# Location and Relocation of Class A Office Users: Case Study in the Metropolitan CBD of Tel-Aviv

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*Urban centers of advanced 'postindustrial' service economies have evinced swift office construction which has completely altered their work environment and skylines. Using the CBD of metropolitan Tel-Aviv, Israel's largest metropolis as a case study, the paper explores and evaluates the spatial distribution, territorial specialization, and the locational and relocation factors of office firms, located in newly built class A office towers. The hypotheses posited for the analysis are confirmed, revealing that the spatial expansion of the CBD into three sub-centers has resulted in territorial clustering of office firms according to their function and main activity. The list of the office firm's location factors is headed by the image of the tower, accessibility, and the efficiency of the tower's 'core' services. Next in magnitude is the proximity of the office firm to its clients, to other office outlets with whom it conducts joint work efforts, and to institutions. The least important factor is rent, indicating that once a firm is satisfied with its location, it is ready to pay almost any reasonable rent. Future research avenues are explored.*

*Keywords: Prime office users; Class A office towers; postindustrial; location factors.*

Urban agglomerations of advanced 'postindustrial' service economies have evinced swift office space development whose postmodern structures have altered their work environment (Gottmann, 1983) and skylines (Knox, 1991; Hartshorn, 1992; Short, 1996). The 'globally' oriented 'postindustrial' service industries of producer services and decision-making and control, considered to be the contemporary 'propulsive sector' of the urban economy (Short, 1996), tend to spatially agglomerate in a few urban centers equipped with rich and diversified social, cultural and economic opportunities and with quality of life assets (Sassen, 1991; Illeris, 1991; Hartshorn, 1992). In these agglomerated environments they are capable of maintaining strong economic linkages both with their clients at the decision making and control sector and with suppliers of their supporting and consumer services, or with other firms as partners, subcontractors or independent agencies in joint service ventures.

This paper, using the CBD (Central Business District) of metropolitan Tel-Aviv as a case study, discloses the spatial distribution and the locational and relocation at-

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tributes of office firms, situated in newly built class A office tower structures. Class A are medium height to high office towers, charging high rents and maintenance fees, and occupied by 'primary users' such as corporation headquarters and professional service firms (Hartshorn, 1992; Birch, 1986). Class A are distinguished from class B, usually old buildings in use by government, non-profit organizations, and by labor-intensive service outlets (Hartshorn, 1992; Birch, 1986). Metropolitan Tel-Aviv, Israel's 'core area', extending over the Central and Tel-Aviv Districts, had a 1995 census population of 2.5 million, 44 percent of Israel's total. Tel-Aviv–Yaffo, the Central City of the metropolis, had a 1995 population of 356,200. In the mid 1990s over 30 newly built class A office towers marked the skyline of the city, playing a major role as a port of entry into Israel of the 'postindustrial' and 'postmodern' age, and as its main anchor to the 'global' economy (Felsenstein and Razin, 1993; Kipnis, 1996; 1997; 1998a; 1988b).

Three hypotheses are examined:

1. The spatial expansion of the CBD of metropolitan Tel-Aviv into three major clusters resulted in territorial specialization of the 'prime office users' of class A office towers. The historic CBD remains the prime financial center of Israel, while the newly built extensions tend to specialize, in either 'decision making and control'/'headquarters' or in 'producer services'/'business services'.
2. Location and relocation considerations of 'prime users', who are tenants of class A office towers reflect their inherent endeavors to boost their own image, to take advantage of an accessible site, to enjoy a convenient working environment, and to function within the context of their own agglomerated economy.
3. There is a significant dissimilarity in the way 'prime office users' classified by function and main activity assess the relative value of their location factors.

## SERVICE-INTENSIVE POSTINDUSTRIAL BUILT ENVIRONMENT

Crook and his colleagues (1992) imply that what distinguishes 'industrial' from 'postindustrial' economies is their form of production. Industrial economies are goods-manufacturing societies in which ownership of physical capital is a critical, though a variable issue. Postindustrial economies are predominantly producers of services, and concentrate most of their workers in these areas. Postindustrial economy is ruled by professional and technical workers who have acquired control over theoretical knowledge and information, a prerequisite for the development of new technologies and for the planning of future development. Postindustrial society is highly differentiated, exhibiting high levels of specialization and complexity which cause problems of integration, and also highly organized, exhibiting high levels of rationalization and commoditification, a process which fosters centralized management (Crook et al., 1992).

The interaction between the producers of advanced services and the rest of the economy has become a driving force in creating the economic value of the postindustrial economy, usually agglomerated in big [world] cities, the articulation nodes of the emerging 'global' economy (Friedmann, 1986; 1995). Agglomeration is crucial due to the fact that most contemporary advanced service industries operate in short production series and their competition relies on quality and flexibility (Illeris, 1991). Ileris further testifies that proximity to customers and to producers of complementary services remains important, particularly where and when service producers and users must be present at the same time and place, or when exchange of complicated and sensitive information is involved. Finally, concentration arises out of the needs and expectations of high-income knowledge-intensive workers of the producer services firms who are attracted to the amenities and lifestyles that the central areas of big cities can offer (Stanback and Noyelle, 1982; Sassen, 1991).

