

北宜高速公路對宜蘭地區
居住功能的衝擊評估*

A Study to Forecast the Changing
Residential Functions: The Case of Ilan
after the Completion of the Pei-I Freeway

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ABSTRACT

This paper discusses the possible impact of a freeway development on the housing market at a regional scale, but not its impact on nearby housing or land markets as conventionally done in academic work. It uses Ilan as the case study, which is predicted to be integrated into the Greater Taipei Metropolitan Area after the completion of the Pei-I Freeway at the end of the 1990s. With respect to the impact on regional housing market, this paper discusses the issue by focusing on the changing residential functions of the Ilan area in connection with the Greater Taipei Metropolitan Area. To forecast the changing residential function of the future Ilan, it is necessary to explore factors that will potentially lead to such changes. First, the change in time-space distance that might lead to regional restructuring will be discussed. Second, the role of the local state in influencing the regional economic development and in regulating housing demand and supply are also thought to be influential. Finally, in addition to exploring factors that will affect the change of regional residential functions, statistical data and interview data will be analyzed to verify the above theoretical speculations.

Keywords: impact of new freeway construction, residential functions, regional restructuring, the role of the local state

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摘要

本文以北宜高速公路為例，探討籌建中的高速公路在其完工通車後對區域性的住宅市場所可能產生的衝擊。以往研究新建公路的衝擊多半將分析焦點集中在其對公路兩旁的土地與住宅市場的影響，極少以區域整體的角度來探討，本文則是以預測居住功能的變遷作為研究的主題，希望從區域整體的角度來分析新建的高速公路對住宅市場的影響。要預測北宜高速公路完工後宜蘭地區居住功能所可能產生的變遷，首先應探討影響居住功能變遷的因素，本文所提出的最具影響性的兩個面相，第一是外在於宜蘭地區的作用力，由於北宜高速公路完工後，必然造成宜蘭和臺北地區間時空距離的縮減，故而必須將居住功能的變遷放置在北部地區區域性的空間重構的脈絡下來討論，第二，是內在於宜蘭地區的作用力，基本上是從地方政府在其經濟發展以及調節住宅需求和供給上所可能扮演的角色上來討論。對於此兩影響面相對居住功能所產生的衝擊，在經驗分析上，本研究是以統計資料的佐證以及對於仲介業者的訪談結果做為推論的基礎。

關鍵字：新建高速公路的衝擊、居住功能、區域重構、地方政府的角色

Introduction

In the first half of the 1990s, one of the most important research interests of all for planners in Taiwan has been the impact of the Six-Year National Development Plan. Its key policy goals include: (1) raising national income; (2) providing sufficient resources for continued industrial growth; (3) promoting the balanced development of various regions; (4) raising the national quality of life (Council for Economic Planning and Development, 1991). No matter what goals it boasts, the Six-Year National Development Plan is still criticized for its over concern with economic growth and infrastructure expansion. Possible cultural, social, economic and spatial impact of these massive public development projects have seldom been carefully evaluated. The Six-Year National Development Plan is also characterized by its astronomic capital investment through massive public development projects. Table 1 lists out the estimate of total capital required for major public development projects under the Six-Year National Development Plan. From the table we can see that projects titled by transportation and communications counted up to 33.7 percent of total budget. What kind of impact those projects will produce certainly will result in a lot of academic attention and will this have meaningful policy implications?

Along this line of interest, this paper tries to assess the impact of transport change on a region by exploring possible changes in the local housing market. It uses Ilan Prefecture as the study area, which will be integrated into the Greater Taipei Metropolitan Area after the expected completion of the Pei-I Freeway in the year 1999. However, this paper is not interested in discussing the impact of a freeway development on nearby housing and land markets as conventionally done in academic spheres but rather, its impact on the local housing market as a whole. With respect to the impact on the local housing market, this paper discusses this issue by focusing on the changing residential functions of Ilan in connection with the Greater Taipei Metropolitan Area. This paper forecasts the changing residential functions of the Ilan area in three respects, which correspond to three types of residents in the future Ilan. The first is to house the local workers. That is to fulfill the internal demand of Ilan. The second is to house the commuters working in the Taipei area. That is to make some part of Ilan become the outer

suburb of the Greater Taipei Metropolitan Area. The third is to stimulate the demand of second-home property for metropolitan residents for recreational or leisure uses.

Forecasting, traditionally is prone more to "numbers" prediction than "forces" exploration. However, this paper adopts the qualitative rather than quantitative approach in forecasting. To forecast the changing residential functions of the future Ilan, before any meaningful numbers can be predicted, it is necessary to explore factors that will potentially lead to such changes. Two themes need to be examined. The first is related to the concept of time-space convergence to induce a spatial reorganization. This is because transport change, construction of the Pei-I Freeway between Ilan and Taipei, indicates a process of time-space convergence between two areas. Discussion on how the above three aspects of residential functions of Ilan are influenced by this process of time-space convergence is the main purpose of this paper. In the first place, it is necessary to assess the dynamics of Ilan's economic development under that process because it will indirectly influence the effective demand of regional housing market. In the second place, the possible process and form that will integrate the local housing market into that of the metropolitan housing market is also a key to affect the regional housing demand. The second factor is related to the concept of "locality". In the case of Ilan, discussion of locality will be focused on the character of local government, especially on its role in influencing the local development in general and regulating the housing demand and supply in particular.

The study area: Ilan

Ilan is located in the northeastern part of Taiwan (Figure 1). The whole region forms a triangle shape. Its northwestern and southern parts are surrounded by mountains; its eastern part is adjacent to the Pacific Ocean. The whole region adds up to 2137.46 square kilometers. Over three fourths of the whole region is mountain area. The plain area comprises less than one fourth of the region (Table 2).

