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Abstract: Since the 1990s suburbanization has been continuing in China along with the deepening of market transition. The process of suburbanization has gone beyond purely government-initiated relocation of households and polluting industries. Based on the newest population census, this paper identifies some major new trends of suburbanization in Beijing. The new round of suburbanization has been driven by the construction of suburban villas and affordable housing, rising private car ownership, the decentralization of industry, and the development of large suburban shopping malls and retail parks. Passively relocated households are no longer the dominant source of suburbanization. Suburbanization in Beijing has evolved into a new stage of more market-oriented development in the suburbs.

Key words: suburbanization, population census, Beijing, China

1. Introduction

The purpose of this paper is to reflect on the similarities and differences in the operation of the processes underpinning urbanisation in China and the West. Using the newest population census, we argue that the startling differences identified in earlier research (e.g. Zhou & Ma

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4 2000) began to fade off. The new round of suburbanisation since 1990 has seen more
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6 market-driven rather than government-led processes: residential suburbanization is driven by
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8 rising car ownership and preference for suburban villas and quality housing; industrial
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10 relocation is facilitated by the development of suburban industries; and retail suburbanisation
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12 began to appear in the form of large shopping malls and retail parks. This is not to suggest that
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14 Chinese suburbanisation takes an identical form in the West. However, the differences are
15
16 related to the different stages of suburbanisation rather than being caused by the dichotomy of
17
18 market and planned economies.

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22 The literature of 'new suburbanisation' (e.g. Garreau 1991; Stanback 1991; Knox 1993)
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24 suggests the stage of suburbanisation since the 1980s in the West (especially the USA) is
25
26 different from predominately residential suburbanisation in the 1960s and 1970s. Chinese
27
28 suburbanisation began from a very different starting point. Suburbanisation started from
29
30 government sponsored industrial relocation before the substantial land and housing reforms
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32 began. Now, the process of suburbanisation has seen not only the relocation of industries and
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34 workers from the city to the suburbs but also the development of a full-fledged suburban
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36 economy.

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40 The paper uses the city of Beijing as an empirical case. It examines residential, industrial and
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42 retail suburbanization trends. The structure of the paper is as follows. In sections 2 and 3, the
43
44 literature of suburbanization in the West and China is reviewed. Then, in section 4,
45
46 suburbanization between 1990 and 2000 is analysed in terms of changes in population and
47
48 population densities. Section 5 describes new trends of suburbanization and consequences of
49
50 suburbanization. Section 6 is the conclusion.

51 52 53 54 **2. Suburbanization and 'new suburbanization' in the west**

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56 Suburbanization is a process through which population shifts from the city to suburbs (Johnson,
57
58 1974; De Vise, 1976; Stanback & Knight, 1979; Scott, 1982; Hall, 1984; Gad, 1985). However,
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60 the process of suburbanization exerts a significant impact on everyday life, commuting and
work. In this sense, the United States is now a suburban country rather than an urban country

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4 (Palen, 1997: 198). The driving forces of suburbanization changed in the 1980s. T. Champion
5 (2001: 148) states, “Originally, suburbanization was dominated by the housing needs and
6 aspirations of the family, with the emphasis very much on the male breadwinner and on the
7 healthy space in which the mother could devote her time to bringing up her children and
8 providing for her husband. As a result, residential suburbanization and the dominant process of
9 population redistribution formed the first tidal wave of suburbanization in Western countries
10 after World War II.”
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20 Since then, the decentralization of manufacturing, commerce, retail, and office work has
21 brought about new waves of suburbanization in Western countries (T. Champion, 2001; Coffey
22 & Shearmur, 2002). Industrial suburbanization is attributable to two factors, one making the
23 central city increasingly unattractive for industry, and the other making peripheral locations
24 attractive (Scott, 1982). Industrial suburbanization has brought many consequences, such as
25 the reduction in the central city’s tax base, wide-ranging repercussions in terms of the spatial
26 distribution of employment opportunities, damage to employment opportunities for black
27 people, and increases in the length of the journey to work (De Vise, 1976; Cadwallader, 1996).
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38 One of the major changes in the pattern of retailing since World War II has been the
39 suburbanization of commerce, and in particular, the emergence of large, planned shopping
40 centres (Cadwallader, 1985: 97). Until the mid-1980s, shopping centres became increasingly
41 larger, incorporating other services besides retailing, and regional-level shopping centres had
42 become catalysts for the overall suburbanization process, acting as local growth poles
43 (Cadwallader, 1996; Jackson, 1985). Palen (1997: 143) thinks, “If the dominant urban symbol
44 for the beginning of the twentieth century was the skyscraper, the dominant symbol for the
45 beginning of the twenty-first century is the suburban shopping mall.”
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56 Office functions also followed the trend of suburbanization. The facts are that the economics of
57 real estate and a revolution in communications have changed the circumstances that office
58 companies depend on; that insurance companies, bank branches, regional sales staffs, and
59 doctors’ offices have reduced their costs and increased their accessibility by moving to
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4 suburban locations; and that many companies are balkanizing their accounting departments,
5 data-processing divisions, and billing departments, which can be far away from the CBD; all
6 these facts have driven the development of office suburbanization (Jackson, 1985: 267-268).
7
8 The process of office decentralization differs, depending on the type of office function and its
9 hierarchy, and the decentralization of office locations to the suburbs has two aspects: one is to
10 relocate, and the other is to develop new business in the suburbs (Castells, 1989). White-collar
11 office jobs have also been suburbanized. In short, the exodus of manufacturing, shopping and
12 offices has created a multi-nucleated pattern of outer suburban centres (Pallen, 1997: 198-199).
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22 Since the 1990s there has been an increase in the literature of suburbanization (Stanback, 1991;
23 Garreau, 1991; Bier & Howe, 1998; Jordan et al., 1998; A. G. Champion, 2001; Graves, 2003).
24 In the 1990s, intra-metropolitan distributions of economic activities and employment became
25 the major focus of research, including edge cities (Garreau, 1991), new suburbanization and
26 magnet areas (Stanback, 1991), agglomeration and dispersion of high-order services (Coffey et
27 al., 1996; Coffey & Shearmur, 2001, 2002), suburban employment centres (McDonald &
28 Prather, 1994; McDonald, 2000; Small & Song, 1994), the polycentric structure of the
29 metropolitan region (Bontje, 2001; A. G. Champion, 2001), and the geographies of producer
30 services (Coffey, 2000).
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42 Stanback (1991: 120) developed the concept of 'new suburbanization' to suggest the latest
43 stage of suburbanization: "major new centres of business consumer and social services have
44 developed, giving rise to agglomeration economies and posing new challenges to the social and
45 economic structure of the central city." New suburbanization – with its suburban downtowns
46 and edge cities – is increasingly being seen as challenging city centres and threatening to turn
47 the traditional metropolitan area inside out, and the distinction between urban and suburban has
48 become increasingly blurred across the more developed world (T. Champion, 2001: 150). In
49 western suburbanization, the government has played a considerable role, sometimes directly
50 (such as the UK's New Town Programme from 1946), but also sometimes indirectly (such as
51 the USA's public-sector freeway construction and tax relief on home purchase). However, 'new
52 suburbanization' is increasingly driven by market forces in the post-industrial city.
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3. Suburbanization in China

Recently there has been a growing literature of urban development in China. The literature contributes to the understanding of suburbanization in China, including migration and residential mobility (Li, 2001; Fan, 2001 & 2002), social structure and sociospatial differentiation (Lo, 1994; Hu & Kaplan, 2001; Gu & Wang, 2005), housing development and reform (Logan et al., 1999; Wang & Murie, 1999; Li, 2000; Huang & Clark, 2002), urbanization and suburbanization (Wang & Zhou, 1999; Zhou & Ma, 2000; 2003), new changes of urban process and landscape (Logan, 2001), and internal structure and restructuring (Yeh & Wu, 1995; Ning & Yan, 1995; Wang & Wang, 1998), and governance and administrative changes (Zhang & Wu, 2006). But there is still a lack of up-to-date research on suburbanization.