Short (1996) suggests that the 'postmodern' city, reflecting 'a shift in both society and in the world of ideas about society', has procured a 'new' look during the last 25 years. The straight-lined, flat-topped towers of the modernist centers of central cities now have to compete with tower buildings in a variety of shapes and colors. This shift reflects an attempt to differentiate among cities at a time of growing global competition: that while chasing mobile capital, cities wanted to present a contemporary look, an image of being at the cutting edge (Short, 1996). This new look has been wide-ranging and eclectic, anarchical and combinational, a 'style of styles', allowing land developers to ensure product differentiation, and in so doing to maximize exchange value (Knox, 1991). Data from the second half of the 1980s reveals that class A primary office users were ready to pay as much as $50–$70 and sometimes even $200 per square meter in the centers of Tokyo, London, Washington, and New York (Hartshorn, 1992; Lever, 1992; Daniels, 1993).

Modern office tower structures are no longer just a built space into which the individual tenant firm must fit. Contemporary office residents, striving for a quality working environment, are in need of sophisticated communication, a variety of other ancillary services, high quality lightning and air conditioning. The 'shell' and 'core' concept has been an innovative response to the requirement of modern office towers, in which telecommunication and other infrastructure services are provided through the 'core', while the tenant firm is capable of designing its own 'shell' according to its precise requirements (Daniels, 1993). A recent development is the groundscraper. In addition to its prestigious image, the groundscraper provides large ground floor spaces, useful for a services depending on 'electronic dealing' (Williams, 1992).

Daniels (1993) suggests that the construction of new office space occur in cycles, not always coinciding with demand. Timing and duration of a cycle vary between cities and countries, but the way the market works is much the same everywhere, revealing 7–8-year cycles. The late 1980s marked the end of a boom period of office construction in many major cities of advanced economies, notably the U.S., resulting in surplus office space primarily of class A towers (Birch, 1986; Pivo,

1990). Yet, failure to modify the stock of office buildings would render most of the world cities uncompetitive with the requirements of international business and professional services (Daniels, 1993).

Many reasons have been named for the office construction boom. Foremost have been sectorial restructuring towards services associated with increased number of jobs and with increased requirements to allow flexible use and update of information technology (Daniels, 1993). Most of the over-build of office space has been fueled by readily available capital, mostly foreign, motivated by inflationary expectations in rents and favorable tax laws (Birch, 1986). Foreign investments in the U.K. office real-estate market, for example, increased from $340 million in 1985 to an estimated $5.2 billion in 1989. Almost all this investment was channeled into prestigious (trophy) office construction in central London (Daniels, 1993).

## ISRAEL'S POSTINDUSTRIAL CORE-CENTERED ECONOMY

Israel's entry into the 'postindustrial age' and its integration into the 'global' economy, have accelerated in the 1990s with the abolition of Arab boycott against international firms investing in Israel. This has been the most significant outcome of the emerging course of peace in our region, a prerequisite for prosperous business. It has been followed by profound structural shifts in manufacturing mix, in employment, in export destinations, and in foreign direct investment (FDI) patterns (Kipnis, 1998a; 1998b). Between 1985, denoting the end of Israel's severe economic decline and record inflation rates, and 1995 marking half a decade of massive absorption of close to 655,000 immigrants, manufacturing production increased by 190 percent. Most of this growth took place in the 'growing' manufacturing industries; total employment increased by 44 percent, while those employed in business and legal services increased by 99 percent and in scientific and other professional occupations by 53 percent; and between 1991 and 1996 Israel's GDP increased at an average annual rate of 6.1 percent from $70.3 to $95.8 billion, to reach a per capita GDP of $16,800 by 1996 (Bank Hapoalim, 1993; 1995; 1996;1997).

Israel's affiliation with the global economy is further illustrated by both its foreign trade and foreign direct investment (FDI) patterns. In 1995, 84 percent of Israel's exports and 87 percent of its imports were destined for or originated at the three major markets of today's global economy—Western Europe, the U.S. and Southeast Asia (Bank Hapoalim, 1996). These trade patterns are expected to expand owing to Israel's free trade agreements with the EEC and with the U.S., allowing Israel to act as a trade bridge, permitting tariff-free access for products qualifying under the Rules of Origin to the EEC for U.S. industrial goods and vice versa (Raveh, 1991). Allied with these has been FDI, revealing 'cross investments' patterns (Dicken, 1993), which increased from $756 million to $2,300 million between 1993 and 1996 (Bank Hapoalim, 1997). Referring to Israel as 'the new Silicon Valley', most FDI, primarily from the U.S. (Sagee and Dagoni, 1997) but with growing sums from

Japan (Timor, 1997), have been aimed at hi-tech manufacturing, advanced services, and real-estate developments.