1. Location

Although it is not far from Taipei to Ilan in terms of geographical absolute distance, the geomorphology makes Ilan an isolated geographical region and relatively underdeveloped. Transport routes between Taipei and Ilan are either by Tai-2 Highway or by rail along the seashore or by Tai-9 Highway through mountain areas (Figure 2). On average, it takes about two hours of driving time from Taipei to Ilan, and takes around 100 minutes by rail. Besides, Ilan also serves as the entrance to the eastern part of Taiwan. Table 3 is the result of a transportation survey conducted by the Ding-Han Consulting Firm (1991), which records daily traffic volumes between Taipei and Ilan. It shows that 22 percent of the daily traffic volume from Taipei via Tai-2 Highway to the East is passing traffic, while via Tai-9 Highway, 11 percent is such. On the contrary, from the East to Taipei, 23 percent of the daily traffic volume is passing traffic via Tai-2 Highway and 6 percent via Tai-9 Highway.

Table 1 Estimate of Total Capital Required for Major Public Development Projects under Six-Year National Development Plan

Category	Number of Project	Cost Unit: Billions of NT Dollars	
		Estimate of Funds Required	Percent of Total Budget
1. Agriculture, Forestry and Fisheries	79	267.23	3.3
2. Irrigation, Water, Conservation and Flood Control	61	444.38	5.4
3. Transportation and Communication	100	2,771.37	33.7
4. Urban Development and Housing	44	931.22	11.3
5. Tourism and Recreation	30	126.53	6
6. Culture and Education	93	790.69	9.5
7. Science and Technology	67	233.46	2.8
8. Energy Development	77	999.83	12.1
9. Manufacturing Sector	73	334.14	4.1
10. Service Sector	10	40.77	0.5
11. Environmental Protection	67	289.65	3.5
12. Public Health	9	107.76	1.3
13. Social Welfare and Security	39	794.76	9.6
14. Other	26	106.44	1.3
Total	775	8,238.23	100.0

Source: Council for Economic Planning and Development, Executive Yuan, Republic of China (1991). The ROC Six-Year National Development Plan in Brief (Government Information Office, ROC).

Table 2 Ilan's Topography

Height (meters)	Area	
	Km ²	%
Under 100	499.31	23.36
100-500	574.76	26.89
500-1,000	430.70	20.15
1,000-1,500	262.27	12.27
1,500-2,500	328.31	15.36
over 2,500	42.10	1.97
Total	2137.46	100.00

Source: Bureau of Housing and Urban Development, Taiwan Provincial Government (1987) Comprehensive Planning for the Ilan Prefecture.

Table 3 Analysis of Daily Traffic Volume Entering into Ilan

Origin	Destination Ilan Hwa-Dung		Origin Ilan Hwa-Dung	
	Ilan	Hwa-Dung	Ilan	Hwa-Dung
Taipei	78	22	77	23
Taipei via				
Tai-9	89	11	94	6

Source: Bureau of Housing and Urban Development, Taiwan Provincial Government (1991) Road System Construction Planning for the Scope of Ilan Living Activity (Ding-Han Consulting Firm).