Research on suburbanization in China was developed in an earlier paper by Zhou and Ma (2000), emphasising the passive side of suburbanization. However, the driving forces have changed since 1990. Figure 1 describes the new forces which transform the process of suburbanization from 'passive' government-led to 'active' market-oriented. The first new force is active residential relocation in the suburbanization process. In the 1980s, households could not make relocation decisions. They were relocated by the government through the renewal of old urban areas. In the 1990s, more and more households moved out of the core to the suburbs, partly because of inflated house prices in the core and partly because of a greener environment in the suburbs (Huang & Clark, 2002; Feng & Zhou, 2004a, Feng, 2004). Second, because of the land market, industrial enterprises decided to relocate so as to obtain additional money from land sales and more space in the suburbs for production. The relocation of industries is implemented through the land market. Many enterprises are willing to be relocated or in fact seek relocation by themselves. This is very different from previous government-led factory relocation. Third, commercial suburbanization, mainly caused by the construction of large shopping centres in the suburbs, has shifted the pattern of consumption towards the suburbs. With the construction of ring roads and fast roads, the accessibility of the suburbs is enhanced.

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4 New trends of suburbanization include social driving forces as well as economic forces.
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6 Market-oriented active relocation is related to social polarization in the city (Gu & Kesteloot,
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8 1997) and the changing residential preferences of some residents. There was a well-known
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10 saying in the past, “preferring a bed in the central city to a house in the suburbs” (Wang & Zhou,
11
12 1999), indicating that many residents were unwilling to move out of the core because of the
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14 lack of basic facilities in the suburbs. However, suburban landscapes have changed since 1990.
15
16 Households began to seek a better environment and a lifestyle based on the private car, while
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18 low-income households have had to buy affordable housing in suburbs because it is cheaper
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20 there. The suburbs are becoming more attractive than they were in the 1980s.
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24 **4. Suburbanization in Beijing between 1990 and 2000**

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28 As the capital of China, Beijing has greatly expanded since 1949. The master plan in 1958,
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30 under the influence of the Soviet town-planning model, aimed to transform the consumer city
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32 into a producer city. With much emphasis on industrial development, twelve
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34 industrial–residential clusters were designed in suburbs, each of which was led by a key state
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36 work unit to unify working and living (Gu et al., 2005; Sit, 1995; Yeh & Wu, 1995). In 1983,
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38 the master plan specified that government, research institutes and universities should expand
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40 into the suburbs. Satellite towns were planned in the 1980s (Beijing Planning Committee,
41
42 1983). Suburbanization thus started in Beijing, but was mainly driven by the government plan.
43
44 In the literature, it has been argued that suburbanization in China is very different from that in
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46 North America (Zhou & Ma, 2000; Zhou & Meng, 2000; Wang & Zhou, 1999; Zhou, 1996),
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48 because intra-urban residential moves in Beijing were not based on households’ residential
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50 preferences. Private car ownership was not common in China. But suburbanization began to
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52 accelerate in the 1990s, as shown in the city of Hangzhou (Feng & Zhou, 2005). With
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54 large-scale construction of ring roads, highways and fast roads, the development of villas,
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56 affordable housing schemes and second homes, the formation of a land market, speeded-up
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58 industrial relocation, and the emergence of shopping malls in suburbs, suburbanization in
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60 Beijing has seen some new trends. Administrative annexation under a new mode of governance
has also been triggering the expansion of urban areas towards suburban counties (Zhang & Wu,

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4 2006). The new trends present active suburbanization initiated by residents, industrial
5 enterprises and retail companies. This is different from the passive form of relocation (active
6 and passive forms of suburbanization are defined based on whether the decision-making is
7 bottom-up from land users or top-down from the government).
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14 This study uses population censuses because they are the most accurate and comprehensive
15 data so far available. Because census data are collected based on residence, it is not entirely
16 proper to use census data to describe employment locations. In China, five population censuses
17 were carried out up until 2000; these were the first in 1953, the second in 1964, the third in
18 1982, the fourth in 1990, and the fifth in 2000. Data from the third, fourth and fifth national
19 population censuses are used in this study.
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28 The administration structure of Chinese cities is complicated because of the division between
29 the urban and the rural in the planned economy (Ma & Cui, 1987). The city region of Beijing
30 consists of the metropolitan area (urbanized area) and rural counties. The metropolitan area can
31 be further divided into the core urban districts (old urban area), the inner suburbs and the outer
32 suburbs (Figure 2). The continuous built-up urban area roughly covers the core and inner
33 suburbs. The rural counties outside the metropolitan area are defined as the 'level two outer
34 suburbs', which are basically rural areas outside the commuting field. The zones are
35 customarily defined according to the administrative system. The metropolitan area consists of
36 14 districts. Urban districts are different from counties in that the latter are rural administrative
37 units. Along with urban expansion, many counties in Chinese cities have been annexed into
38 urban districts.
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52 The core urban area of Beijing, comparable to the city centre, is composed of four districts:
53 Dongcheng, Xicheng, Chongwen and Xuanwu; the inner suburbs include the four districts of
54 Chaoyang, Fengtai, Haidian and Shijingshan; and the outer suburbs include the ten districts /
55 counties of Tongzhou, Daxing, Fangshang, Mentougou, Changping, Shunyi, Yanqing, Huairou,
56 Miyun and Pinggu (Sun, 1992; Zong, 2002). In Beijing, ring roads are also often used for
57 spatial reference, but for the study of suburbanization and for the sake of compatibility with
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4 census data, administrative boundaries are better.
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8 Beijing began its suburbanization in the 1980s and accelerated its steps in the 1990s.
9 Suburbanization occurred intensively in the inner suburbs in the 1990s. During the period from
10 1990 to 2000, the population of the core decreased from 2.337 million to 2.115 million, with a
11 net loss of 9.5%. In comparison with the period from 1982 to 1990, the core lost 82,000 people
12 with a growth rate of -3.38%. The decline of population in the core became much more obvious
13 in the 1990s. Because the natural growth rate of population in the core of Beijing was positive
14 in these periods (Zhou, 1996), the decline of population in the core signifies the relocation of
15 residents to suburbs. The population of the inner suburbs increased from 3.989 million in 1990
16 to 6.389 million in 2000, an absolute growth rate of 60.15%. Compared with a population
17 increase of 1.149 million, a growth rate of 40.46% in the period from 1982 to 1990, the
18 population of the inner suburbs in Beijing increased significantly in the 1990s. The population
19 of the outer suburbs increased from 4.494 million in 1990 to 5.066 million in 2000, with a
20 lower growth rate than in the 1980s (Table 1). In the 1980s, the difference in population growth
21 between level one (urbanized) suburbs and level two (rural exurb) suburbs was not obvious. In
22 the 1990s fast population growth occurred in the level one outer suburbs. The inner suburbs
23 gained much more population in the 1990s, with the population growth rate increasing by
24 about 20%. More population from the core moved out, mainly to the inner suburbs, but some to
25 the outer suburbs (especially level one).
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46 Beijing's suburbanization mainly occurred in the inner suburbs. Figures 3a and 3b present the
47 distribution of population growth rates in the Beijing metropolitan area during the periods from
48 1982 to 1990 and from 1990 to 2000. In the 1990s, population decentralization became more
49 obvious. During the period from 1982 to 1990, 36 subdistricts lost population, while during the
50 period from 1990 to 2000, the number of such subdistricts amounted to 99. In the 1980s, these
51 subdistricts were located in the core, and in the west of Mentougou District, which is a
52 mountainous area. In the 1990s, some subdistricts in the core that had lost population in the
53 1980s continued losing population. But many more subdistricts in the outer part of the
54 metropolitan area began to lose population. Moreover, in the 1980s, the growth rates of
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4 subdistrict population in Beijing were less than 40%. Nineteen subdistricts with more than 40%
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6 growth rates were in the inner suburbs but closer to the core. Only three subdistricts saw a
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8 population growth rate of more than 100%. In the 1990s, the subdistricts with the highest
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10 population growth rate (more than 100%) were still concentrated in the inner suburbs, with the
11
12 distribution extending considerably toward the edge of the inner suburb, and also extending to
13
14 some areas in the outer suburbs. Seventy subdistricts saw a population growth rate of more than
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16 40%, 33 more than 100%, and 13 more than 200%.