Metropolitan Tel-Aviv has evolved as the 'anchor' of Israeli post-industrial economy. In the mid-1990s the growth rates of those employed in business, judicial, financial, cultural, health and educational services, as well as those employed as managers, service workers, salesmen, scientists, academics and other professionals and technicians, grew faster than the national average (Central Bureau of Statistics, 1986;1996). Tel-Aviv, where the headquarters of all of Israel's banks are located, dominates the Israeli banking industry. In 1993, for example, with only 6.5 percent of Israel's population, Tel-Aviv had 22 percent of bank branch offices, 51 percent of bank jobs and 2.35 times more than the national average of jobs per office, all significantly higher than those of Jerusalem, the capital, and of Haifa, a major port and heavy industry center. Last but not least, in 1990, the average per capita GDP of Tel-Aviv district, the hard core of Greater Tel-Aviv, was more than 50 percent higher than the country's. The projected per capita product of Tel-Aviv district in the year 2020 will be up to 45 percent above the national average, depending on the development scenario for 'Israel 2020' (Mazor and Trop, 1994).

### *The Evolution and Nature of the Tel-Aviv Office Community*

During the 1920s, fueled by capital imports of Jewish immigrants, Tel-Aviv evolved as the major economic, service-oriented, center of the Land of Israel (Kellermann, 1986; 1993). But it was only in the turn of the 1960s that the city's office service economy started to expand. Between 1968 and 1974 Tel-Aviv's office floor space increased from 938,000 to over 1.3 million square meters, and the number of office units, most of them in old residential structures, numbered 10,000 (Har-Paz et al., 1977). However, even in the mid-1980s the Israeli service industry, along with the Israeli economy at large, lagged behind most of the world's developed nations (Shachar and Choshen, 1993). Kellerman (1986) mentioned the service industry as being responsible for 'the current economic crisis' which could 'be interpreted as a crisis of the services'. Among the reasons named by Kellerman were their old fashioned organization; their inherent ideological and political burdens; and the fact that many services were supplied by government and other public agencies, not by the private sector.

In the mid-1990s, however, Tel-Aviv office floor space is 1.7 million square meters, with most of recent increase of 410,000 square meters taking place in modern, class A office towers, that are totally altering Tel-Aviv's skyline. The projected office space for 2020 is 3.3 million square meters (Pasternak, 1993), all in modern ('postmodern' style) towers. The Shalom Center recently erected west of the Ayalon Freeway, Tel-Aviv's sole limited exit highway, is an example of a prestigious office construction project. Expected rents at the Shalom Center, consisting of three towers with 150,000 square meters of floor space, 125,000 square meters for office use and the rest for commerce, and underground parking garages for 3,600 vehicles,

are $25 per square meter for office space and $75–$100 per square meter for commercial uses. However, the boom of office construction in Tel-Aviv, which began in the early 1990s, seems to have almost reached the peak of its current cycle (*Haaretz* reporter, 1995; Maor, 1996). Most future growth of office space in Greater Tel-Aviv, primarily for the fast growing business and producer services industries, will take place along the eastern nucleus of the metropolitan CBD, also expanding northward along the Ayalon to near-by suburban locations (Borenstein, 1997).[1] This extended nucleus enjoys excellent accessibility to the rest of Greater Tel-Aviv, the rest of Israel, and the rest of the growing 'global' economy via Ben-Gurion Airport.

## DATA BASE

A survey of 120 'prime office users', representing all major office functions located at the metropolitan CBD of Tel-Aviv in newly built class A office towers, was carried out in the spring of 1995. The people interviewed, usually owners, directors or chief executives, were asked for information, among other elements, about their firm's principal location attributes and about their relocation plans. Background data were compiled from past studies on Tel-Aviv CBD (Shachar, 1968; Lev, 1976; Graicer, 1991), and from land policy studies centering on office uses (Har-Paz et al., 1977; Economic Consulting & Planning, 1992; Pasternak, 1993).

The sampled office firms were classified into two complementary, in some cases overlapping, groups. The classification groups are:

1. By *function*—'headquarters', 'business services', 'FIRE' (finance, insurance and real-estate), and 'other' office functions;
2. By *main activity*—denoting office activities of 'decision making and 'control', 'producer services', 'consumer services' and 'other' office activities;

In order to verify whether the two typologies do in fact produce meaningful, well defined, groups of office firms, a Chi-square analysis was carried out to determine the degree of similarity between the two. Four attributes were examined: the firms' 'year of establishment', their 'organizational affiliation', the spatial pattern of their 'functional' and 'operational' linkages, and their distribution across the three metropolitan CBD clusters. Table 1 shows that with the exception of the typology pair 'producers' versus 'business' services attributes 'firms linkages' and 'location', all other Chi-squares, scoring significance values of a smaller than or equal to 0.05, were large enough to reject the hypothesis of similarity between the two typologies. The two exceptions represent groups of office firms which although differing in their year of establishment ($\alpha = 0.001$) and affiliation ($\alpha = 0.01$) tend to reveal almost the same location and spatial linkage patterns. Important too is the threshold Chi-square value ($\alpha = 0.05$) for the 'affiliation' of the pair 'decision-making and control' and 'headquarters'.

Table 1: Values of α indicating the level of significance of the calculated chi-squares for selected firms' attributes.

| *Main activity/function* | *Attributes* | | | |
|---|---|---|---|---|
| | *Year of firm's establish-ment* | *Firm's affiliation* | *Firm's linkage pattern* | *Location in CBD sub-centers* |
| Decision-making and control/ headquarters | 0.001 | 0.05 | 0.001 | 0.01 |
| Producer services/ business services | 0.001 | 0.01 | - | - |
| Producer services/FIRE | 0.001 | 0.001 | 0.001 | 0.001 |
| Consumer services/ producer services | 0.001 | 0.001 | 0.001 | 0.001 |
| Consumer services/FIRE | 0.001 | 0.001 | 0.01 | 0.001 |

Source: Calculated by the author on the basis of 1995 field survey data.