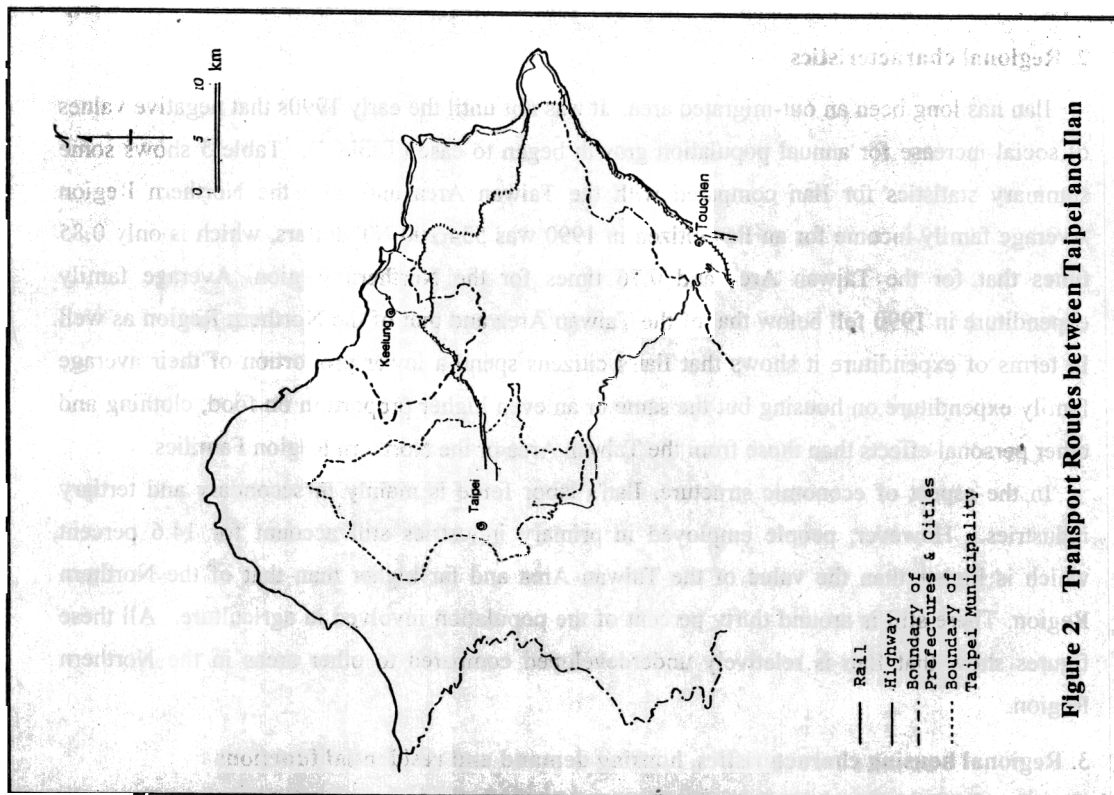


Figure 2 Transport Routes between Taipei and Ilan

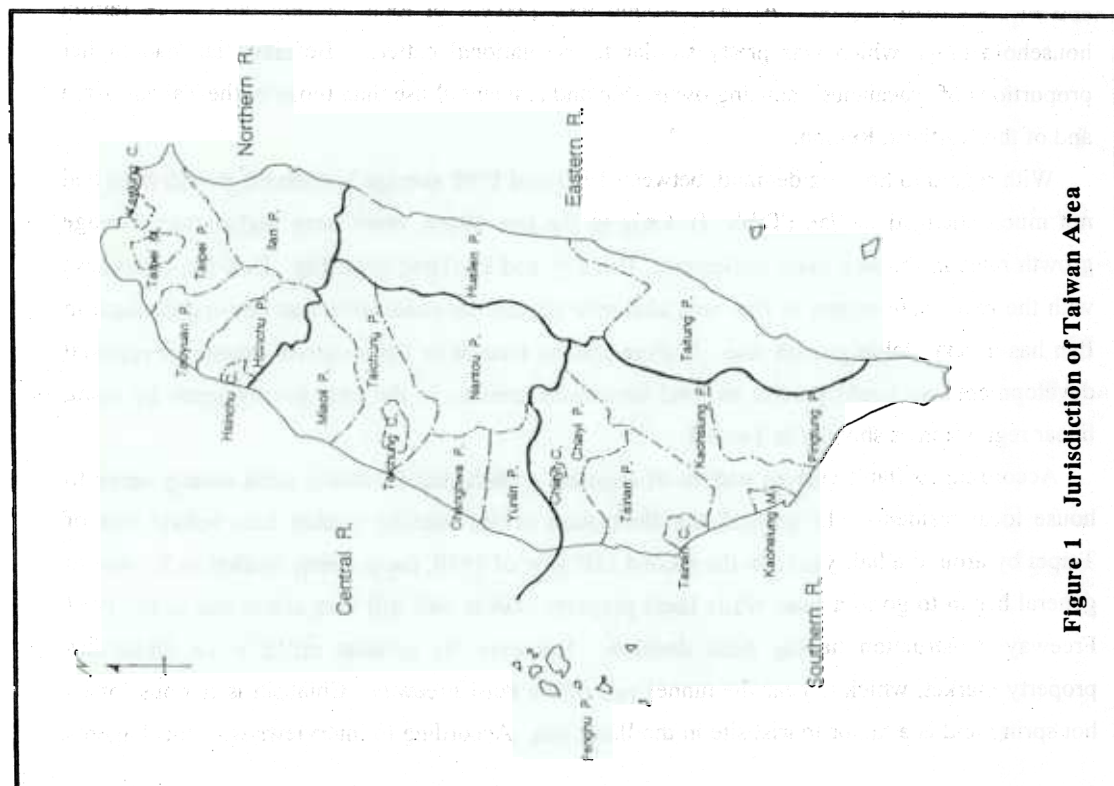


Figure 1 Jurisdiction of Taiwan Area

2. Regional characteristics

Ilan has long been an out-migrated area. It was not until the early 1990s that negative values of social increase for annual population growth began to ease (Table 4). Table 5 shows some summary statistics for Ilan compared with the Taiwan Area and with the Northern Region. Average family income for an Ilan citizen in 1990 was 534,200 NT dollars, which is only 0.85 times that for the Taiwan Area and 0.76 times for the Northern Region. Average family expenditure in 1990 fell below that of the Taiwan Area and that of the Northern Region as well. In terms of expenditure it shows that Ilan's citizens spend a lower proportion of their average family expenditure on housing but the same or an even higher proportion on food, clothing and other personal effects than those from the Taiwan Area or the Northern Region Families.

In the aspect of economic structure, Ilan's labor force is mainly in secondary and tertiary industries. However, people employed in primary industries still account for 14.6 percent, which is higher than the value of the Taiwan Area and far higher than that of the Northern Region. There still is around thirty percent of the population involved in agriculture. All these figures show that Ilan is relatively underdeveloped compared to other areas in the Northern Region.

3. Regional housing characteristics, housing demand and residential functions

Table 6 shows some housing characteristics of Ilan compared with those of the Taiwan Area and the Northern Region. At first, around 99.5 percent of total housing units were family household units, which was pretty similar to the national pattern. Besides, Ilan had higher proportions of vacancies, housing ownership and residential use than those of the Taiwan Area and of the Northern Region.

With regard to housing demand, between 1983 and 1990 average household growth rates had not much changed in Ilan (Table 7). Only in the late 1980s, there were higher than average growth rates in the two main settlements, Ilan city and Lo-Tung township. Besides, interviews with the real estate agents in Ilan area also give the similar conclusion that housing demand in Ilan has a very stable growth rate. If there was no change in Ilan's current pattern of regional development, we could predict its total household number in the next twenty years by using linear regression as showed in Table 8.

According to Ilan's current pattern of regional growth, local housing units mainly serve to house local residents. In general, the fluctuation of the housing market falls behind that of Taipei by around a half year. In the second half year of 1989, the property market in Taiwan in general began to go to a bust, while Ilan's property market was still very active due to the Pei-I Freeway construction having been decided. However, its greatest effect is on Chiahshih's property market, which is near the tunnel exit of the Pei-I Freeway. Chiahshih is famous for its hot spring and is a major tourist site in the Ilan plain. According to interviews with local agents,

Table 4 Population Growth in Ilan

Year	Population	Net increase		Natural increase		Social increase	
		pop.	%	pop.	%	pop.	%
1971	416,335	3,548	0.86	8,022	1.94	-4,520	-1.08
1975	427,655	2,966	0.70	7,280	1.71	-4,460	-1.01
1980	442,988	2,622	0.60	7,727	1.84	-5,260	-1.15
1985	449,981	148	-0.03	5,630	1.43	-5,482	-1.22
1990	450,943	2,513	0.56	4,970	1.11	-2,457	-1.54

Source: Urban and Housing Development Department, Council for Economic Planning and Development, Executive Yuan, Republic of China. (various years) Urban and Regional Development Statistics. Taipei ; Directorate General Budget, Accounting and Statistics. (various years) Statistics of Ilan Prefecture. Taipei: DGBAS.