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20 Through suburbanization, population densities declined in the 1990s. The highest subdistrict
21
22 population density decreased from 47,000 persons / km² in 1990 to less than 37,000 persons /
23
24 km² in 2000. High density areas (more than 30,000 persons / km²) extended outwards from the
25
26 core to the inner suburbs. Figure 4a presents the population density in 2000 and Figure 4b
27
28 shows the changes in subdistrict population densities during the period from 1990 to 2000. The
29
30 subdistricts with population density decreasing by more than 1,000 persons / km² were located
31
32 in the core, while subdistricts with population density increasing by more than 5,000 persons /
33
34 km² were in the inner suburbs.

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38 The rapid growth of the inner suburbs may also be attributable to the incoming of migrant
39
40 population. Table 2 shows that migrant population in the inner suburbs increased by 389% in
41
42 the 1980s and by 407% in the 1990s. Consequently, the inner suburbs of Beijing saw fast
43
44 growth of migrant population, which further exacerbated the 'urbanization of the suburbs'.
45
46 However, narrowly defined 'suburbanization' only refers to the relocation of urban households
47
48 to suburbs. Therefore we need to understand the impact of migrants on population distribution
49
50 so as to identify the process of suburbanization of urban households. In the period from 1982 to
51
52 1990 the core lost 3.4% of its total population. But the decline of the permanently registered
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54 urban population reached 6.1%. In the 1990s, the decline of the total population was 9.5% but
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56 the permanently registered population in the core declined by 18.2%. In the inner suburbs of
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58 Beijing, the permanently registered population increased by 880,000, while the total
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60 population increased by 1.150 million from 1982 to 1990. In the 1990s, the permanently
registered population increased by 1.130 million and the total population by 2.400 million.

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4 Therefore, both in the 1980s and in the 1990s, permanently registered residents relocated
5
6 outwards to the suburbs. Rapid inner suburban population growth is caused by not only the
7
8 arrival of migrants but also by the relocation of urban households.
9

10 11 12 **5. New trends of suburbanization**

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14 In this section we examine the recent trends of residential, industrial and retail suburbanization.
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16 The new elements of suburban built forms are listed in Figure 5.
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18 19 20 **5.1 Residential suburbanization**

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23 Real estate developers in the 1990s began to promote the concept of suburbanization in
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25 housing development. They called on people who could afford high quality living to move out
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27 of the core to a more comfortable suburban environment, because the core had a very high
28
29 population density, traffic jams and polluted air. The number of villa projects in Beijing
30
31 amounts to about 160, with more than 40,000 villa units. Villa customers are mainly affluent
32
33 people, while affordable housing is theoretically for lower income households but in reality is
34
35 sold to better-off households, i.e. middle class.
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40 In recent years, the demand for townhouses has increased (Institute of Soufang, 2003). Most
41
42 townhouses are built in the suburbs of Beijing, in consideration of the cheaper land prices.
43
44 There were 80 villa projects on sale at the end of 2002, with most of them distributed in the
45
46 north-east and north suburbs of Beijing, in particular near the north-east 4th ring road and along
47
48 the airport road, and in the area from the Asian Games Village to Haidian and Changping. The
49
50 villa projects in the north-east and north suburbs of Beijing account for 65% of the total.
51
52 Chaoyang has the greatest provision of villas. Of villas built from 1999 to 2003, 98.3% were in
53
54 the suburbs (65.9% in the outer suburbs). In the outer suburbs, villas are mainly concentrated in
55
56 Changping, Shunyi, Tongzhou and Daxing. Villas in southern suburbs tend to be closer to the
57
58 inner suburbs (Figure 5).
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The construction of affordable housing, a subsidized form of commodity housing (through

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4 waiving land charges to developers), in urban China since 1998 has stimulated suburbanization.
5
6 As a kind of subsidised housing after the abolition of housing allocation by work units,
7
8 affordable housing refers to housing built under favourable terms with a waiver of land fees.
9
10 The price is much lower than commodity housing in the open market (Wang & Murie, 1999).
11
12 From 1998 to 2001, 31 affordable housing projects were built in Beijing, with investment of
13
14 31.74 billion Yuan. Seventy-six per cent of affordable housing is located in the inner suburbs,
15
16 with less than 20% located in the outer suburbs, and only about 5% located in the core. If
17
18 divided by the different ring roads, 84% was outside the 3rd ring road, and 60% was outside the
19
20 4th ring road. The development of affordable housing has led to the relocation of workers and
21
22 other low-income households to the suburbs.
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26 Related to the suburbanization of the second home in the West (Pacione, 1984) is the attraction
27
28 of suburbs as places for leisure and recreation. Today, many residents visit their second homes
29
30 located in the suburbs for the weekend (Li, 2002). In Jingxia, a luxury residence near Miyun
31
32 reservoir, about 70% of houses are used as second homes. With the emergence of the new rich
33
34 (Hu & Kaplan, 2001) and the development of the housing market (Huang & Clark, 2002),
35
36 better-off households also buy second homes as investment assets. Some are leased for a profit,
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38 while others are kept for use in extended holidays and as investments.
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42 Major road improvements have contributed to suburbanization. By 1990, the 2nd and 3rd ring
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44 roads had been completed, and by 2004 the 4th and 5th ring roads had been completed, with the
45
46 6th ring road under construction. Since the 1990s, more than 10 arterial roads radiating from the
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48 core to the suburbs in Beijing have greatly increased the accessibility of the suburbs, thus
49
50 promoting suburbanization and the construction of villas and affordable housing in the suburbs.
51
52 Private car ownership has also contributed to suburbanization since 1990. In the 1980s, those
53
54 who could afford to buy cars in China were few and extremely rich, such as the owners of
55
56 private enterprises, famous actors and actresses, and sports stars. There were only 1,107 private
57
58 cars in Beijing in 1985 (Zhou, 1996). Since then, more and more people have bought private
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60 cars. In 2002, 12% of all households in Beijing owned private cars (Wang, 2002). About 60%
of all cars in Beijing are privately owned (Wang, 2001). By July 2002, the number of cars in

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4 Beijing was about 1.8 million, of which the number of private cars was 1.1 million. In terms of
5 transport mode, the percentage of private cars rose from 6% to 18% between 1990 and 2002.
6
7 By the end of 2005, Beijing's private motorized vehicles had reached 1.8 million, of which
8 private cars amounted to 1.54 million (Table 3). Private cars did not play an important role in
9 suburbanization in the 1980s because of the low private ownership rate. However, in the 1990s,
10 more and more commuters in Beijing began to use private cars.
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18 Residential preferences have also changed. House prices in the core are much higher than in the
19 suburbs, because the land in the central area is more expensive. For ordinary workers, moving
20 to the suburbs becomes a practical way to improve housing conditions. Even for the rich and
21 the middle class, villas or high-quality apartments in the suburbs become attractive, because
22 the living environment there is better than in the central city. Residents were unwilling to move
23 out of the core in the past, but in recent years there has been a popular saying about 'larger
24 house, better life'.
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34 Compared with suburbanization in the USA and other western economies, suburbanisation in
35 China did not start from large-scale residential relocation. But increasingly, residential
36 suburbanisation became an important driving force. To some extent, current residential
37 suburbanisation shows both the feature of residential suburbanisation in the 1960s in the USA
38 and also more fragmented and exclusive gated communities development nowadays.
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45 **5.2 Industrial decentralization**