In order to isolate the most important attributes of a given typology of a sub-group of office firms, 'coefficients of concentration' C were calculated, in which C = the raw percentage of i /the raw percentage of $\Sigma$i where i is an attribute of the office firms' typology.

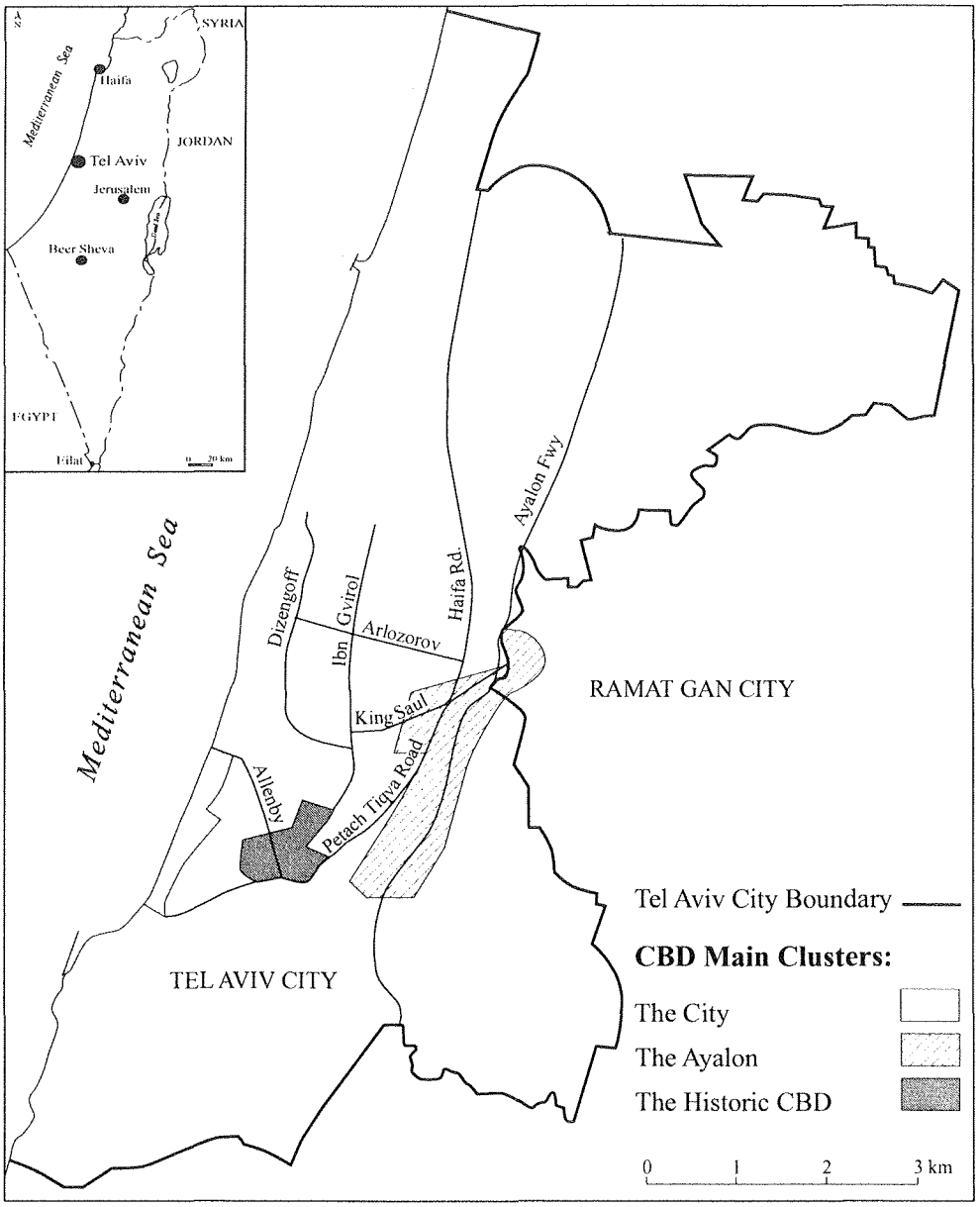
For simplicity of analysis and presentation, C values equal to or larger than 1.10 are presented.

## ANALYSIS

### *Spatial Expansion and Territorial Specialization*

It is hypothesized that the spatial sprawl of the CBD of metropolitan Tel-Aviv and the evolution of its sub-centers has been accompanied by territorial clustering of office firms by function and by main activity. Until late 1960s most of Tel-Aviv's office activity was concentrated in the historic CBD defined by Shachar (1968). The Tel-Aviv CBD's main functions subsequently became diffused into two newly developed business sub-centers (Lev, 1976; Graicer, 1991) to form the three nuclei CBD of metropolitan Tel-Aviv. They are the historic CBD, centering on the western section of Rothschild Avenue; the City, west of the historic CBD, which evolved as a business node following a 1967 plan to divert the historic CBD into a newly planned 'City' along the Mediterranean coast; and King Saul to the east, which sprang up spontaneously along King Saul Street, next to Haquirya, then the national government campus, in the early 1970s. A decade later, the King Saul cluster sprawled into the industrial district along the Ayalon Freeway, the sole limited-exit highway of the metropolis and the route of Israel's major intercity and intra metropolitan railroad lines, and into the 'Bursa' complex (which has began as Israel's diamond exchange center) in Ramat Gan, just across the municipal boundary of Tel-Aviv City. In the following we refer to the eastern sub-center as the Ayalon (Figure 1).

