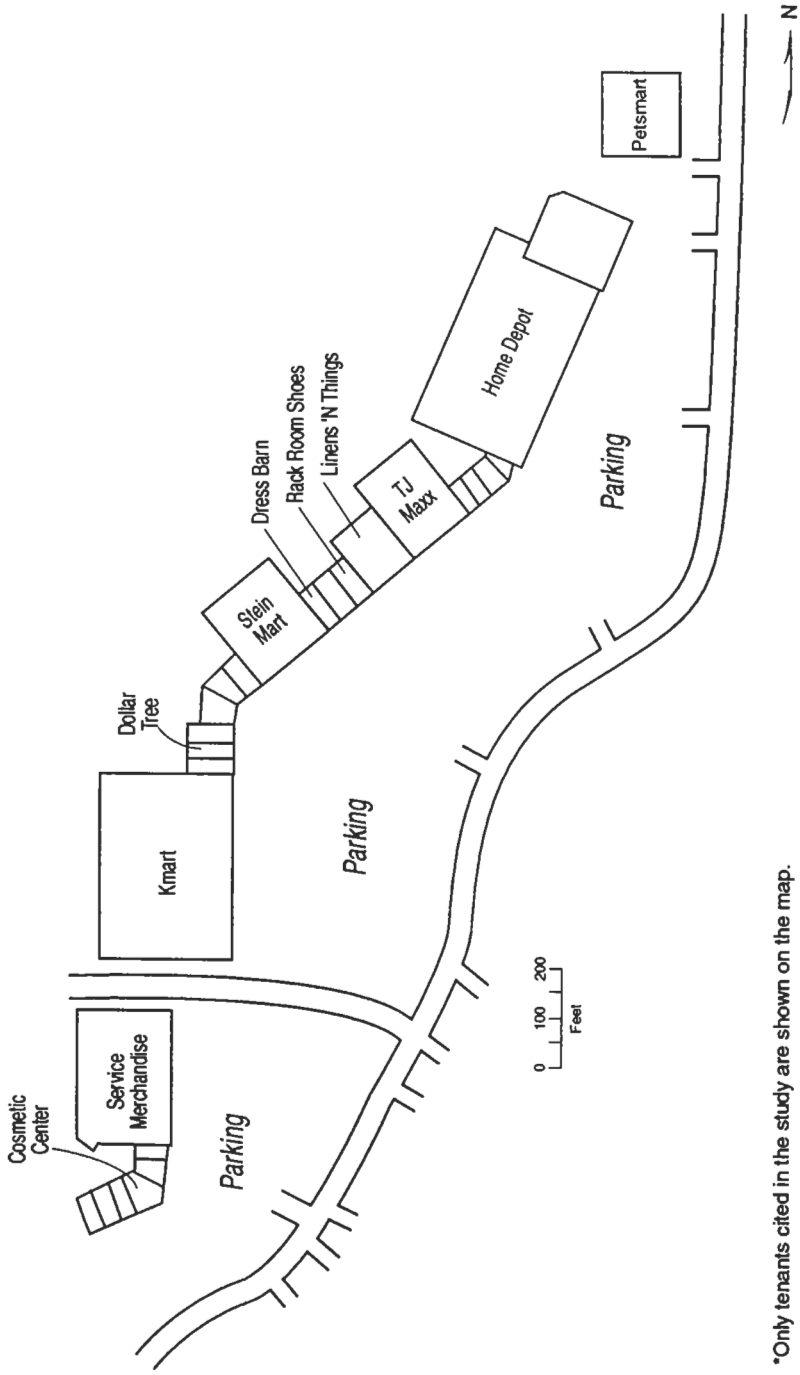


FIGURE 3. PHYSICAL LAYOUT AND TENANTS OF THE CENTRUM SHOPPING CENTER, CHARLOTTE, NORTH CAROLINA *



*Only tenants cited in the study are shown on the map.

T J Maxx), a home furnishings store (Linens 'N Things), and a pet superstore (Petsmart). Although the two centers are similar in having two of the same major tenants, a major difference is that the Centrum has a much larger number of small shops (19). However, the 19 small shops in the Centrum account for only a small proportion of the total GLA of the center. There are several small shops which sell apparel or footwear and are likely to have cross-shopping linkages to the two large off-price stores in the center.

Shopper intercept surveys were conducted at both the Commons and Centrum shopping centers on Saturday, October 7, 1995. Intercept interviews were completed between 10:00 a.m. and 3:00 p.m. University students were used to conduct the interviews. The surveys included 523 shoppers at the Commons and 467 shoppers at the Centrum. In the case of the Commons center, interviewers were located in front of each of the seven stores in the center and shoppers were surveyed as they left the store (Table 1). Interviewers also were located in front of the seven major tenants at the Centrum with additional interviewers migrating back and forth in front of the several small shops in the center (Table 2). As was the case for the Commons, shoppers at the Centrum were interviewed as they left the store.