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49 Since the 1990s, Beijing's industrial suburbanization has accelerated. In terms of land use, the
50 proportion of industrial land use experienced a 4% decline from 1987 to 1995. From 1985 to
51 1997, about 59.23 ha of land were vacated due to the moving of industrial enterprises, of which
52 71% was from the core. From 1995 to 1999, 171.8 ha of land were unoccupied because of
53 industrial relocation, especially of polluters or enterprises that disturbed local residents (Yu,
54 1999; Wu, 2000). The proportion of industrial land use within the 4th ring road decreased from
55 8.74% to 7.26% between 1999 and 2002. As a result, the Planning of Adjustment of Industrial
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4 Distribution in Beijing in 2002 specified a target of 7% of industrial use in 2005, but the figure
5 was reached in advance. In 2005, Beijing planned to move more than 150 industrial enterprises
6 out of the municipality, vacating land of 900 ha, with the proportion of industrial land use in the
7 built-up area falling to less than 6.6% (Wang, 2002; Zhu, 2002).
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14 Industrial decentralization is due to a number of reasons. First, the moving and renovation of
15 polluting industrial enterprises accelerated in the 1990s because of the need to achieve a better
16 environmental quality. The Beijing government needs to meet the requirements of the 'Green
17 Olympic Games' in 2008 and has thus accelerated industrial relocation.
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24 Second, the land leasing system was established in the 1990s. Prior to the 1990s,
25 compensatory payments for enterprise relocation were much lower because there was no land
26 market in urban China. Only after 1992, when Beijing began to evaluate the price of urban land,
27 did compensatory payments increase significantly. From 1985 to 1995, the compensatory
28 payment for moving in Beijing was 1.178 billion Yuan, while from 1995 to 2000 it was 12.07
29 billion Yuan. With the land leasing system, relocated enterprises can obtain more money from
30 land transfer to support their moving and redevelopment. In fact, since the 1990s, industrial
31 suburbanization has not been confined to the moving of polluting enterprises. Some
32 non-polluting industrial enterprises have also moved so as to get land payments.
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44 Third, industrial enterprises use relocation to obtain more space and adjust their products
45 through technological innovation using money from land transfer. A good example is Beijing's
46 asphalt and concrete factory, located in the Asian Games Village. In 1997, the factory moved to
47 Changping, an area in the outer suburbs. The money from the land transfer made it possible for
48 the factory to buy an advanced production line from the US and Japan. The problem of
49 pollution from noise and dust was solved. Moreover, the factory improved its products after
50 moving, bringing more profit. Many industrial enterprises began to move actively in the 1990s
51 in order to take advantage of the opportunity for innovation and redevelopment.
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Fourth, industrial decentralization is also a requirement of urban plans. The master plan of

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4 Beijing in 1983 requires that polluting industrial enterprises in the core or within the 3rd ring
5 road should stop production and move out. In 1988, the Beijing planning department listed
6 about 100 enterprises to be relocated. In the 1990s, the plan accelerated industrial
7 decentralization.
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13 Fifth, the construction of development zones also stimulates industrial suburbanization. Since
14 1990 28 development zones have been built in Beijing, among which three are at the national
15 level and eighteen at the municipal level. The land for development zones adds up to 90.1 km²,
16 with a total investment of 397.3 billion Yuan and accumulated contracted foreign capital of
17 9.05 billion Yuan (Beijing Statistics Bureau, 2005). All the development zones are located in
18 the suburbs (Figure 5). Some larger zones develop more zones further out in the suburbs. For
19 example, Zhongguancun Science Park now includes seven parks such as Haidian Park, Fengtai
20 Park, Changping Park, and Yizhuang Park. Since 1990 industrial enterprises have been
21 attracted by favourable policies in development zones and have chosen to relocate to these
22 development zones.
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36 Compared with post-industrial suburbanization in the West, Chinese cities are still in the stage
37 of industrialization. The development of industrial parks and zones accommodates both
38 manufacturing and services industries.
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43 **5.3 Retail suburbanization**

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47 Large supermarkets appeared in China in 1995 and have developed rapidly since 1998. Since
48 the mid-1990s, the retail sector in Beijing's core has reached saturation point, not only with less
49 space for further development, but also with increasing competition. Most of the large
50 department stores have narrow profit margins, and some of them have incurred losses since
51 1997. Under such circumstances, many larger shopping centres have been developed in the
52 suburbs, changing the spatial pattern of the traditional retail sector. Thus, commercial
53 suburbanization has manifested itself in Beijing since the late 1990s.
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4 In Beijing, the gross sales of supermarkets comprised 12% of total gross retail sales in 2000
5 (Beijing's Committee of Development and Planning, 2001). Figure 5 shows the distribution of
6 large shopping centres in Beijing in 2002. Most large shopping centres are located outside the
7 core. The core makes up only 25% of the total. The Beijing government has begun to control
8 the development of supermarkets in the core. The Tenth Five Year Plan (2000–2005) stated that
9 large shopping centres with an area of more than 10,000 m² should be located outside the 3rd
10 ring road and that no new large department stores should be developed within the 2nd ring road
11 (Beijing's Committee of Development and Planning, 2001). Consequently, commercial
12 suburbanization has been accelerated in Beijing.
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24 Several factors have contributed to the development of suburban shopping centres. First,
25 cheaper prices and a greater variety of goods are a main attraction. Producers supply goods
26 directly to the supermarkets, shortening intermediate links and reducing the costs.
27 Supermarkets often sell goods first and pay the producers later, bringing great advantages to
28 the supermarkets. As a result, it is possible to reduce the prices of commodities. Moreover, a
29 greater variety of goods is available in large suburban supermarkets. Residents can satisfy their
30 needs without going into the city.
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40 Second, the suburbs can provide cheaper land, meeting the need for the construction of storage
41 space and large car parks. In Beijing, the business area of large supermarkets often increases
42 from 2,500 to 10,000 m², and that of hypermarkets, which appeared several years ago in
43 Beijing, has increased from 7,000 to 12,000 m². In some large supermarkets, 60% of the space
44 is used for storage and wholesale of goods. Large car parks are built, convenient for car users.
45 The Golden Resources Shopping Mall (Figure 6), located in Haidian, near the north-western 4th
46 ring road, required an investment of 3.8 billion Yuan. It opened for business in 2004 and has a
47 floor space of 680,000 m², larger than West Edmonton Mall in Canada, the largest in Western
48 countries. In order to attract car users, the Golden Resources Shopping Mall constructed
49 underground and above-ground car parks with 10,000 parking spaces.
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Third, residential suburbanization in the 1990s stimulated retail suburbanization. New

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4 residential quarters have been developed outside the 4th ring road. The rising demand for
5 shopping facilities in the suburbs has led to the construction of large shopping malls. But once
6 the shopping mall has been constructed, it attracts further housing development around it. For
7 example, around the Golden Resources Shopping Mall residential quarters such as Century
8 City, Shuguang Garden and Zizhu Garden have been built, with 400,000 residents relocating
9 there.
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18 Fourth, since China became a member of the World Trade Organization in 2001, global retail
19 companies have selected Beijing to build stores. Today, most of the 50 largest retail companies
20 in the world have entered China. In Beijing, more than ten international retail companies, such
21 as Carrefour, Wal-Mart, METRO, Auchan, Lotus Supercenter, B&Q, Pricesmart, etc., have
22 financed and constructed stores in the suburbs, called foreign supermarkets ('yang chaoshi').
23 With a powerful global purchasing system and an advanced network of goods flow
24 management, it is possible for 'yang chaoshi' to greatly reduce their costs and conduct a
25 strategy of dumping at low prices, attracting more and more customers. Figure 6b shows the
26 flow of customers over one weekend in one of the Carrefour stores in Beijing, located in
27 Zhongguancun, the electronics market and high-tech agglomeration (Wang & Wang, 1998).
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40 To sum up, cheaper land, available consumers and the inflow of global retail companies have
41 promoted the development of suburban shopping centres and retail parks in Beijing. The rising
42 suburban retail sector has not led to the decay of retail in the core. This is different from
43 residential and industrial suburbanization, which has led to the decline of population and
44 industries in the core. Retail in the core remains steady and is still flourishing. The
45 development of large suburban shopping centres is both the cause and outcome of
46 suburbanization. With residential suburbanization, large shopping centres are needed to satisfy
47 suburban shopping demand. On the other hand, with the improvement of shopping facilities in
48 the suburbs, more and more people choose to move to the suburbs, without worrying about the
49 lack of living facilities, which promotes further residential suburbanization.
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Suburbanization has implications for commuting and social distribution. The first and foremost

