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**Social and spatial dimensions of
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SOCIAL AND SPATIAL DIMENSIONS OF DEMOGRAPHIC PROCESSES IN BEIJING MUNICIPALITY AT THE TURN OF THE 21ST CENTURY

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ABSTRACT. This study focuses on the demographic processes in Beijing Municipality at the turn of the 21st century and attempts to evaluate a role of China's social policies upon contemporary population changes. Two main determinants influencing present demographic characteristics were taken into consideration: the immigration of temporary workers and one-child policy. Socio-economic processes in Beijing are accompanied by the rapid changes of urban physiognomy as a result of immense city development (new industrial and residential areas) and new investments prepared for the 2008 Olympics. A spatial typology of socio-demographic changes between 1997 and 2007 was created in order to distinguish areas of different demographic and social development. Concluding remarks of this study highlight main characteristics and determinants of Beijing Municipality demographic features and a pace of their changes. Evidences typically found in Beijing clearly show a crucial role of market economy elements which have a great effect upon socio-spatial urban expansion.

KEY WORDS: China, Beijing Municipality, demographic processes, one-child policy, floating population.

INTRODUCTION

China's population has grown rapidly during the second half of the 20th and the first decade of the 21st century from 594.4 million in 1953 to 1,334.7 million in 2009. Currently, 46.6% of China's population resides in cities. The major political and economic reforms ushered in during 1979 brought fundamental socio-demographic changes, modifying age and sex structure, altering family model, and increasing overall mobility. The crucial restriction of the former is the one-child policy, which is now influencing the second generation, whereas the latter is determined by the household registration system (*hukou*) which controls

migrations to the largest cities. The most important economic policies introduced the principal elements of a free market. As a result, the chance to start private businesses caused many enterprises to emerge throughout the country. However, basic rights such as land or apartment ownership are still restricted. The social and demographic changes of 1979 were accompanied by the dynamic development of the urban landscape. The same reforms prompted rampant creation of economic zones – vast areas of intensive development encompassing sizeable parts of cities. Currently, their expansion is one of a few dominant economic factors which alter the entire urban physiognomy.

The main goal of this study is to determine and analyze the demographic changes of Beijing Municipality, which result from dynamic city growth, socio-political reforms and terciarization of the economy. Simultaneously, an attempt is made to illustrate the contemporary social consequences of demographic disparities within the research area. The study setting includes Beijing Municipality, which consists of 18 administrative units within the inner city and suburban areas of Beijing, along with the adjoining rural hinterlands. Beijing, as the capital city and China's third biggest municipality (after Shanghai and Chongqing), was most influenced by the transformation processes. Beijing is also recognized as a political, educational, and cultural centre of the entire country and as a touristic destination worldwide. Moreover, in the year 2000, Beijing started preparations for the 2008 Summer Olympic Games, which acted as another boost for intensive urban development. The significance of Beijing, together with the scope of its changes, provides a good example of those general socio-demographic trends with explicit Chinese characteristics.

THE MUNICIPALITY OF BEIJING

As many as four of all the cities in China are directly controlled by the Central Government and possess a status equivalent to Chinese provinces: Beijing (16,801 km²/16.33 million inhabitants in 2007), Tianjin (11,305 km²/10.43 million), Shanghai (6,341 km²/18.88 million), and Chongqing (82,300 km²/31.44 million). These administrative units encompass massive urban and rural areas, a huge number of citizens, and form a separate category of Chinese cities significantly different from and incomparable to other large cities, e.g., the city of Guangzhou with over 7 million population, the capital of Guangdong Province. Such directly-controlled municipalities are the highest level of classification for cities used by the People's Republic of China. Their area includes a number of smaller units, such as suburban counties with towns, townships and villages as in the Beijing Municipality (Fig. 1).