Information on cross-shopping was obtained by asking shoppers to identify all stores they had already visited on the shopper trip to the center or planned to visit before they left the center. In identifying cross-shopping patterns, no distinction was made between the stores already visited and those the shoppers intended to visit. This information allowed the researchers to identify the shoppers for each of the stores in the center and to determine what other shops, if any, each store's customers had visited or intended to visit. Shoppers were also asked how much they had spent at each of the stores which they already visited. The latter information allowed the researchers to determine the

TABLE 1. NUMBER OF SHOPPER INTERVIEWS BY SURVEY LOCATION WITHIN THE COMMONS SHOPPING CENTER

Interview Location	Number of Interviews	%
Circuit City	52	9.9
Famous Footwear	25	4.8
Home Depot	130	24.9
Kinko's	14	2.7
Kmart	157	30.0
Marshall's	85	16.3
Party City	60	11.4
Total	523	100.0

TABLE 2. NUMBER OF SHOPPER INTERVIEWS BY SURVEY LOCATION WITHIN THE CENTRUM SHOPPING CENTER

Interview Location	Number of Interviews	%
Cosmetic Center	24	5.1
Home Depot	78	16.7
Kmart	78	16.7
Linens 'N Things	15	3.2
Petsmart	50	10.7
Service Merchandise	41	8.8
Stein Mart	75	16.1
T J Maxx	48	10.3
Small Shops	58	12.4
Total	467	100.0

total shopping trip expenditures for those shoppers who had completed their shopping, i.e., those shoppers who did not plan to visit any more stores. The shoppers who had visited only one store and did not plan to visit any other stores in the center (non cross-shoppers) were asked why they had not engaged in any cross-shopping. The shoppers who had already cross-shopped or intended to do so were asked why they had decided to shop at more than one store on their trip to the center. The survey also obtained information on the frequency of visits to the center and the number of people in the shopper's group on the day of the survey. Demographic variables included household size and the age, gender, and race of the shoppers. Shoppers were asked their residential zip code in order to identify the trade areas of the centers. Only the data on the amount of cross-shopping and linkages between stores are analyzed in this report.

The survey data will provide a number of useful insights related to cross-shopping patterns within the power centers. The overall degree of cross-shopping for each center can be ascertained by determining the average number of stores visited per shopper. The degree to which each store is linked to other stores in the center will be determined by calculating the proportion of its shoppers who visited at least one other store in the center. In order to determine the cross-shopping linkages for each store, the proportion of its shoppers who also shopped at each of the other stores in the center will be computed. The latter information when compiled for all stores in the center will produce a cross-shopping matrix which displays the strength of the cross-shopping linkages between all possible pairs of stores in the center. The effects of spatial proximity, functional complementarity, functional overlap, and store size on the strength of the shopping linkages are considered. The cross-shopping patterns also are examined to determine if there are clusters

of stores with strong cross-shopping linkages. Each store's status in the cross-shopping linkages can be further revealed by computing both its receiving and sending percentages and the resulting receiving/sending ratio. A store's receiving percentage is the mean percentage of shoppers at each of the other stores in the center who also shopped at that store. This number is a measure of the importance of the store in generating shopping linkages within the center. The sending percentage of a store is the mean percentage of shoppers of a store who also shopped at other stores in the center, and indicates the dependency of the store on linkages with other stores. The receiving/sending ratio for a store is an indication of its attraction in the center. Finally, an explanatory model of cross-shopping is developed by using the technique of multiple regression.

■ Results

Amount of Cross Shopping

The overall degree of cross-shopping for each of the two power centers was determined by calculating the average number of stores visited per shopper (Table 3). The figures were 1.54 and 1.82 for the Commons and Centrum, respectively. For the two centers combined, the average number of store visits per shopper was 1.67. We are not aware of any other studies of cross-shopping within power centers to which these numbers can be compared. However, a comparison of these results with studies of cross-shopping in regional malls in the U.S. and retail warehouse parks in the U.K. reveal that there is less cross-shopping in the power center than in either one of these other two types of shopping center. For example, studies conducted by a retail consultancy firm of malls in the U.S. found that the average number of stores visited by shoppers in regional malls was 2.6 in 1992 (Stillerman, Jones & Company, Inc., 1992; Morgenson, 1993). Studies of four retail warehouse

TABLE 3. SUMMARY DATA ON CROSS-SHOPPING FOR THE COMMONS AND CENTRUM SHOPPING CENTERS

Shopping Center	Number of Shoppers Surveyed	Total Number of Stores Visited	Number of Store Visits Per Shopper
Commons	523	803	1.54
Centrum	467	852	1.82
Totals	990	1655	1.67

parks in the U.K. revealed that the average number of stores visited varied between 2.1 and 2.3 (Bromley and Thomas, 1988; Bromley and Thomas, 1989; Brown, 1989). More store visits by shoppers at regional malls could be due partly to the larger number of stores in malls compared to those in the power center. The retail warehouse park in the U.K. bears some similarity to the power center in terms of size and types of tenants and perhaps provides for a more valid comparison of cross-shopping behavior.