Table 5 Summary Statistics of Housing and Population for Ilan

(1) Average Family Income and Expenditure in 1990

	Average current income	Average expenditure			
		Amount in NT dollars	Food	Clothing & other personal effects	Rent, house repairs & installation
		%	%	%	%
Taiwan Area	628,299	448,804	24.6	4.9	17.0
Northern R.	702,899	511,871	23.0	4.9	19.4
Ilan P.	534,200	394,801	23.1	5.4	13.2

(2) Industrial Distribution of Employed Persons in 1990

	Total	Primary industry %	Secondary industry %	Tertiary industry %
Taiwan Area	8,282	12.8	40.9	46.3
Northern R.	3,384	3.7	41.7	54.6
Ilan P.	185	14.6	43.2	42.2

Table 5 Summary Statistics of Housing and Population for Ilan (continued)

(3) Household, Population, Population Density in 1990

	Area (km ²)	Household	Population	Household size	Density
Taiwan Area	36,000.06	5,094,146	20,359,403	4.00	566
Northern R.	7,347.27	2,284,702	8,625,648	3.78	1,174
Ilan P.	2,137.46	101,678	450,943	4.44	211

(4) Non-agricultural Population in 1990

	Total population	% of Non-agricultural population
Taiwan Area	205,359,403	78.8
Northern R.	8,625,648	91.6
Ilan P.	450,943	69.5

Source: Urban and Housing Development Department, Council for Economic Planning and Development, Executive Yuan, Republic of China. (1991) Urban and Regional Development Statistics. Taipei Urban and Regional Development Statistics. Taipei.

Table 6 Housing Characteristics in Ilan, 1990 and 1980

(1) Type of Household, 1990

	Total units	% Family household units	% Institution units
Taiwan Area	4,959,493	99.6	0.4
Northern R.	2,215,890	99.6	0.4
Ilan P.	98,657	99.5	0.5

(2) occupancy rate of dwelling units, 1990 and 1980

	1990			1980		
	Total units	% Occupied	% Vacant	Total units	% Occupied	% Vacant
Taiwan Area	5,158,145	83.4	13.1	3,737,249	87.1	12.2
Northern R.	2,354,744	81.3	13.7	1,551,405	85.9	13.2
Ilan P.	108,382	80.1	16.5	88,883	84.2	15.1

Table 6 Housing Characteristics in Ilan, 1990 and 1980 (continued)

(3) Ownership Rate, 1990 and 1980

	1990			1980		
	Total units	% Occupied	% Vacant	Total units	% Occupied	% Vacant
Taiwan Area	4,894,531	78.4	21.6	3,256,076	79.1	11.9
Northern R.	2,176,009	75.0	25.0	1,332,022	74.3	15.4
Ilan P.	97,827	85.3	14.7	74,818	87.4	5.4

(4) Use Type of Occupied Dwelling Units, 1980

	Residential	Mixed Use		
		Industrial	Commercial	Others
Taiwan Area	88.7	2.2	8.2	0.9
Northern R.	88.9	2.4	7.8	0.9
Ilan P.	90.2	1.4	7.7	0.7

Source: Urban and Housing Development Department, Council for Economic Planning and Development, Executive Yuan, Republic of China. (1991) Urban and Regional Development Statistics. Taipei Urban and Regional Development Statistics. Taipei.

Table 7 Average Household Growth Rates between 1983 and 1990, and Total Household and Population in Ilan, 1990

	1983 to 1984	1985 to 1986	1987 to 1988	1989 to 1990	Households in 1990	Population in 1990
Ilan P	1.4	1.2	1.7	1.8	101,678	450,943
Ilan City	1.3	1.6	3.1	2.9	21,092	88,039
Lo-Tung	3.4	2.7	3.2	2.3	15,482	65,218
Suao	0.6	0.6	0.9	1.7	11,266	51,256
Touchen	0.7	0.7	1.5	1.6	7,136	34,629
Chiahsih	1.2	0.7	2.2	2.3	8,131	34,629
Chuangwei	2.2	0.9	1.6	1.5	4,796	24,105
Yuenshan	0.6	1.4	1.2	1.9	6,866	30,211
Tung-Shan	2.4	1.3	1.8	3.1	11,044	49,083
Wuchieh	1.9	4.6	2.7	2.5	8,428	36,699
Shanshin	0.2	0.0	0.2	0.8	4,970	22,283
Datung	0.3	-0.7	-0.3	-0.4	1,215	5,253
Nanao	1.4	0.3	2.6	1.7	1,252	5,567

Source: Directorate General Budget, Accounting and Statistics. (various years) Statistics of Ilan Prefecture. Taipei: DGBAS.

around 50 percent of property investors in Chiahshih are outsiders. However, the market is evaluated as being saturated now.