Figure 1: The CBD of Metropolitan Tel-Aviv.



The early eastward sprawl from the historic CBD in the direction of King Saul and the Ayalon Freeway., known as the 'Tel-Aviv's office strip', occupied vacant dwellings of formally high-status residential quarters of the city (Har-Paz et al., 1977). In 1981, striving to revive and 'gentrify' Lev Tel-Aviv (the heart of Tel-Aviv) residential quarters, Tel-Aviv municipality embarked on an aggressive policy aimed at prohibiting continued office occupancy of residential units in the city center, and at moving operating firms into newly built office quarters. As a result, in 1988 only 2,500 business units still occupied residential units in the CBD and its vicinity (Graicer, 1991). A more recent study reported that 48 percent of Tel-Aviv City's office firms were in residential buildings, 44 percent in office buildings, and 8 percent in mixed use buildings. In terms of office floor space these occupancy rates were 23 percent, 65 percent and 12 percent, respectively (Economic Consulting and Planning, 1992).

With the growing demand for more office space, office construction emerged as a process of 'invasion and succession' into the city's industrial zones, primarily that along the Ayalon Freeway. A 1993 land policy study, intended to legitimize the process, disclosed that while the total increase of office space in the whole city was 48 percent from 1988 to 1992, office space in the historic CBD increased only by 25 percent. FIRE, Judicial, and headquarters of major firms, the highest-status office functions, were the most important ones in the historic CBD, increasing their share in the historic CBD from 30 percent in 1988 to 33 percent in 1992. The Ayalon Freeway area, was the most attractive to producer service firms and software houses sensitive to accessibility and rent levels (Pasternak, 1993). Pasternak further noted that 50 percent of Tel-Aviv's office outlets were sensitive to country-

Table 2: Location of office towers by center and by function and activity.

| | | *CBD sub-centers* | | |
|---|---|---|---|---|
| *Attributes* | *Percent in the sample* | *Historic CBD* | *City* | *Ayalon* |
| **Function** | | | | |
| Percent in the sample | 100.0 | 11.4 | 21.9 | 66.7 |
| Headquarters | 27.6 | - | 2.14 | - |
| Business services | 39.0 | - | - | 1.16 |
| FIRE | 17.1 | 2.93 | - | - |
| Others | 16.3 | - | - | 1.20 |
| Total | 100.0 | 1.00 | 1.00 | 1.00 |
| **Main activity** | | | | |
| Percent in the sample | 100.0 | 11.4 | 21.9 | 66.7 |
| Decision-making & control | 19.8 | 1.16 | 1.49 | - |
| Producer services | 47.1 | - | - | 1.21 |
| Customer services | 26.5 | 2.04 | 1.40 | - |
| Others | 6.6 | - | - | 1.31 |
| Total | 100.0 | 1.00 | 1.00 | 1.00 |

Source: Field Survey, 1995 (N = 120).

wide accessibility and 30 percent to metropolitan accessibility, and that their accessibility needs were best served by the Ayalon Freeway.