The amount of cross-shopping also can be assessed by categorizing shoppers based on the number of stores visited (Table 4). Single-store shoppers were, by a large margin, the largest category for both the Commons and Centrum centers. Some 59.8% of the shoppers at the Commons visited only one store, while the figure was 45.2% at the Centrum. The proportions of shoppers who visited only one store were considerably higher for the two power centers than for the four retail warehouse parks surveyed in the U.K. where the numbers varied from 34% to 41% (Bromley and Thomas, 1988; Bromley and Thomas, 1989; Brown, 1989). Over 88% of the shoppers at the Commons visited either one or two stores compared to 78.4% at the Centrum. The differences between the two power centers in the number of store visits per shopper and the proportion of shoppers who visited only one store are likely due to differences in the number of stores and complementary shopping opportunities. The Commons contained only seven stores and provided few complementary shopping opportunities compared to the Centrum with its 26 stores and the complementary and comparison shopping opportunities provided by several small shops and some of its larger anchors.

The extent of cross-shopping can also be examined from the perspective of each of the stores in the two centers. Tables 5 and 6 indicate the number of shoppers of each store and the proportion of these

TABLE 4. NUMBER OF STORES VISITED BY SHOPPERS AT THE COMMONS AND CENTRUM SHOPPING CENTERS

Number of Stores Visited	Commons		Centrum		Total	
	Number of Shoppers	%	Number of Shoppers	%	Number of Shoppers	%
1	313	59.8	211	45.2	524	53.0
2	149	28.5	155	33.2	304	30.7
3	52	10.0	75	16.1	126	12.7
≥4	9	1.7	26	5.5	36	3.6
Totals	523	100.0	467	100.0	990	100.0

shoppers who did not engage in any cross-shopping. The proportion of shoppers not cross-shopping was related to the size of the store with shoppers of the large stores engaging in less cross-shopping than those of smaller stores in the centers. This difference may reflect the greater convenience and destination orientation of the larger stores. This store size effect on cross-shopping is similar to the superstore/retail warehouse functional dichotomy found in studies of store linkages in the U.K. retail warehouse parks where a much higher proportion of the superstore and DIY shoppers visited only one store compared to shoppers of the retail warehouse stores (Bromley and Thomas, 1988; Bromley and Thomas, 1989). The percentage of shoppers not cross-shopping varied considerably among the seven stores in the Commons (Table 5). Shoppers at Home Depot and Kmart, the two largest stores and the major power tenants of the center, engaged in the least amount of cross-shopping, with 48.4% and 55.3%, respectively, not patronizing any other store in the center. Since Home Depot has less complementarity with other stores in the center than does Kmart, it is perhaps surprising that Kmart had a larger proportion of its shoppers who did not cross-shop. Kmart's peripheral location within the center has likely increased the proportion of its shoppers who did not visit any other store. Shoppers at Circuit City and Marshall's engaged in more cross-shopping in that only 31.1% and 24.6% of their shoppers did not visit any other store in the center. Famous Footwear, one of the three smaller shops in the center, showed the strongest dependency on other stores with only 13.5% of its shoppers not visiting any other store.

Home Depot and Kmart are also the largest tenants in the Centrum shopping center. However, in the latter center they had much stronger

TABLE 5. PROPORTION OF SHOPPERS OF EACH STORE WHO DID NOT CROSS-SHOP WITHIN THE COMMONS SHOPPING CENTER

Store	Number of Shoppers ^a	Number Not Cross-Shopping	Percentage Not Cross-Shopping
Circuit City	90	28	31.1
Famous Footwear	52	7	13.5
Home Depot	209	102	48.8
Kinko's	25	8	32.0
Kmart	208	115	55.3
Marshall's	138	34	24.6
Party City	81	19	23.5
Total	803	313	39.0 ^b

^aNumber of shoppers who visited the store. Total for all stores exceeds 523 (number of shoppers surveyed) because of multi-store visits

^bValue differs from 59.8% reported in Table 4 because it is based on number of store visits (803) and not the number of shoppers interviewed (523).

cross-shopping linkages to other stores than in the Commons (Table 6). Only 40.7% and 25.8% of the Home Depot and Kmart shoppers did not engage in cross-shopping. The difference was especially large for Kmart shoppers in the two centers and likely results from not only the greater number of complementary stores in the Centrum, but also Kmart's closer proximity to other stores compared to its more spatially isolated location within the Commons. Of the major tenants in the Centrum, however, Petsmart had the weakest linkage to other stores with 42.6% of its shoppers not visiting any other stores. There are two plausible explanations for this weak linkage; first, the store is free-standing and is located at the most remote, least visible end of the strip center; second, its complementarity with other stores is low, especially for those shoppers who bring their pets to the store for services. For the remaining major tenants in the center, Linens 'N Things, Service Merchandise, Stein Mart, and T J Maxx, the proportions of shoppers who did not engage in cross-shopping were 9.8%, 32.7%, 23.1%, and 13.9%, respectively. Stein Mart and T J Maxx are complementary not only with each other, but also with several small shops in the center. This complementarity and the spatial proximity of the stores contributed to the high proportion of shoppers who engaged in cross-shopping. Most of the shoppers of the small stores (Cosmetic Center, Dollar Tree, Dress Barn, Rack Room Shoes, and 15 other small stores) visited other stores in the center.