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4 consequence is the extended commuting distance. With industrial suburbanization, there are
5 more and more commuters in Beijing. When enterprises move out of the core to the suburbs,
6 most of the employees remain in the city and thus have a longer commuting distance, putting
7 tremendous pressure on urban traffic. The Third Factory of Medicine of Beijing is a good
8 example. In 1995, the factory moved out of the core to Shuangqiao, located in the outer fringe
9 of Chaoyang, because of the lack of development space. Almost all of the employees, about
10 400 to 500, have to work at Shuangqiao but live in the core. As a result, the factory has to use
11 ten coaches to transport their employees, costing the factory about three million Yuan every
12 year.
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24 Today, the suburbs are no longer dominated by the city centre and have begun to compete with
25 it. The dependence of residents on the city centre for shopping is declining. Suburban residents
26 mostly use large shopping malls to satisfy their shopping needs.
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32 The new round of suburbanization has led to changing social composition in the suburbs. The
33 suburbs are now more heterogeneous. Commodity housing and affordable housing projects
34 constructed in the suburbs have led to the residential relocation of both better-off and
35 lower-income residents. Moreover, migrants have also begun to concentrate in the inner
36 suburbs (Feng, 2004; Feng & Zhou, 2005; Gu & Kesteloot, 1997). At the same time, the new
37 rich live in villas and gated communities in the suburbs (Hu & Kaplan, 2001; Wu, 2005). The
38 concentration of better-off residents, ordinary workers, poor migrants, and the newly affluent
39 in addition to existing farmers in the suburbs makes the social composition of suburbs very
40 complicated.
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52 Compared with 'new suburbanization' (Stanback 1991), Chinese retail suburbanisation is only
53 at an initial stage. In terms of distribution of retail, the city has not reached the stage of 'turning
54 inside out'. The commercial centres in the central areas are still very attractive and dominate
55 the landscape of retailing.
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6. Conclusion

The objective of this paper is to use newest data to identify some new trends in Beijing since 1990 and in turn to speculate on similarities and differences of suburbanization in China and in other Western economies. To be sure, the extent of suburbanization varies from country to country, even within Western market economies. Beijing's suburbanization, when compared with its process in the 1980s, has shown some interesting trends.

In the 1980s, residential suburbanization was for the most part passive. The relocation of residents was caused by housing rehabilitation in the urban core. During the course of rehabilitation, residents were moved out to suburban housing estates planned and financed by the government. Since 1990, the development of a market economy has led to a flourishing real estate market. Many developers have actively participated in the construction of suburban housing. The price difference between the suburbs and core urban areas has widened. The core urban area has house prices two or three times above those of the suburbs. Residents began to choose suburban locations taking into account the house price difference and environmental quality.

Industrial suburbanization has seen the effect of the market mechanism since 1990. Land reform has opened up the land market, promoting the decentralization of industry. More and more factories in the urban core have moved out to the suburbs. While the role of government is still present in industrial suburbanization in Beijing, industrial relocation is made possible by differentiated land prices. In order to reduce environmental pollution, the government uses the price difference to relocate factories. The approach of the 2008 Olympic Games is speeding up industrial relocation. The policy of economic development zones and high-tech industrial parks in the suburbs makes industrial location more attractive.

The construction of shopping centres in Beijing's suburbs is mainly driven by commercial investment, including domestic retailers such as Chaoshifa, Hualian and Wumei companies and foreign retail groups such as Carrefour, Wal-Mart and METRO. These shopping malls follow the decentralization of population and increasing demand in the suburbs. The trend of

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4 commercial decentralization became more apparent in the 1990s, with both domestic and
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6 international enterprises entering the commercial market in Beijing.
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10 Suburbanization in advanced market economies has seen new features and new developments
11 such as edge cities (Garreau, 1991), suburban magnet areas (Stanback, 1991) and suburban
12 employment centres (McDonald & Prather, 1994; McDonald, 2000; Small & Song, 1994).
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14 China's suburbanization began from a very different starting point (Zhou & Ma, 2000). The
15 rationale was more based on the government policy of decentralizing congested old urban areas.
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17 However, with the deepening of market reform, Beijing has seen a new round of
18 suburbanization, which is more based on the market mechanism. With growing private car
19 ownership, increasing house price differences and changing residential preferences, more and
20 more residents are seeking suburban living; industrial relocation occurs because of land use
21 adjustment and the construction of suburban industrial parks; and large-scale suburban
22 shopping malls attract more and more people in both suburbs and urban areas.
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34 Despite the growing role of market forces, given the role of government, the development of
35 public transportation, and the size and density of population, it is unlikely that Beijing's
36 suburbanization will reach the extreme extent of North American cities. While there are some
37 similarities, Beijing's suburbanization is not an identical process. There are two differences.
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39 First, Beijing is still at an early stage of suburbanization. Average household income is still low,
40 and the use of private cars is not comparable to the case in North American cities. Second, the
41 government is still playing an important role in suburbanization. Very often the government
42 tends to use the land market to achieve its objectives. For example, the land market gives the
43 local government a strong incentive to sell land in the suburbs (Zhang, 2000). Beijing's suburbs
44 are far from being independent cities or 'stealth political entities' (Knox, 1993). The new
45 master plan of Beijing approved in 2005 began to use the concept of polycentric structure to
46 promote the decentralization of population and employment. In short, Beijing has entered a
47 new stage of suburbanization, but the exact form of suburbanization is still influenced heavily
48 by public policies.
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4 To conclude, at the initial stage of suburbanization in China, the government played a major
5 role in suburban industrial relocation and suburban development because it controlled
6 industrial, land and housing development. Accordingly, suburbanization in China before 1990
7 should be described as 'government-led'. However, market mechanisms were introduced into
8 suburbanization after 1990. Without doubt, the new round of suburbanization in Beijing is
9 more market-oriented. While we are not arguing that Beijing's suburbanization converges on
10 the trend that has been seen in the West, recent suburbanization processes in Beijing do show a
11 pattern mixed with both the newest development (such as retail parks and edge cities) as well as
12 traditional suburban residential relocation driven by mass consumption.
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Table 1. Population changes in different zones in Beijing, 1982 to 1990 and 1990 to 2000

Population changes in different period		City region total	Core	Inner suburbs	Outer suburbs		
					Level one	Level two	Total
1982-1990	Number change (thousand persons)	158.9	-8.2	114.9	37.9	14.2	52.1
	Per cent change (%)	17.21	-3.38	40.46	13.69	11.82	13.12
	Annual per cent change (%)	2.00	-0.43	4.34	1.62	1.41	1.55
1990-2000	Number change (thousand persons)	275.0	-22.2	240.0	53.2	4.0	57.2
	Per cent change (%)	25.42	-9.50	60.15	16.93	2.94	12.73
	Annual per cent change (%)	2.29	-0.99	4.82	1.58	0.29	1.21

Notes: Level one of outer suburbs in Beijing refers to the outer suburbs within the metropolitan area, including 6 districts/counties, i.e., Mentougou, Fangshan, Tongzhou, Shunyi, Changping District and Daxing County. Level two of outer suburbs in Beijing refers to the outer suburbs out of the metropolitan area, including 4 counties, i.e., Pinggu, Huairou, Miyun and Yanqing counties.

Sources: Calculated from Beijing's Census Office (1982, 1990 and 2000).