Table 8 Estimated Household Numbers in 1996, 2001 and 2011

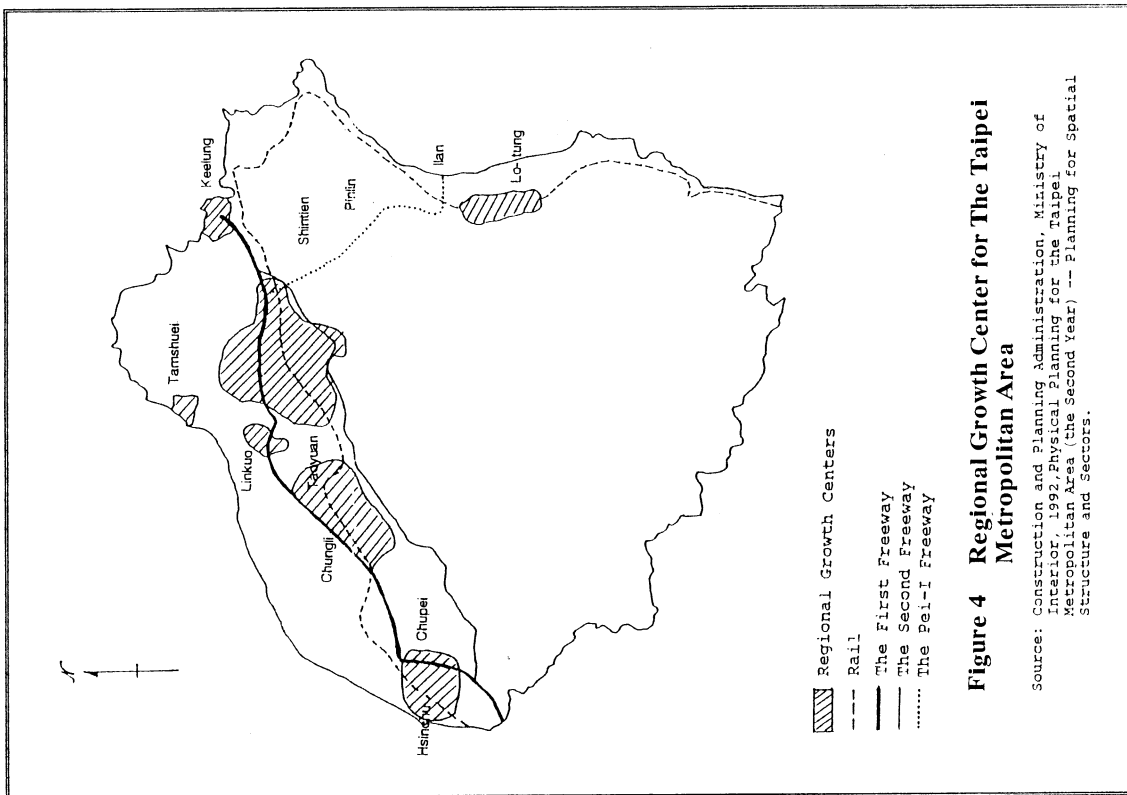
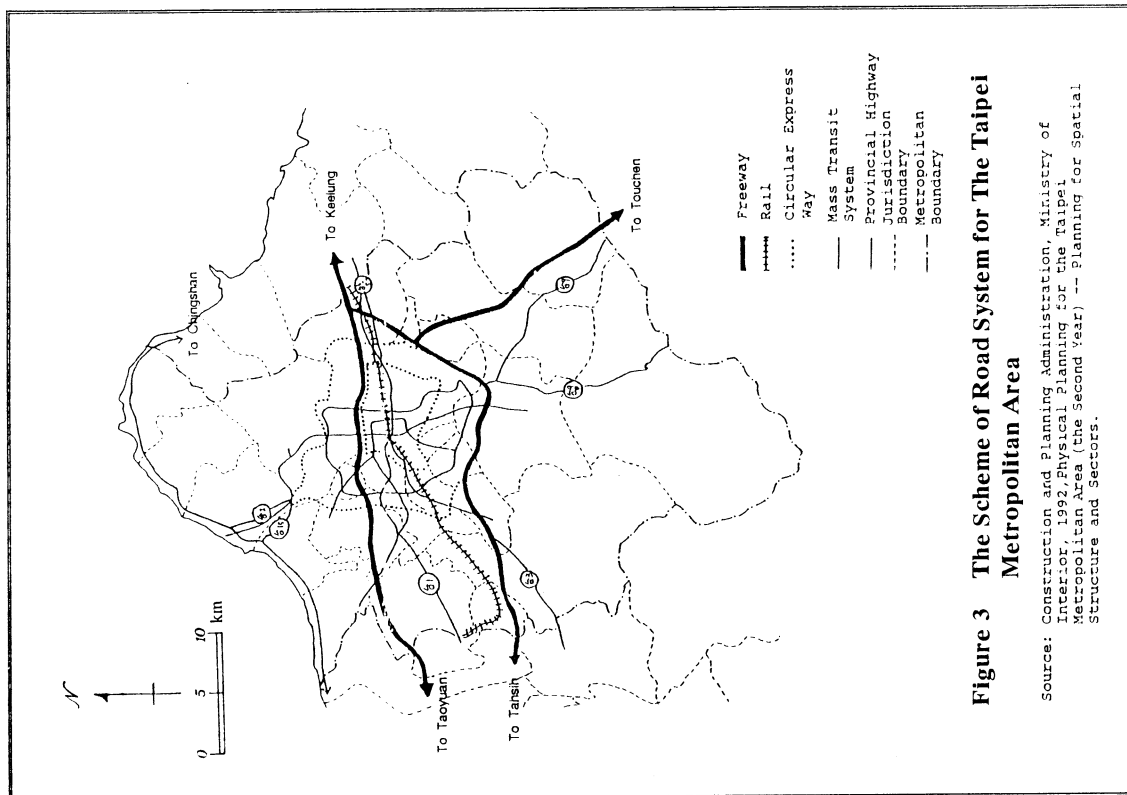
	Households No. in 1990	1996	2001	2011
Ilan Prefecture	101,678	110,836	119,146	135,766
Ilan City	21,092	23,368	25,503	29,773
Lo-Tung	15,482	17,915	19,885	23,825
Suao	11,266	11,716	12,186	13,126
Touchen	7,136	7,548	7,938	8,718
Chiahshih	8,131	8,256	8,816	9,936
Chuangwei	4,796	5,192	5,522	6,182
Yuenshan	6,866	7,309	7,724	8,554
Tung-Shan	11,044	12,043	13,018	14,968
Wuchieh	8,428	9,465	10,369	12,179
Shanshin	4,970	4,994	5,048	5,157
Datung	1,215	1,219	1,219	1,219
Nanao	1,252	1,356	1,446	1,626

4. The route of Pei-I Freeway

Figure 3 shows the proposed route of the Pei-I Freeway. It is from Taipei via Shenkan, Shintien, Pinlin, to Touchen (Ilan plain). It is 30.8 kilometers in length and 40 minutes in driving time. The freeway will also include a Pinlin Tunnel, 12.9 kilometers in length, which will be ranked the third longest highway tunnel of the world. The Pei-I Freeway not only reduces driving time between Ilan and Taipei to half compared with that of the present, but is also connected with the proposed Second Freeway in the Northern region and is well integrated into Taipei's road network (Figure 3). It will improve Ilan's accessibility to a large extent and make Ilan well integrated into the Greater Taipei Metropolitan Area (Figure 4). However, in what way will the Pei-I Freeway change Ilan's relative location and regional role in the Greater Taipei Metropolitan Area or in the Northern Region? How will this change influence Ilan's residential functions in the future?