TABLE 6. PROPORTION OF SHOPPERS OF EACH STORE WHO DID NOT CROSS-SHOP WITHIN THE CENTRUM SHOPPING CENTER

Store	Number of Shoppers ^a	Number Not Cross-Shopping	Percentage Not Cross-Shopping
Cosmetic Center	33	8	24.2
Dollar Tree	41	7	17.1
Dress Barn	24	3	12.5
Home Depot	140	57	40.7
Kmart	155	40	25.8
Linens 'N Things	51	5	9.8
Petsmart	68	29	42.6
Rack Room Shoes	21	1	4.8
Service Merchandise	49	16	32.7
Stein Mart	121	28	23.1
T J Maxx	108	15	13.9
Other Stores ^b	41	2	4.9
Total	852	211	24.8 ^c

^aNumber of shoppers who visited the store. Total for all stores exceeds 467 (number of shoppers surveyed) because of multi-store visits.

^bIncludes 15 small stores in the center.

^cValue differs from 45.2% reported in Table 4 because it is based on the number of store visits (852) and not the number of shoppers interviewed (467).

Cross-Shopping Linkages

Cross-shopping matrices were developed for each center, which show the percentage of shoppers for a store who shopped at each of the other stores on the shopping trip (Tables 7 and 8). These percentages indicate the strength of cross-shopping flows between all possible pairs of stores in the center. The figures above and below the diagonal in a cross-shopping matrix are not redundant information; i.e., the percentage of store A's shoppers who shop at store B is not necessarily the same as the percentage of store B's shoppers who shop at store A. For example, in the case of the Commons center, 28.8% of Famous Footwear shoppers shopped at Home Depot, but only 7.2% of Home Depot shoppers shopped at Famous Footwear.

The strength of the major tenants (Home Depot and Kmart) as destinations for shoppers is apparent in the pattern of cross-shopping flows for the Commons (Table 7). Over 20% of the shoppers at each of the other six stores also shopped at Home Depot, while over 20% of the shoppers at five of the six stores also shopped at Kmart. The cross-shopping flows to Marshall's were also quite strong with four of the six stores sharing more than 20% of their shoppers with the off-price apparel retailer. Cross-shopping flows to the other four stores were weaker and quite variable. Table 9 lists the 10 strongest cross-shopping flows for the Commons center. Marshall's had strong links to several stores in the center as a cross-shopping destination for shoppers. In fact, it was the destination store for three of the four strongest linkages. The store's central location within the center and its complementarity with other stores helped account for these strong linkages.

TABLE 7. CROSS-SHOPPING MATRIX FOR THE COMMONS SHOPPING CENTER

	Who also shopped at (percentage):						Party City
	Circuit City	Famous Footwear	Home Depot	Kinko's	Kmart	Marshall's	
Shoppers at:							
Circuit City	—	13.3	26.7	4.4	24.4	30.0	14.4
Famous Footwear	23.1	—	28.8	5.8	32.7	44.2	19.2
Home Depot	11.5	7.2	—	2.9	21.5	18.2	11.5
Kinko's	16.0	12.0	24.0	—	20.0	20.0	20.0
Kmart	10.6	8.2	21.6	2.4	—	14.9	6.7
Marshall's	19.6	16.7	27.5	3.6	22.5	—	19.6
Party City	16.0	12.3	29.6	6.2	17.3	33.3	—

TABLE 8. CROSS-SHOPPING MATRIX FOR THE CENTRUM SHOPPING CENTER

		Who also shopped at (percentage):											Other Stores
Shoppers at:		CC	DT	DB	HD	KM	LT	PM	RR	SM	ST	TJ	Other Stores
CC	—	9.1	9.1	9.1	21.1	39.4	9.1	3.0	0.0	24.2	9.1	18.2	6.1
DT	7.3	—	2.4	2.4	29.3	53.7	2.4	7.3	2.4	4.9	22.0	14.6	7.3
DB	12.5	4.2	—	—	16.7	33.3	20.8	8.3	12.5	8.3	37.5	25.0	8.3
HD	5.0	8.6	2.9	—	—	29.3	5.7	15.0	1.4	5.0	10.0	8.6	7.1
KM	8.4	14.2	5.2	26.5	—	—	7.1	8.4	3.9	0.0	16.1	12.9	10.3
LT	5.9	2.0	9.8	15.7	21.6	—	—	3.9	11.8	3.9	41.2	35.3	9.8
PM	1.5	4.5	3.0	31.8	19.7	3.0	3.0	—	0.0	1.5	3.0	7.6	4.5
RR	0.0	4.8	14.3	9.5	28.6	28.6	28.6	0.0	—	0.0	47.6	52.4	9.5
SM	16.3	4.1	4.1	14.3	0.0	0.0	4.1	2.0	0.0	—	16.3	6.1	12.2
ST	2.5	7.4	7.4	11.5	20.7	17.4	17.4	1.7	8.3	6.6	—	42.1	13.2
TJ	5.6	5.6	5.6	11.1	18.5	16.7	16.7	4.6	10.2	2.8	47.2	—	10.2
Other Stores	4.7	7.0	4.7	20.9	23.3	14.0	14.0	7.0	4.7	16.3	37.2	25.6	—