Table 2. The growth of permanently registered population and migrant population of different zones in Beijing, 1982 to 1990 and 1990 to 2000

	Core	Inner suburbs	Outer suburbs	Metropolitan Area	City region total
I. Number of permanently registered population (person)					
1982	2,354,247	2,770,969	3,923,024	7,851,025	9,048,240
1990	2,210,751	3,647,503	4,310,173	8,852,842	10,168,427
2000	1,807,574	4,778,430	4,375,997	9,676,690	10,962,001
II. Change of permanently registered population from 1982 to 1990					
Number change (person)	-143,496	876,534	387,149	1,001,817	1,120,187
Per cent change (%)	-6.1	31.63	9.87	12.76	12.38
Annual per cent change (%)	-0.78	3.5	1.18	1.51	1.47
III. Change of permanently registered population from 1990 to 2000					
Number change (person)	-403,177	1,130,927	65,824	823,848	793,574
Per cent change (%)	-18.24	31.01	1.53	9.31	7.8
Annual per cent change (%)	-1.99	2.74	0.15	0.89	0.75
IV. Number of migrant population (person)					
1982	57,446	63,830	48,582	161,096	169,858
1990	107,447	312,002	182,682	569,201	602,131
2000	296,675	1,582,077	688,973	2,465,005	2,567,725
V. Change of migrant population from 1982 to 1990					
Number change (person)	50,001	248,172	134,100	408,105	432,273
Per cent change (%)	87.04	388.8	276.03	253.33	254.49
Annual per cent change (%)	8.14	21.94	18.01	17.09	17.14
VI. Change of migrant population from 1990 to 2000					
Number change (person)	189,228	1,270,075	506,291	1,895,804	1,965,594
Per cent change (%)	176.11	407.07	277.14	333.06	326.44
Annual per cent change (%)	10.69	17.63	14.2	15.79	15.61

Sources: Calculated from Beijing's Census Office (1982, 1990 and 2000).

Table 3. The increase of private motor vehicles in Beijing

Year	Private motor vehicles
1987	7148
1989	24029
1992	48643
1993	66883
1994	85474
1995	127568
1996	351835
1997	540564
1998	697707
1999	762361
2000	855321
2001	1004830
2002	1195060
2003	1389569
2004	1546865
2005	1798407

Note: private motor vehicles includes private motors and private cars. For example, in 2005, there were 1.80 million private motor vehicles, of which 1.54 million were private cars.

Source: Beijing Statistical Bureau (2006: 281).

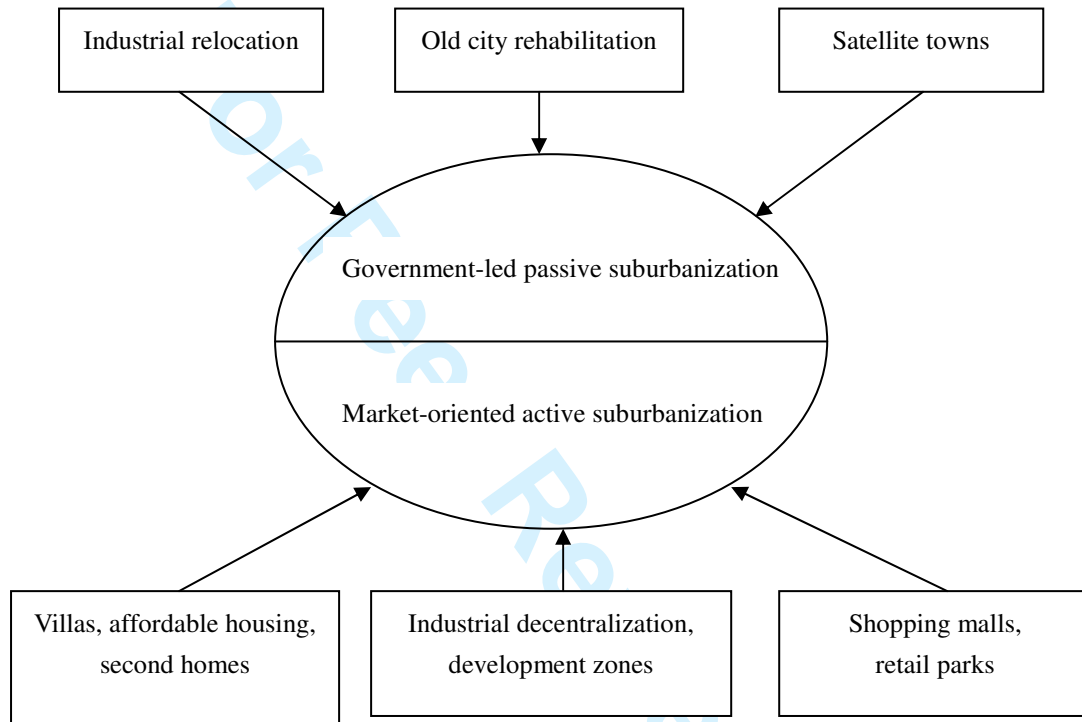


Figure 1 The change of suburbanization from government-led passive to market-oriented active in Beijing