Spatial restructuring/reorganization

Both in geography and planning, one of the main topics for studies on transport change is related to spatial reorganization (Janelle, 1969; Albert, 1971; Forer, 1978). In this vein, transport is treated as an "agent" of geographical change. Discussion usually applies the concept of time-space convergence, a process which might reorganize the spatial structure and change the spatial



role or function of a region relative to other areas. The construction of Pei-I Freeway will reduce the relative distance, especially the time distance between Taipei and Ilan from a two-hour driving time to only fifty minutes. This means that it will redefine the spatial relationship between Taipei and Ilan from a regional scale to a metropolitan scale. That is to say, the future development of Ilan, in aspects of economy, population, or housing, must be closely related to the development of the whole metropolitan area and should not be discussed independently. Under this circumstance the development of Ilan depends on its spatial division of labor in the whole metropolitan area and depends on its comparative advantages in every aspect compared to other parts of the metropolitan area.

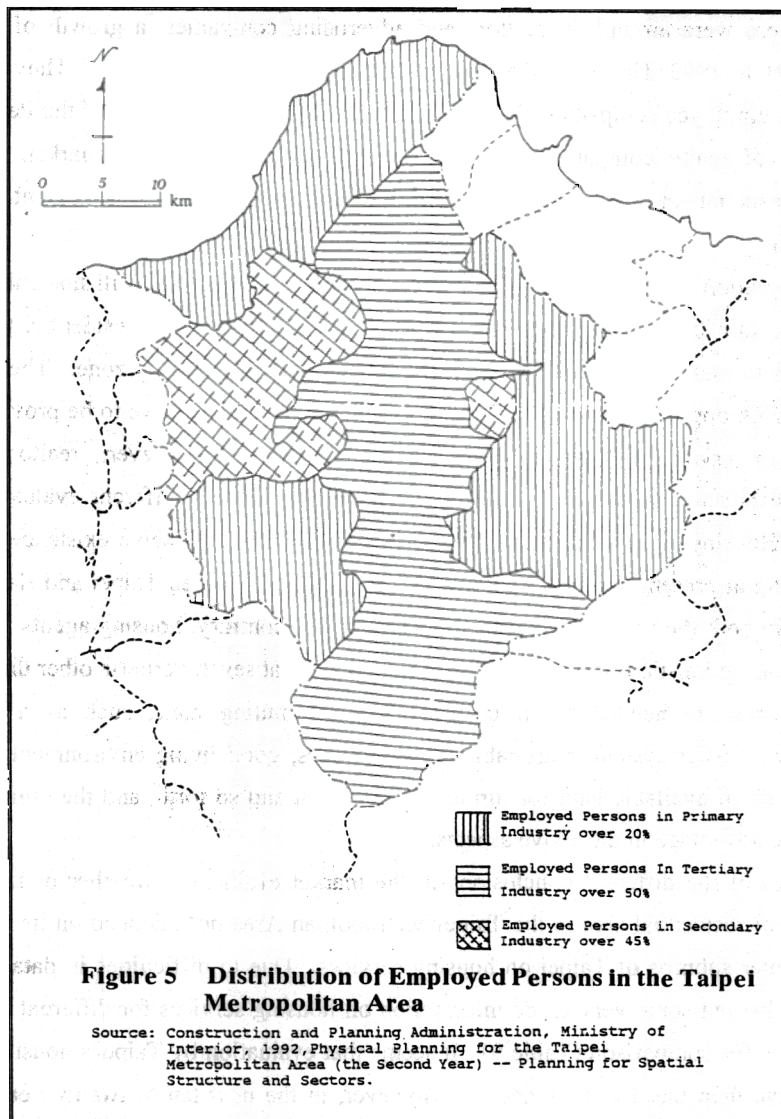
1. Changing residential functions in the process of time-space convergence

(1) On local housing demand

The impact of time-space convergence has two effects on Ilan's local housing demand. One is an indirect impact. That is through its influence on local economy to indirectly influence the growth of local population and households and to change the effective demand in the local housing market. The other is its direct impact on the local property market, which is to make the local housing market integrated into that of the metropolitan market.

Concerning Ilan's local economic development after the completion of the Pei-I Freeway, one has to look at Ilan's spatial role in the future. With respect to Ilan's relative geographical position in the metropolitan area after the completion of the Pei-I Freeway, it can only be located at the very outermost suburb. Therefore, its spatial role and economic function in the whole metropolitan area relies on the developmental trend of the whole metropolitan area. By examining Taipei's spatial evolution briefly, one will find that the Core Area is now mainly developed into commercial and service industries. Residential development is toward high-rise, high-priced apartment buildings. The development of satellite cities and outer rings is distinctively specialized (Figure 5). Basically, secondary and tertiary industries are the main economic activities for satellite cities surrounding the Taipei Municipality. Satellite cities right next to the Taipei Municipality, such as Panchiao, Yunghe, Chunghe and Hsintien, have numbers of people employed in tertiary industries which exceed those in secondary industries. Generally speaking, manufacturing activities are mainly distributed in the western part of the metropolitan area and are diffusing into the direction toward Taoyuan. However, townships in the northwest along the seashore, in the east and in the southeast have a higher proportion of employed population in primary industries than elsewhere in the metropolitan area. Particularly in the past five years, owing to land price escalation, large-scale industrial activities are out-migrated to the southern part of Taiwan or even move out of Taiwan to other parts of Asia, such as Mainland China, Thailand, Vietnam and so on. However, in the Taipei Prefecture we still could see a growth of small-scale factories, having employees under 300 (Bureau of Housing and Urban Development, 1992). This phenomenon still lacks a satisfactory explanation and

needs to be further examined, but it also indicates that small-scale manufacturing activities don't diminish their role in the metropolitan economy. However, Ilan, after the completion of the Pei-I freeway will be located at the outer suburb of the Greater Taipei Metropolitan Area, and, due to its improved accessibility and cheap land price in the metropolitan area, might have a good possibility of sustaining this developmental trend. This will probably help Ilan's economic development for a little bit compared to the present, but this kind of development is actually an extension of the industrialization pattern of the past few decades, which is basically labor-intensive in character and fails to take the cost of environmental quality into account. In brief, if the future Ilan takes this kind of development, it is going to be no different from Taipei Prefecture or Tayouan Prefecture in residential development.