Store names:

- CC Cosmetic Center
- DT Dollar Tree
- DB Dress Barn
- HD Home Depot
- KM Kmart
- LT Linens 'N Things
- PM Petsmart
- RR Rack Room Shoes
- SM Service Merchandise
- ST Stein Mart
- TJ T J Maxx

TABLE 9. STRONGEST CROSS-SHOPPING LINKAGES AT THE COMMONS SHOPPING CENTER

Cross-Shopping Linkage	Amount of Cross-Shopping ^a
Famous Footwear → Marshall's	44.2
Party City → Marshall's	33.2
Famous Footwear → Kmart	32.7
Circuit City → Marshall's	30.0
Party City → Home Depot	29.6
Famous Footwear → Home Depot	28.8
Marshall's → Home Depot	27.5
Circuit City → Home Depot	26.7
Circuit City → Kmart	24.4
Kinko's → Home Depot	24.0

^aPercent of shoppers at the first store who also shopped at the second store.

Some 44.2% of Famous Footwear shoppers also shopped at Marshall's, the strongest linkage in the center. The strong linkage is certainly not surprising given the high level of complementarity between the two stores. Other strong linkages to Marshall's were from shoppers at the Party City (33.2%) and Circuit City (30.0%). Home Depot or Kmart was the destination for the remaining seven of the 10 strongest linkages in the center. Strong linkages occurred with these stores despite the former's lack of complementarity with other stores in the center and the latter's peripheral location. However, despite Kmart's greater complementarity with other stores, it was the destination store in only two of the 10 strongest linkages compared with five occurrences for Home Depot. This disparity may reflect Kmart's spatial proximity disadvantage. Famous Footwear, one of the smallest stores in the center, functioned only as a sending rather than destination store. It was the sending or origin store in three of the six strongest cross-shopping linkages. Circuit City, although a much larger store, also functioned only as a sending or origin store rather than as a destination for these strongest flows.

Each store's status within the overall pattern of cross-shopping flows was identified by calculating its mean receiving and sending percentages. The mean receiving percentage for a store is a positive measure of its strength as a destination for shoppers and indicates the importance of the store to the center. In contrast, a relatively high mean-sending percentage indicates that the store is only a secondary destination for shoppers and benefits from shopper traffic generated by other stores.

Table 10 provides the mean receiving and sending percentages and the receiving/sending ratios for the seven stores in the Commons shopping center. The importance of Home Depot, Kmart, and Marshall's

TABLE 10. CROSS-SHOPPING RECEIVING AND SENDING PERCENTAGES FOR STORES IN THE COMMONS SHOPPING CENTER

Store	Mean Receiving Percentage ^a	Mean Sending Percentage ^b	Receiving/Sending Ratio
Circuit City	16.1	18.9	0.85
Famous Footwear	11.6	25.6	0.45
Home Depot	26.4	12.1	2.18
Kinko's	4.2	18.7	0.22
Kmart	23.1	10.7	2.16
Marshall's	26.8	18.3	1.46
Party City	15.2	19.1	0.80

^aA store's mean receiving percentage is the mean percentage of shoppers at other stores in the center who shopped at the store.

^bA store's mean sending percentage is the mean percentage of shoppers at the store who also shopped at other stores in the center.

as destinations for shoppers is indicated by their high mean-receiving percentages of 26.4%, 23.1%, and 26.8%, respectively. On average, approximately one-fourth of the shoppers of other stores shopped at each of these retailers. Mean receiving percentages are much lower for Circuit City, Party City, and Famous Footwear, indicating their weaker position as destinations for shoppers from other stores. Kinko's had the smallest mean-receiving percentage of the seven stores with a value of only 4.2%. As one would expect, the smaller stores in the center had relatively high mean-sending percentages, indicating their secondary role in the center and their dependency on other stores. Famous Footwear had the highest mean-sending percentage with a value of 25.6%. Only 13.5% of this store's shoppers shopped only at Famous Footwear, the lowest value for any of the seven stores (Table 5). The other two small stores, Party City and Kinko's, had intermediate mean sending-percentage values. Kmart and Home Depot had the smallest mean-sending percentages with values of only 10.7% and 12.1%, respectively. As noted earlier, over 40% of the shoppers at each of these two stores did not shop at any other store in the center. Although Marshall's had a very high mean-receiving percentage, similar to Home Depot and Kmart, its mean-sending percentage (18.3%) was much higher than the latter two stores. Not only was it an important destination for shoppers at other stores, but also a high proportion of its shoppers (75.4%) shopped at other stores. Among the seven stores in the center, Marshall's is unusual in having the combination of a high-receiving percentage and an intermediate level sending percentage.