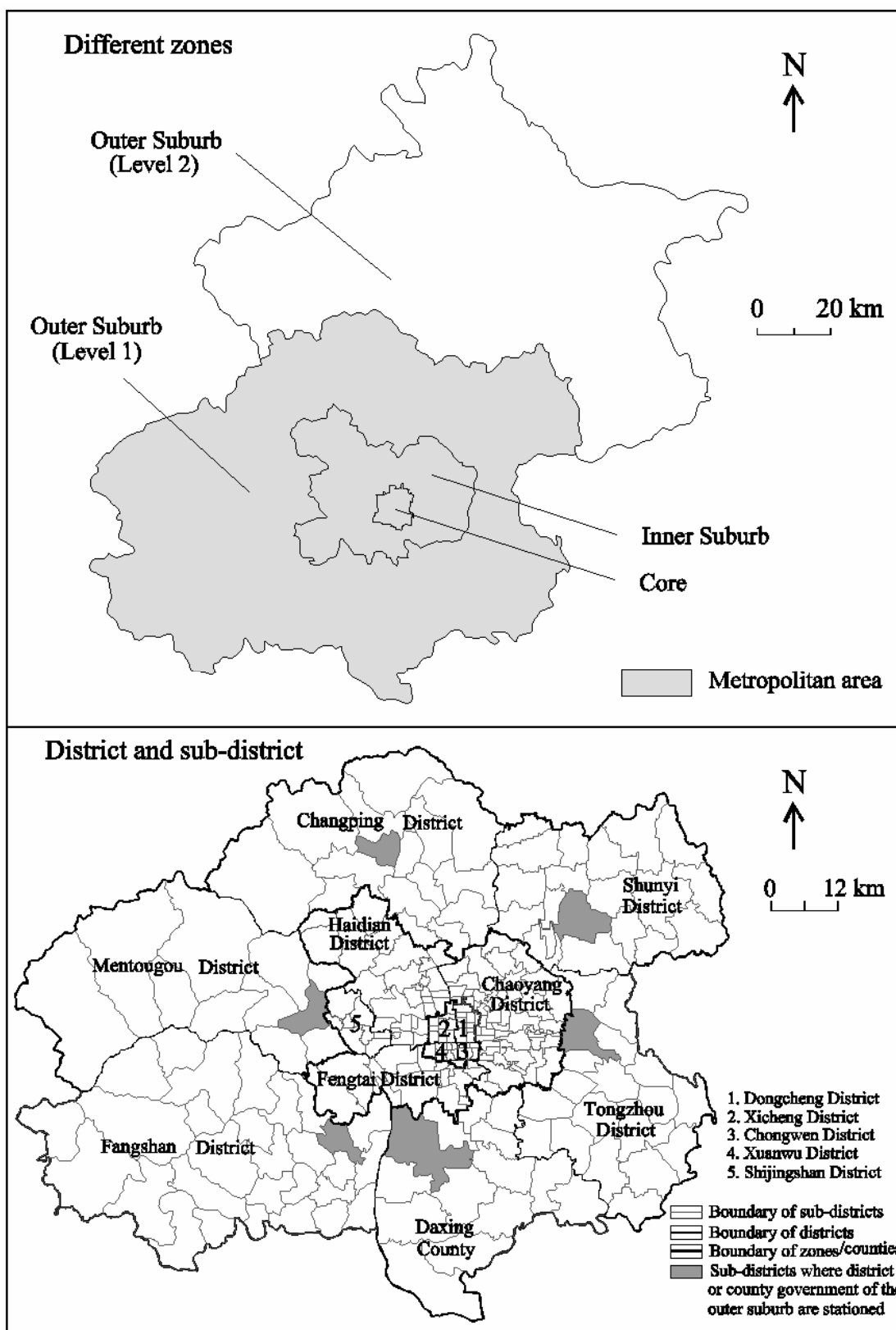


Figure 2 Spatial concepts in Beijing

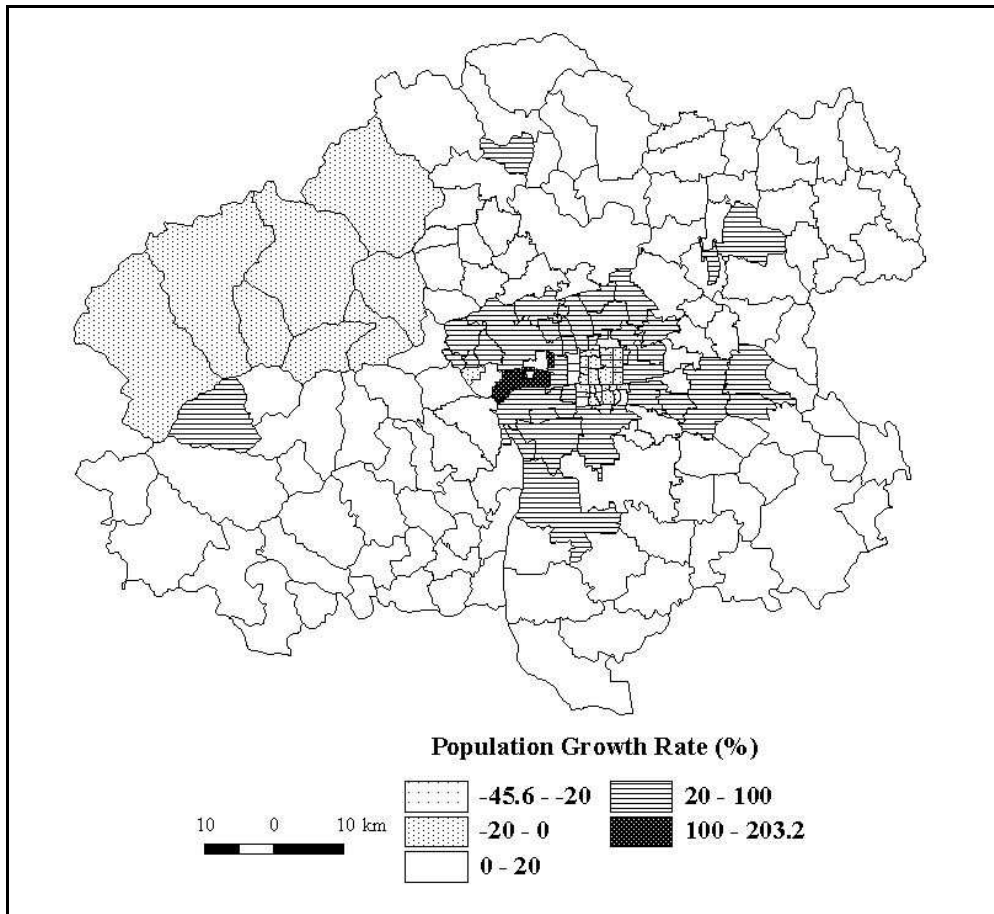


Figure 3a The spatial distribution of population growth rates in Beijing by subdistrict, 1982 to 1990

Sources: Calculated from Beijing's Census Office (1982 and 1990).

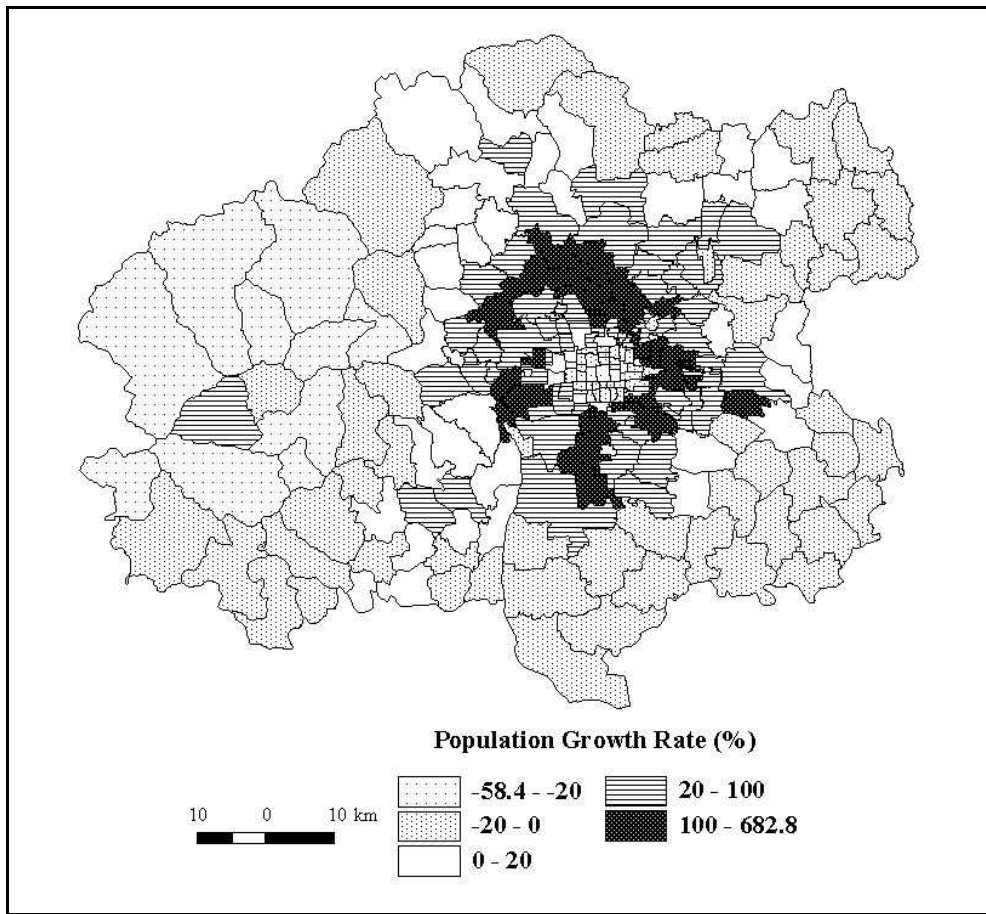
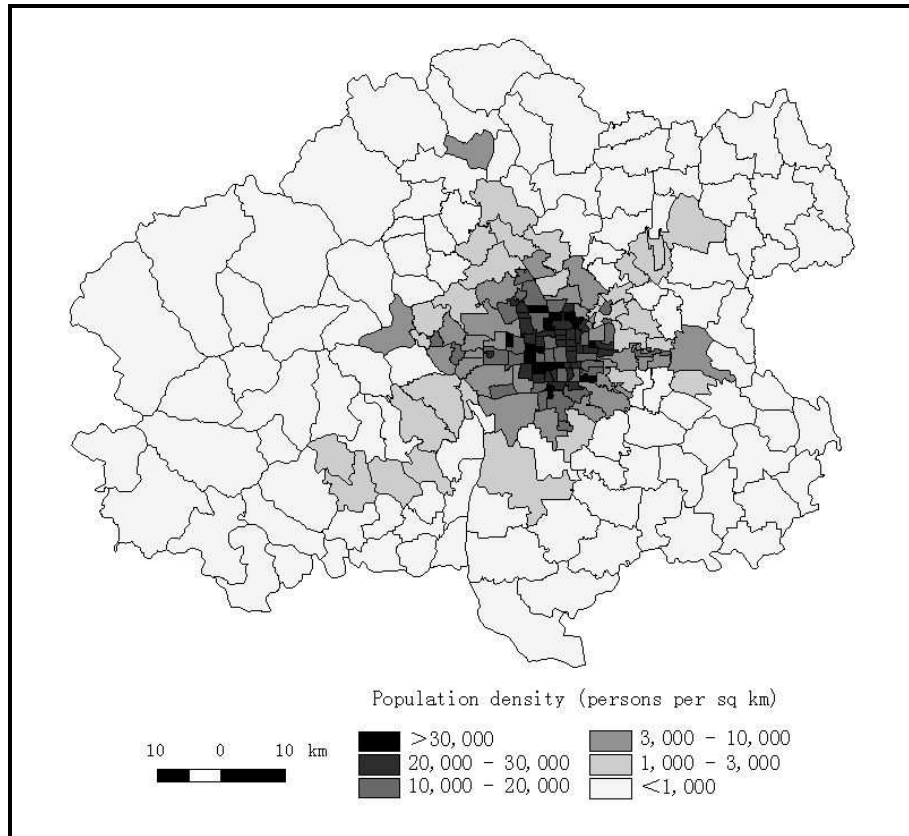


Figure 3b The spatial distribution of population growth rates in Beijing by subdistrict, 1990 to 2000

Sources: Calculated from Beijing's Census Office (1990 and 2000).