In addition, the integration of Ilan's property market into the metropolitan market has several effects. At present, Ilan Prefecture's average housing price is in fifth place in the Taiwan Area and the fluctuation of housing prices follows that of Taipei with about a half-year lag; as it is integrated into the Greater Taipei Metropolitan Area, the fluctuation rate of housing prices will closely follow the path of Taipei, and the land and housing prices will also be inflated quite quickly which will have a direct effect on reducing local housing demand. The escalation of land price will change the supply of housing styles in the future, especially toward high-rise apartment buildings, which is very different from local preference. Besides, integration of Ilan's housing market with that of the metropolitan market will also make the division of labor in the local housing market become more complicated than at present. According to interviews with the local housing agents, realtors and advertising companies had not emerged in Ilan until 1989. Till 1992 there were around 50 realtors and advertising companies, a growth of 50 percent between 1991 to 1992. However, the scale of the companies is very small. They are usually two- to three-employee companies. In the next decade with the completion of the Pei-I Freeway, chain stores of realty companies will diffuse quite rapidly into Ilan's market, which will influence transaction and consumption behavior for local consumers to a great extent.

(2) On commuting

The integration of Ilan into the Greater Taipei Metropolitan Area will not only influence Ilan's internal housing demand, but also create another possibility of a residential function for Ilan. That is to make part of the Ilan area become Taipei's commuting zone. The integration means that work opportunities for Ilan's residents do not necessarily have to be provided locally. Ilan is only to serve as a dormitory town for Taipei's workers. However, realtors and other agents in the housing market from Taipei and from Ilan have a different evaluation of this possibility. Housing agents from Ilan are very optimistic. They perceive existence of demand for commuting at present, because currently the express rail between Taipei and Ilan is always full booked in both the very early and late shifts. On the contrary, housing agents from Taipei are not quite as optimistic as those from Ilan. They think that several criteria other than tolerable commuting time are needed for it to become a commuting zone, such as a convenient transportation transfer system, reasonable housing prices, good living environment and public services, a bulk of available land for further development and so forth, and they think that Ilan does not have advantage in the above aspects.

Regardless of the different conclusions in the market evaluation, whether or not Ilan will become part of residential area in the Taipei Metropolitan Area does depend on its competition with other outer suburbs of Taipei on housing services. Due to difficulties in data acquisition, we can only list out some very crude information on housing services for different areas in the Northern Area for comparison (Table 9). It seems that evaluation by Taipei's housing agents is more objective than that by Ilan's agents. However, in the next ten to twenty years, housing

services provided by Ilan might still be changed (this will be discussed in the following section) and consumer's preference on environmental quality, Ilan's comparative advantage, in the metropolitan area is predicted by many to gain priority in housing services for consumer's preference in the metropolitan area.

Table 9 Factors Influencing Residential Development for the Northern Region by Jurisdiction

	Taiwan Area	Northern Region	Taipei M.	Keelung	Taipei P.	Taoyuan	Ilan
Area of urban planned districts(km ²)	4,356	1,997	272	71	1,151	308	97
Urban planned area as % of total area	12.1	27.2	100.0	53.8	56.1	25.2	4.5 20%
Pop. in urban planned districts as % of total pop	76.6	88.4	100.0	100.0	92.9	74.0	59.8
Density in urban planned districts	3,579	3,819	10,007	4,941	2,460	3,261	2,778
Highway density	.546	.560	.340	.611	.584	.831	.380
Automobiles per 1,000 pop.	147.4	158.3	188.0	93.7	142.6	167.5	108.2
Physicians per 10,000 pop.	9.8	11.4	19.1	11.0	6.0	10.9	5.2
Housing expenditure as % of family expenditure	17.0	19.4	22.9	13.2	19.4	13.7	13.2
Air pollution suspended particles (ug/m ³)	-	-	86	115	124	111	98
Crimes per 10,000 pop	42.1	45.6	65.1	37.5	40.5	32.3	23.5
Fires per 10,000 pop	3.8	4.4	4.3	8.3	3.9	3.3	5.2
% of pop. aged 15 and over with min. of senior high school education	45.2	51.7	65.7	47.6	46.5	44.6	34.1
No. of universities and colleges and Jr. colleges	121	61	44	3	15	10	2
Local government expenditure per capita	13,985	15,958	27,961	13,886	9,235	8,962	13,045

Source: Urban and Housing Development Department, Council for Economic Planning and Development, Executive Yuan, Republic of China. (1991) Urban and Regional Development Statistics. Taipei.

(3) On recreational real estate

The third aspect of residential function for Ilan in the future might be to provide second-home property for metropolitan residents mainly for recreational (or leisure) use during holidays. At present, this type of real estate is not quite popular or has not even been considered in the market yet. The creation of this aspect of residential function in Ilan depends less on time-space

convergence between Ilan and Taipei, but more on recreational behavior/style for the metropolitan residents and on Ilan's recreational resources. Nowadays, in Taiwan working days are still five and half days a week and combining holidays with the weekend to make a long weekend has not yet been institutionalized. Therefore, it is quite impossible to promote owning a property in a resort area in Taiwan.

Internal forces

The concept of time-space convergence discusses Ilan's future role under the influence of the Taipei Metropolitan Area. It stresses a passive role for Ilan. However, we still have to explore a region's active role in the developmental process. This should not be ignored in Ilan's case in particular. Recently, the concept of "locality" has aroused a great deal of attention in regional development literature with a main theme in discussing "the difference that space makes" by emphasizing on a locale's active role in confrontation either with structural forces or with outer pressure of development or underdevelopment (Duncan, 1989). Besides, several local studies have already revealed that Ilan does differ from other areas in many aspects, especially in local politics and local social movements (Chang, 1989; Lin, 1992). However, what Ilan's locality is, how it forms and how it affects Ilan's future development are not main topics for this paper and cannot be fully explored here. I plan to use this concept just to remind the reader that in forecasting Ilan's future residential development one cannot treat the locale with passivity only. However, in the case of Ilan, I would like to discuss the role that the local government plays in influencing its future residential development in particular.