The cross-shopping matrix for the Centrum shopping center includes not only the major tenants but also a number of small shops (Table 8). All stores with at least 20 shoppers in the survey were in-

cluded in the matrix. Those stores with fewer than 20 shoppers were treated as a single category (other stores) in analyzing the cross-shopping patterns. The major tenants were also the dominant shopping destinations in the cross-shopping linkages for the Centrum. For example, over 20% of the shoppers of seven of the 10 stores also shopped at Kmart. Stein Mart and T J Maxx, off-price apparel retailers, were destinations for over 20% of the shoppers from five and four of the 10 stores, respectively. Home Depot, although not as important a shopping destination for shoppers from other stores as was the case in the Commons shopping center, nevertheless was shopped by more than 20% of the patrons of four of the 10 stores. The other tenants to receive more than 20% of the shoppers of at least one other store were Service Merchandise and Linens 'N Things with linkages of this magnitude from one and two stores, respectively. Only Petsmart among the major tenants was not a destination for 20% or more of the shoppers from at least one store, thus indicating its minimal functional integration with other stores in the center. None of the four small shops listed in Table 8 attracted as many as 20% of the shoppers from another store.

Table 11 lists the 20 strongest cross-shopping linkages for the Centrum. Linkages were stronger in the Centrum shopping center than in the Commons, reflecting the large number of small stores and higher levels of complementarity among stores in the former. All 10 of the strongest store linkages involved cross-shopping flows exceeding 35%. There is an obvious cluster of stores in the Centrum which are strongly linked via the sharing of customers. This cluster includes four major tenants, Kmart, Stein Mart, T J Maxx, and Linens 'N Things, and several small stores including Dollar Tree, Rack Room Shoes, Cosmetic Center, and Dress Barn. Many of these stores are in close spatial proximity to each other and provide complementary or comparison shopping opportunities for the consumer, particularly for apparel and footwear merchandise. The destinations for all of the strongest linkages in the center involved one of the major tenants, while the sending stores in the strongest linkages included a mix of major tenants and small shops. Thus, the pattern of linkages is one of strong flows of shoppers from small shops to major tenants, but also flows between major tenants themselves. Either Kmart, Stein Mart, or T J Maxx was the destination store for the 10 strongest linkages. Clearly, Stein Mart and T J Maxx are the principal stores in this strong cross-shopping cluster. Not only are these two stores the destinations for eight of the 10 strongest linkages, but also they are the cross-shopping pair for two of the 10 linkages. The major tenants that were least involved in the strongest cross-shopping linkages were Petsmart and Service Merchandise, with each appearing only once in the 20 strongest store linkages. Petsmart was

TABLE 11. STRONGEST CROSS-SHOPPING LINKAGES AT THE CENTRUM SHOPPING CENTER

Cross-Shopping Linkage	Amount of Cross-Shopping ^a
Dollar Tree → Kmart	53.7
Rack Room Shoes → T J Maxx	52.4
Rack Room Shoes → Stein Mart	47.6
T J Maxx → Stein Mart	47.2
Stein Mart → T J Maxx	42.1
Linens 'N Things → Stein Mart	41.2
Cosmetics Center → Kmart	39.4
Dress Barn → Stein Mart	37.5 ^b
Other Stores → Stein Mart	37.2
Linens 'N Things → T J Maxx	35.3
Dress Barn → Kmart	33.3 ^b
Petsmart → Home Depot	31.8
Home Depot → Kmart	29.3
Dollar Tree → Home Depot	29.3
Rack Room Shoes → Kmart	28.6 ^b
Rack Room Shoes → Linens 'N Things	28.6 ^b
Kmart → Home Depot	26.5
Other Stores → T J Maxx	25.6
Dress Barn → T J Maxx	25.0 ^b
Cosmetic Center → Service Merchandise	24.2 ^b

^aPercent of shoppers at the first store who also shopped at the second store.

^bFewer than 10 cross-shoppers.

the sending store to Home Depot (31.8%) while Service Merchandise was the destination store for Cosmetic Center (24.2%). Both stores occupy peripheral locations within the center which restricted their linkages to other stores. It should also be noted that their strongest linkages were with the most proximate stores.