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Figure 4a The spatial distribution of population density in Beijing by subdistrict in 2000

Source: Calculated from Beijing's Census Office (2000).

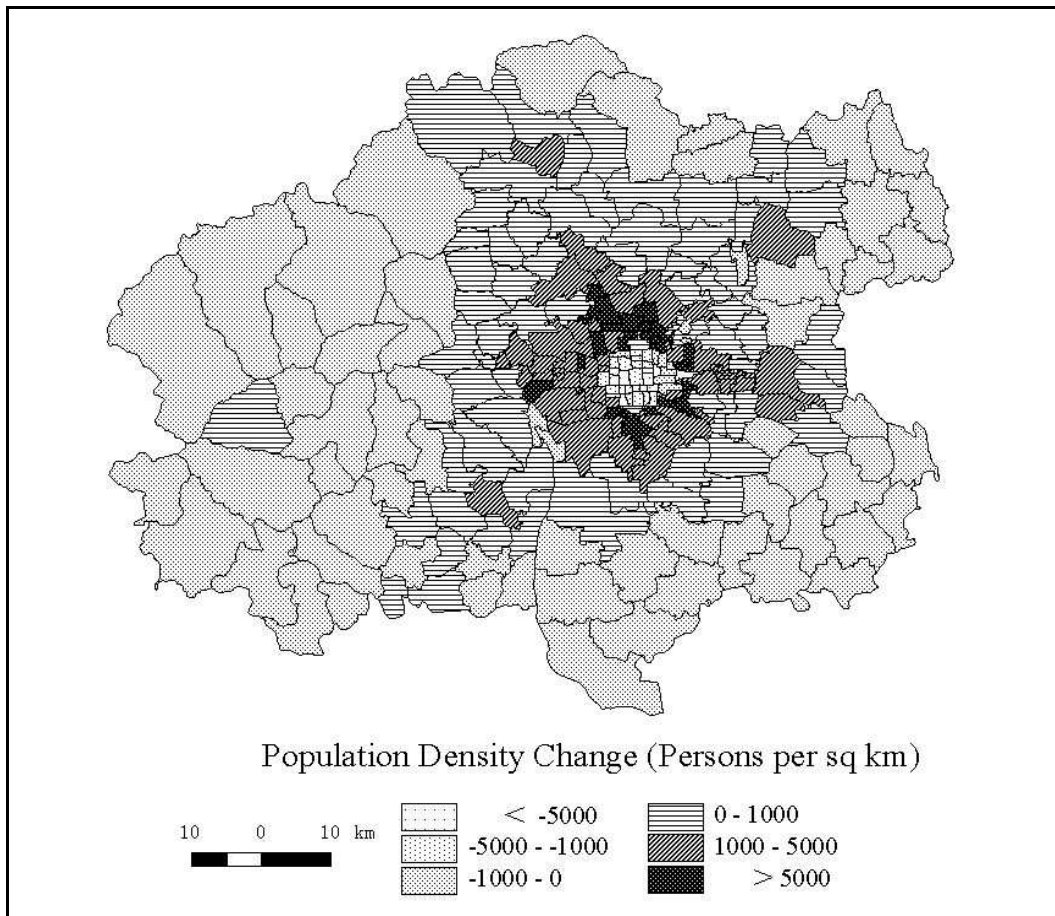
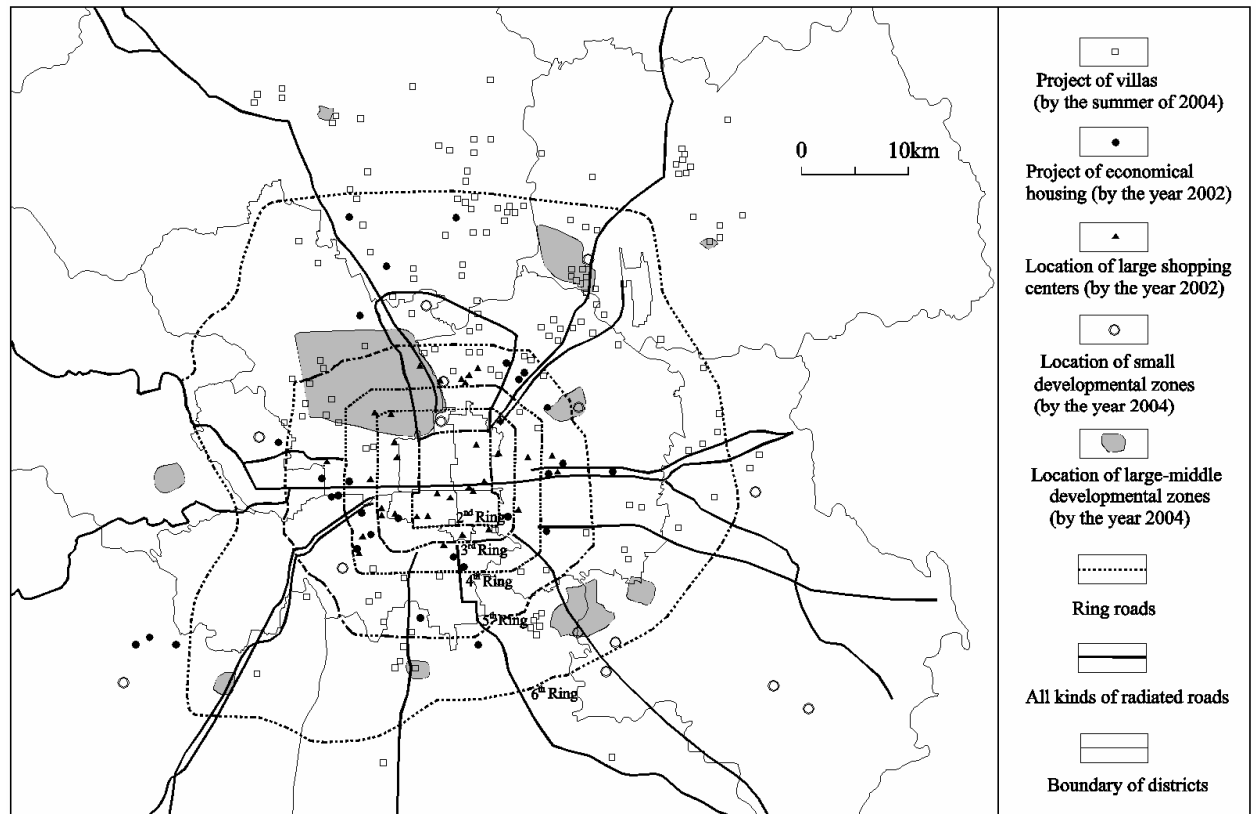


Figure 4b The spatial distribution of population density changes in Beijing by subdistrict, 1990 to 2000

Sources: Calculated from Beijing's Census Office (1990 and 2000).



33 **Figure 5** The spatial distribution of villas, affordable housing projects, large shopping
34 centres and development zones in Beijing
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Figure 6 The Golden Resources Shopping Mall in Beijing