1. The role of the local state

Literature on the role that a local government plays in the developmental process does not have a generally accepted theory of the behavior and objectives of local government. There are usually three different points of view. The first is a managerialist view, which proposes that the local state is controlled by officials, and that their goals and values are crucial in determining policy outcomes (Pahl, 1977). The second takes a structuralist view and thinks that the local state is an adjunct of the national state, with both acting in response to the prevailing balance of class forces within society (Cockburn 1977). The third is an instrumentalist view and treats the local state as an instrument of the business elite (Poulantzas, 1973; Castells, 1977).

Empirical studies on urban and regional development in Taiwan either take structuralist or instrumentalist view points. On discussion the regional spatial policies in Taiwan, Sun (1988) is prone to take a structuralist view point, that treats the state as the mediation of economic and social relations of the society and analyzes how the state has been using regional development policies to formulate the regional spatial structure of Taiwan. His discussion emphasizes more the role of the central state rather than the local state, but implies a lack of autonomy of the local

state under the central state's regional policies. While in an empirical study on Panchaio examining the relationship between state and local urban development, Tasi & Chang (1992) put their efforts on analyzing the state and local urban elites, because it is the state and local urban elites that can really influence the formation and implementation of urban policies and eventually influence local urban development. They tend to take an instrumentalist view point and treat the local state as the agent of the central state and think that both have the same logic of social action. They also think that there is no self interest and administrative autonomy for the local state in Taiwan.

Both take similar viewpoints in dealing with the relationship between the central government and the local government. That is because in the past forty years, Taiwan's central government has been an authoritarian regime in character, which uses economic interest related to regional or urban development in exchange for the local fraction's political compliance and support. This kind of patron-client relationship is applied both by Chang (1989) in discussion of Taiwan's urban and regional policies and Chen & Chu (1992) in regional oligopolistic economic activities.

Besides, the lack of autonomy in local government is also shown in the financial structure between central state and local state in Taiwan. In 1990, there was one city and ten prefectures (Keelung City and Hsinchu, Ilan, Nantou, Yunlin, Chiayi, Tainan, Pingtung, Penghu, Hualien and Taitung Prefecture) which had fifty percent of their revenue aided and subsidized by the central government. That is to say, central government can use aids and subsidies to control local government.

2. Local government in Ilan's developmental process

However, in Ilan's case it is necessary to examine the local government's role in a subtler way than the above. That is because the opposition party has led Ilan for at least twelve years. Therefore, by examining the role of the local state in Ilan's local development, we not only have to discuss the relationship between central state and local state but also have to discuss the different ideology and interest of the governing party in local development.

Ilan is led by a DPP (Democratic Progress Party) prefecture head and is a relatively underdeveloped area which makes its public finance more difficult than elsewhere. Also, for the same reason, a client-patron relationship between the central government and local factions in Ilan has been blocked. Though the local prefecture council is still controlled by the KMT, the prefecture head always asks for support directly from the public, which deepens a participatory democracy in prefecture affairs. Besides, in the past decade, two opposition-party prefecture heads in Ilan have made a lot of effort in reforming local bureaucracy and have recruited several capable, high-level civil servants in the prefecture government. All of these actions improving the qualification of the prefecture officials, the local managers in deciding policies of local development, have given a very outstanding performance for the local government in the history of Taiwan's politics.

In addition, the prefecture head of Ilan announced that there are three long-term objectives for Ilan's local development: pro-cultural development, pro-environmental conservation, and pro-recreational industries. In the past few years the local government of Ilan has put a large proportion of its limited financial resources toward the development of the above three objectives. For example, it is the first local government in Taiwan that tried to make a "conservation constitution" for the prefecture. It is also a local government that seriously cares for planning for local development.

All of these do have important implications in the development of the local economy and in local residential development. In the previous section, I already discussed the point that if Ilan is going to compete with other outer suburbs of the metropolitan area, it has to create its own locational advantages, while in residential development it has its comparative advantages in housing services. Therefore, it depends on whether or not the prefecture government can successfully develop these for its long-term objectives. Definitely the success of this effort is still limited by the power game between the local government to gain autonomy against the central government in Taiwan. However, the story of Ilan shows some possibility for local autonomy in struggling for its own way of development.

Besides, there are some policy instruments for local government that can work for their own developmental objectives. What has been proposed are such as (1) to reform the urban planning committee (2) to re-examine urban and regional planning and to make a comprehensive local plan; (3) to prevent corruption in public projects and to improve the quality of infrastructure; (4) to win back public space or buildings now occupied by KMT for public uses; (5) to reduce working hours, to promote flexible vacations and to cancel unnecessary rites; (6) to re-evaluate the use of public land; (7) to promote national health insurance; (8) to improve the quality of education in primary and high schools, to use local materials and local language for teaching; (9) to establish a prefecture bank; (10) to set up local media; (11) to be against nuclear power plants, and other polluting plants and so on (Chang, 1989, p.171). Many of the above proposals have been put into practice in Ilan and gained success to some degree. Consequently, Ilan does show some potential in formulating its own role for local development, which will create its comparative advantages for local economic as well as residential development to a large extent.

Conclusion

The construction of the Pei-I Freeway will change Ilan's spatial role in the Northern Region of Taiwan. The relationship between Ilan and Taipei will be changed from a regional scale to that of a metropolitan scale. Under this circumstance, the residential functions of Ilan will be affected to some extent. At present the local housing market is mainly served to fulfill internal demand, which keeps a relatively stable pattern of growth. However, the integration of Ilan into

the metropolitan area will not only influence local demand structure, but will also create some other residential functions for Ilan, such as to become dormitory towns for metropolitan workers or to provide second-home property for recreational uses for metropolitan residents.

The development of these three types of residential function is conditioned by Ilan's spatial role in the future metropolitan area and by its ability to compete with other outer suburbs of the metropolitan area. However, with regard to competition, one cannot ignore an active role that local government plays in the creation of a pro-cultural, pro-conservation, and against-polluting-industry prefecture. If local developmental objectives can be successfully achieved, Ilan will create a locational advantage in many aspects of the housing services for residential development.

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