Table 12 provides the mean receiving and sending percentages and the receiving/sending ratios for the stores in the Centrum. The mean receiving percentages are high for four of the major tenants, Kmart (26.2%), Stein Mart (26.1%), T J Maxx (22.6%), and Home Depot (19.0%), indicating their importance as destinations for cross-shopping flows within the center. The mean receiving percentages for Kmart and Home Depot are similar to the values for these same stores at the Commons shopping center. The importance of Stein Mart and T J Maxx in strong cross-shopping linkages with each other and with small shops has already been noted. Their role in the Centrum is similar to Marshall's role in the Commons shopping center. The mean receiving percentages are not high for all the large stores or major tenants in the Centrum, however; in fact, the values for Service Merchandise (6.7%) and Petsmart (5.6%) are very low and are similar to the percentages

TABLE 12. CROSS-SHOPPING RECEIVING AND SENDING PERCENTAGES FOR STORES IN THE CENTRUM SHOPPING CENTER

Store	Mean Receiving Percentage ^a	Mean Sending Percentage ^b	Receiving/Sending Ratio
Cosmetic Center	6.3	13.5	0.47
Dollar Tree	6.5	14.0	0.46
Dress Barn	6.2	17.0	0.36
Home Depot	19.0	9.0	2.11
Kmart	26.2	11.2	2.34
Linens 'N Things	11.7	14.6	0.80
Petsmart	5.6	7.3	0.76
Rack Room Shoes	5.0	17.8	0.28
Service Merchandise	6.7	7.2	0.93
Stein Mart	26.1	12.6	2.07
T J Maxx	22.6	12.6	1.79
Other Stores	9.0	15.0	0.60

^aA store's mean receiving percentage is the mean percentage of shoppers at other stores in the center who shopped at the store.

^bA store's mean sending percentage is the mean percentage of shoppers at the store who also shopped at other stores in the center.

for small stores in the center. These two stores occupy marginal positions within the Centrum, both locationally and functionally. Linens 'N Things had a higher mean receiving percentage (11.7%) and was more integrated with other stores in the center than Service Merchandise and Petsmart, but its value was well below those for Kmart, Stein Mart, T J Maxx, and Home Depot. As was the case for stores in the Commons, the mean sending percentages for the small stores in the Centrum were higher than for the large stores, reflecting the former's dependency on other stores for shoppers. Service Merchandise and Petsmart not only had low receiving percentages, but their sending percentages were the lowest in the center at 7.2% and 7.3%, respectively. The low sending percentages indicate that either a large proportion of their shoppers did not shop elsewhere in the center (Petsmart), or their individual cross-shoppers tended to visit only one or two stores. These two stores are anomalies in having both low receiving and sending percentages.

Cross-Shopping Models

The findings reported above lend support to the notion that cross-shopping linkages are influenced by the spatial proximity of stores, store complementarity, comparison shopping opportunity, and store size. These findings are consistent with the results from other studies of cross-shopping at the intra-center scale (Bromley and Thomas, 1988; Bromley and Thomas, 1989; Brown, 1989). In order to measure more

precisely the effects of these factors on the level of cross-shopping between stores, a cross-shopping model was developed using the technique of multiple regression. The dependent variable was the proportion of the shoppers of a store who also shopped at each of the other stores in the center. The seven stores in the Commons shopping center produced 42 cross-shopping values (Table 7). Cross-shopping flows for the seven major tenants and four small shops were used in the model for the Centrum center, resulting in 110 cross-shopping values (Table 8). Spatial proximity was measured as the distance in feet between stores. Distance was expected to have an inverse relationship with the level of cross-shopping. The factors of store complementarity and comparison shopping opportunity were combined into a single measure of store compatibility. Each pair of stores was categorized as having either a low, moderate, or high level of compatibility (Nelson, 1958). Store compatibility was expected to be positively related to cross-shopping. The size of the receiving store was categorized as either small (< 15,000 sq. ft.), intermediate (15,000–50,000 sq. ft.), or large (> 50,000 sq. ft.). Store size was expected to have a positive effect on cross-shopping.

The explanatory power of the cross-shopping model for the Commons center was moderately high with an adjusted R^2 value of .644 (Table 13). Each of the three independent variables had statistically significant regression coefficients at the .01 level and their signs were in the expected direction. The level of cross-shopping flows between stores was negatively affected by distance and positively affected by the level of store compatibility and the size of the receiving store. A

TABLE 13. REGRESSION RESULTS FROM THE CROSS-SHOPPING MODELS FOR THE COMMONS AND CENTRUM SHOPPING CENTERS

Variable	Beta Coefficient	T Value	Probability (one tail)
Commons:			
distance	-0.559	-4.790	0.000
store compatibility	0.436	3.980	0.000
store size	0.805	7.972	0.000
$R^2 = .644$			
Centrum:			
distance	-0.156	-1.790	0.038
store compatibility	0.423	4.849	0.000
store size	0.483	7.080	0.000
$R^2 = .498$			

comparison of beta coefficients for the three variables revealed that the size of the receiving store made the greatest contribution to the explanatory power of the model, followed by distance and store compatibility. The explanatory power of the cross-shopping model for the Centrum was not as strong, yielding an R^2 value of .498 (Table 13). Store size and compatibility had regression coefficients that were statistically significant at the .01 level, while the coefficient for distance was significant at .05. All regression coefficients were in the expected direction. As was the case for the Commons, the variable contributing most to the explanatory power of the model was store size. The order of importance of distance and store compatibility was reversed for the Centrum, with the former making the weakest contribution to the model's explanatory power.