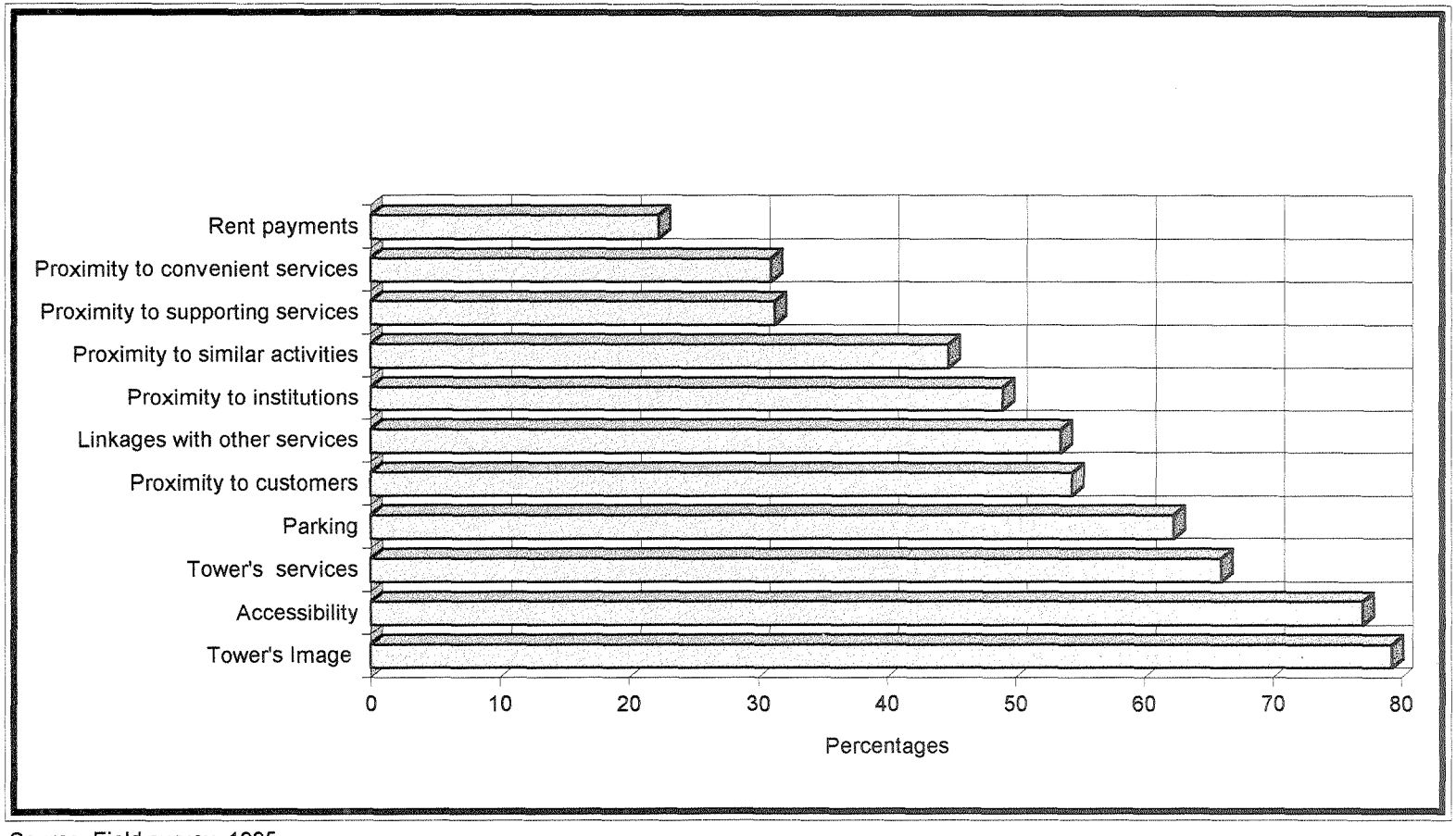
Data from the 1995 survey confirm our hypothesis that territorial sprawl out of the metropolitan CBD has resulted in a nodal specialization of office firms by function and activity (Table 2). Observe how the historic CBD specializes in FIRE, its coefficient of concentration being 2.93; its main activities are decision-making and control and customer services. The City cluster houses headquarters specializing in decision-making and control and in customers' services. The Ayalon Freeway nucleus, by contrast, shows high concentration of business services whose main activity is the provision of producer services.

### *Location and Relocation Considerations*

Our hypothesis is that location and relocation considerations of 'prime office users', who are tenants of class A office towers reflect their endeavor to boost their own image, to take advantage of an accessible site, and to enjoy a convenient working environment. The study of location and relocation factors of Tel-Aviv's office firms dates back to the mid-1970s. Har-Paz et al. (1977), reporting the result of a sample of more than 1,200 office units, disclosed that the foremost among the office location factors at that time was agglomeration, a prerequisite for face-to-face linkages with other offices in the course of their work. This agglomeration was centered around the historic CBD's finance sector. Other cited factors were accessibility, parking, prestige and tradition. The latter two influenced offices to locate in high-status districts either functionally, in the historic CBD, or socially, in high-status residential quarters close by. Har-Paz and his associates also maintained that offices, unlike other industries, were less sensitive to the structural layout of the building they occupy. It was much easier for an office, they argued, "to accommodate to the layout of a given structure." Note too that close to 50 percent of office firms had moved at least once between 1968 and 1974, and 25 percent twice. 'Shortage of space' and 'unsuitable location' were the common reasons (Har-Paz et al., 1977). Another study (Economic Consulting and Planning, 1992) revealed that 64 percent of its 308 surveyed office outlets of Tel-Aviv City reported that they had moved, 94 percent of them within Tel-Aviv City. The main reasons, accounting for 85 percent of the moves, were accessibility, parking, a need for space, rents and a desire to improve the quality of their office building. Some 58 percent of the offices surveyed stated that they planned to relocate in the near future.

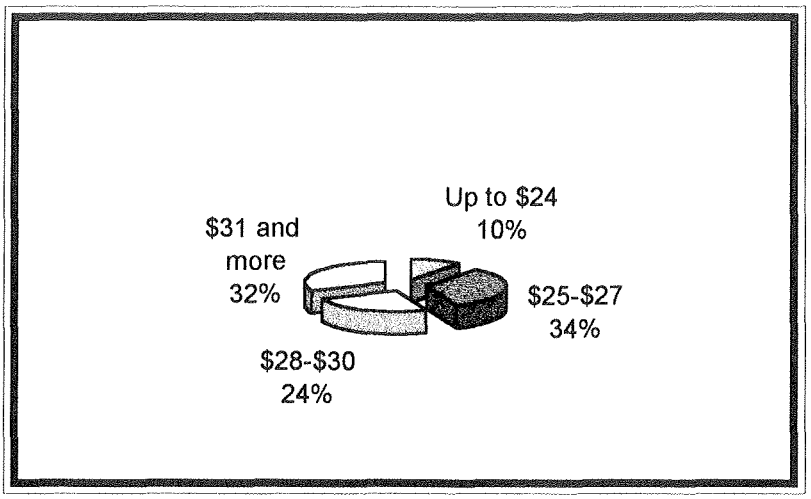
Significant structural changes in the Israeli economy were needed to alter dramatically the locational considerations of 'prime users' of class A office structures of the metropolitan CBD of Tel-Aviv. Figure 2 shows the rank order of location factors of the sampled office firms. Leading the list of location factors is a group of attributes reflecting the quality of the office building, with 'image of the tower' scoring 79 percent to 'parking' 62 percent. The second group of factors mediate the functional clustering needs of office firms from 'proximity to customers' at 54 percent to 'proximity to similar activities' at 45 percent. Next is a group of environ-

Figure 2: Location factors of prime users in Tel-Aviv Metropolitan CBD class A office towers.




Source: Field survey, 1995.

Figure 3: Distribution of monthly rent and maintenance payments per sq. meter of office space, 1995.




Source: Field survey, 1995.

mental factors such as 'proximity to supporting services' and 'proximity to convenient services', each with 31 percent recognition. The least important locational factor was rent, to indicate that 'prime users' located in class A office structures of Tel-Aviv metropolitan CBD are willing to pay almost any price for their prestigious site. Figure 3 shows that close to one third of the office firms pay more than $31 monthly per square meter for rent and maintenance, and 24 percent pay $28–$30. These sums are considered significantly high by Israeli standards

A closer view on the importance of the spatial and functional relationship between the location factors is conceivable by the results of a simple correlation analysis carried out among the 11 locational factors. Notwithstanding the fact that the analysis yielded only relatively small R values, the five largest R values reveal how important are the spatial agglomeration considerations of the firms involved. The five largest Rs are between proximity to convenient services and proximity to supporting services (R = 0.567); between proximity to institutions and proximity to similar activities (R = 0.472); between image of the office tower and level of its services (R = 0.458); between linkages with other [business] services and proximity to customers (R = 0.425); and between linkages with other [business] services and proximity to similar activities (R = 0.420).

Less than a quarter of the 1995 sampled office firms indicated that they plan to move, despite the fact that 89 percent of them were satisfied with their site location. Shortage of space for expansion, a problem reported by 74 percent of the sampled firms, was given as the main reason for relocation. Among those who planned to move, 93 percent said they would remain in metropolitan Tel-Aviv. Of these, close

to 11 percent preferred to remain in the same office building, 43 percent would move to another prestigious office tower in Tel-Aviv City, and 39 percent would resettle in a modern office building elsewhere in the metropolis. Only 7 percent indicated that they would consider another location in Israel.

The relative weight and order of the office location factors confirm our hypothesis that the location considerations of 'prime users' of class A office towers situated in the CBD of metropolitan Tel-Aviv reflect their endeavor to boost their image, to take advantage of an accessible site, to be able to maintain their day to day spatial activities and functional linkages, and to benefit from a convenient working and supportive environment. Rent, although high in Israeli terms, is the least important location factor. Relocation from a site at a class A office tower, usually to a nearby location, is mainly due to shortage of space in an expanding firm. In all these respects, office firms of Tel-Aviv do not appear exceptional in the 'global' economy milieu of postindustrial society.

*Location Factors: Are They 'Function' and 'Activity' Differentiated?*

The third hypothesis assumes that there is an explicit dissimilarity in the way 'prime office users', classified according to function and main activity, assess their location factors. Table 3 shows the stated magnitude of each location factors by each of the office firms' industries classified according to function and main activity. Note how the first group of factors reveal very low coefficients of concentration, thus indicating that the variance among the firms is small. Exceptions are 'FIRE' and 'customer services' which seem to attach higher values to the 'image' of the office tower and to the 'level of in-house services' it provides. By contrast, 'business' and 'producer' services are sensitive to proximity to their customers and to institutions, while 'headquarters' and 'decision-making and control' tend to value more the proximity to supporting and to convenient services, and they also tend to consider their rent payments highly. 'Other firms', classified either by function or by main activity, present mixed locational preferences. They give high rank to parking, linkage with subcontracting services, and to proximity to similar activities, and they tend to take their rent payments into consideration.

Table 4 shows the significance values of the calculated Chi-squares of three location factors: 'image of tower', 'linkages with subcontracting services ' and 'rent payments', denoting respectively the upper, middle and the lowest ranks of the locational factors. Observe how selectively the values of $a < 0.05$ appear. They indicate that producer services and business services differ in their attitude to rent as a location factor; how consumer services and producer services differ in their disposition to all the three location factors involved; and how FIRE and consumer services differ in their approach to 'image' and to 'linkages'. In conclusion, our third hypothesis, namely that there is dissimilarity in the way office firms classified by function and by main activity, assess the relative merit of their location factors, is proven.