■ Conclusions

The amount of cross-shopping in the two power centers was found to be less (1.54 and 1.82 store visits per shopper) than in regional malls in the U.S. (2.6 visits) or retail warehouse parks in the U.K. (2.1–2.3 visits). Of the 990 total shoppers surveyed at the two power centers, 53% visited only one store. These results indicate that there is less functional integration among stores in power centers than either in retail warehouse parks or regional centers. Although it is perhaps more appropriate to describe the power center as a loosely connected group of stores rather than a strongly integrated center, there are, nevertheless, exceptions in which strong linkages do exist between some stores, particularly when the center contains anchors that are compatible with each other or small shops that are compatible with selected anchors.

The large size and lack of compactness of power centers make it difficult for consumers to shop the entire center. Shoppers may be impelled to use the car rather than walk to get to other stores in the center, with this inconvenience no doubt discouraging cross-shopping activity. The trend in power center development toward larger centers, with some now exceeding 700,000 sq. ft. of floorspace, will make it even more difficult to shop the entire center. The fact that many of the large stores act as destinations and have little compatibility with each other further contributes to the low level of cross-shopping. Some anchor tenants in power centers sell bulky goods (e.g., home improvement stores, electrical goods retailers, and warehouse membership clubs), which also may discourage visits to other stores.

Our study found considerable variation among stores in the percentage of their shoppers who did not engage in cross-shopping. These

percentages ranged from a low of 4.8% (Rack Room Shoes, a small shoe store in the Centrum) to 55.3% (Kmart, a large discount department store in the Commons). Locations within the center, compatibility, and store size (the latter an indicator of a store's role as a destination) influenced the magnitude of shopping linkages with other stores. Generally, cross-shopping was least frequent among shoppers of the larger stores, with patrons of the smaller stores frequently making multi-store visits. While single-purpose trips were characteristic of many shoppers of the large stores, by comparison the smaller stores were dependent upon each other and the larger stores to generate business. The importance of location within the center on cross-shopping is perhaps most vividly illustrated by the large difference in the proportion of Kmart shoppers in the two centers who did not cross-shop (55.3% in the Commons and only 25.8% in the Centrum). Kmart occupies a spatially isolated location in the Commons (Figure 2) compared with a location more proximate to other stores in the Centrum (Figure 3). Some of this difference, however, could also be due to the presence of a larger number of compatible stores in the Centrum. A relatively high number of Home Depot shoppers in both centers did not cross-shop. This low level of cross-shopping was due less to the location of the stores within the centers, and more to the lack of compatibility with other stores and the bulky nature of its merchandise.

No single factor was adequate to explain the variation in the level of cross-shopping between individual pairs of stores; rather, cross-shopping flows resulted from the combined effects of several factors including the spatial proximity of stores, their compatibility resulting from the degree of complementarity or comparison shopping opportunities provided, and the size of the receiving store. The strongest flows were from small stores to nearby, compatible larger stores. This situation was illustrated by the strongest linkage in the Commons, where 44.2% of Famous Footwear shoppers also visited Marshall's. The strongest linkages in the Centrum involved several nearby apparel stores and other complementary shops in the central area of the center. The weak linkages between Petsmart and other stores in the Centrum illustrated how both the lack of proximity and compatibility contributed to minimum cross-shopping flows. In only one instance did more than 20% of its shoppers visit another store, and this was to its most proximate store, Home Depot.

A recent study suggested that a major concern with power centers from an investment perspective is the limited cross-shopping between anchors and small stores, which has the effect of restricting the amount of small tenant space in the centers and the income potential from these shops (Casey, 1994). This lack of income potential is made even

more critical because of the limited rental income from the anchors due to their long-term, relatively flat rental rates and high sales breakpoints for percentage rents. These problems highlight the importance to investors and retailers of creating not only strong cross-shopping linkages between anchors and small stores, but also between the anchor tenants themselves. Our findings on cross-shopping in power centers suggest that the physical layout of the center, the location of stores relative to each other, and the compatibility of store types are key issues which developers should consider in order to maximize cross-shopping linkages and optimize the performance of the center for both owners and retailers alike. From a theoretical standpoint, it should be possible to design an optimum power center in terms of location of stores and tenant mix. However, real world conditions such as the size and shape of land parcels, zoning restrictions, and the availability of potential tenants certainly make the development of an optimum center difficult to achieve. Nevertheless, knowledge of the factors enhancing cross-shopping linkages is important in the development of strong performing power centers.

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