Table 3: Location factors by function and main activity (percentages and coefficients of concentration > 1.10).

| *Location factors (Rank-order)* | *Indicated that factor is important %* | *Function* | | | |
|---|---|---|---|---|---|
| | | *Head-quarters* | *Business services* | *FIRE* | *Other* |
| Percent in sample | 100.0 | 28.1 | 38.2 | 17.4 | 13.3 |
| Image of office tower | 79.3 | - | - | 1.11 | - |
| Accessibility | 77.0 | - | - | - | - |
| Service level in tower | 66.0 | - | - | 1.12 | - |
| Parking | 62.3 | - | - | - | 1.37 |
| Proximity to customers | 54.4 | - | 1.20 | - | - |
| Linkages with subcontracting services | 53.5 | - | - | - | 1.34 |
| Proximity to institutions | 49.0 | - | 1.18 | - | - |
| Proximity to similar activities | 44.8 | - | - | - | 1.27 |
| Proximity to supporting services | 31.3 | 1.25 | - | - | - |
| Proximity to convenient services | 31.0 | 1.21 | - | - | - |
| Rent payments | 22.3 | 1.59 | - | 1.10 | 1.31 |

| *Location Factors (Rank-order)* | *Indicated that factor is important %* | *Main activity* | | | |
|---|---|---|---|---|---|
| | | *Decision making & control* | *Producer services* | *Customer services* | *Other* |
| Percent in sample | 100.0 | 20.0 | 47.5 | 26.7 | 5.8 |
| Image of office tower | 79.2 | - | - | 1.10 | - |
| Accessibility | 77.3 | - | - | - | - |
| Service level in tower | 65.8 | - | - | 1.11 | - |
| Parking | 62.5 | - | - | - | 1.37 |
| Proximity to customers | 54.2 | - | 1.20 | - | - |
| Linkages with subcontracting services | 53.3 | - | - | - | 1.34 |
| Proximity to institutions | 49.2 | - | 1.18 | - | - |
| Proximity to similar activities | 45.0 | - | - | - | 1.27 |
| Proximity to supporting services | 31.4 | 1.25 | - | - | - |
| Proximity to convenient services | 31.1 | 1.12 | - | - | - |
| Rent payments | 21.9 | 1.59 | - | 1.10 | 1.31 |

Source: Field Survey, 1995 (N = 114–120).

Table 4: Values of α indicating the level of significance of the calculated chi-squares for firms' location factors.

| | *Office firms' location factors* | | |
|---|---|---|---|
| *Function/main activity* | *Image of tower* | *Linkages with sub-contracting services* | *Rent payments* |
| Decision-making and control/headquarters | - | - | - |
| Producer services/business services | - | - | 0.01 |
| Producer services/FIRE | - | - | - |
| Customer services/producer services | 0.05 | 0.01 | 0.05 |
| Customer services/FIRE | 0.05 | 0.001 | - |

Source: Calculated by the author on the basis of 1995 field survey data.

## CONCLUDING REMARKS

Field survey data on prime office firms, that are tenants of class A office towers in the metropolitan CBD of Tel-Aviv were analyzed in order to show the firms' territorial agglomeration according to their function and main activity, and their inherent location and relocation considerations. The three hypotheses proposed for the analysis are confirmed, namely the spatial expansion of the CBD into three sub-centers has resulted in territorial clustering of office firms. The historic CBD remains the prime financial center; the specialty of the newly built City, a preferred location of firms' headquarters, is in 'decision making and control'; and the emerging Ayalon sub-center is a metropolitan agglomerated node of business services, offering an assortment of advanced 'producer services'.

Users of class A office towers assign high value to location factors of image, accessibility and the efficiency of their tower 'core' in providing in-house services. Next in magnitude is the proximity of the office firm to clients, to other office outlets with whom it conducts joint efforts, and to institutions. The least important location factor is rent, indicating that once the firm is satisfied with all other location factors, it is willing to pay almost any reasonable rent levied according to Israeli market conditions. Relocation from class A office towers is minimal, mostly as a result of shortage of space, and usually into the immediate postindustrial milieu. Significant too is the fact that there is inherent dissimilarity in the way 'prime users' of modern office space, classified by function and by main activity, assess the relative value of their location factors. While image, accessibility and level of tower services do not display large variance between the typologies defined by function and activity, proximity to customers and institutions is imperative to business/producer services, and supporting and convenient services. Rent is considered a valuable location factor for headquarters and for firms conducting decision making and control activities.

The discussion of location involves the issue of the firms' spatial linkages, signified by their 'proximity' to customers, to other service firms, to institutions and to similar activities. All these, besides the fact of their relative magnitude, have a spatial dimension that might reflect the firms' 'range of linkages' extending, in a postindustrial context, from local to 'global' spheres. More research is needed, therefore, to explore and evaluate the spatial dimensions of these linkages on the basis of the firm function, main activity and affiliation.

## NOTES

1. In his study of the suburbanization of offices in Metropolitan Tel-Aviv Borenstein (1997) reveals, following Pivo's (1990) definition, seven office clusters. Two of the seven—the 'Bursa' and 'Herzeliyya Pituach'—disclosed 'post industrial' class A office activities. The former, located along the Ayalon Freeway, is an extension of the Tel-Aviv CBD, acting in this extended form as a metropolitan CBD.

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