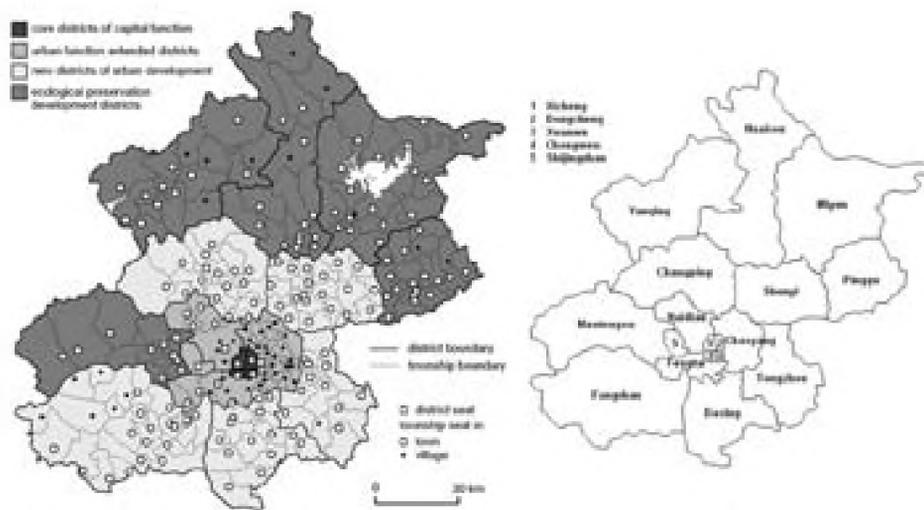


Fig. 1. Administrative division of Beijing Municipality in 2007

Source: Authors' own work based on Beijing's Statistical Yearbooks

The Beijing municipal government administers 18 urban, suburban and semi-urban districts. Four inner-city districts (Xicheng, Dongcheng, Chongwen, and Xuanwu) cover 62 km² with a total population of over 1.8 million. Originally, Beijing was comprised of an area surrounded by city walls during the Ming and Qing dynasties (Beijing's city walls were destroyed during the Cultural Revolution). Presently, this area is considered the strict city centre. Four outer city districts (Haidian, Chaoyang, Fengtai, and Shijingshan) were the major areas of widespread urban development during the second half of the 20th century. Eight inner and outer districts together constitute the metropolitan area of Beijing. Outside this area another five inner suburban districts (Daxing, Tongzhou, Shunyi, Mentougou, and Changping) and five outer suburban districts (Fangshan, Pinggu, Huairou, Miyun, and Yanqing) are distinguished. Subsequently, all of these districts are divided into smaller units totalling 36 towns, 253 townships, 4,432 village committees, 3,753 residents' committees, and 101 neighbourhood committees forming the Beijing Municipality (www.ebeijing.gov.cn).

The large number of towns is a consequence of the policy of the Beijing Municipal Government, which initiated a 'dispersed polycentric urban development plan' in 1958, subsequently revised in 1983 and 1993. This plan was created to demarcate a city core and some scattered satellite cities and towns around it (Zhou, Mong, 2000; Chen et al., 2002). The newest 'Master Plan of Beijing City (2004–2020)' continues this dispersion policy ('two axes,

two belts and poly-centres'). Particularly, this plan concentrates on polycentric expansion as an alternative for the present monocentric urban expansion. Hence, special attention is paid to public transportation networks and their connections with peripheral residential areas, as extensions to the transportation system are believed to disperse the population away from the overpopulated city core. This outflow was first triggered by the demolitions of the traditional yet sub-standard housing called *hutongs*.

The metropolitan part of Beijing Municipality (eight inner-city districts – 1,368 km²) is inhabited by 10.26 million people (62.8% of the total population). The urbanization intensity (as measured by the proportion of the population residing in the metropolitan area and towns) in Beijing Municipality reached 82.32% in 2007 whereas it was only 73.48% in 1990. From this indicator of growth, the total urbanized area is projected to expand from 395.4 km² in 1990 to 1,088 km² in 2010 (Ma et al., 2008). Moreover, the city of Beijing has experienced suburbanization processes widely reported in other studies (Zhou, 1995; Wang, Zhou, 1999). This is evidenced by a strong decrease of population in all four core districts while suburban areas have gained up to 2.5 million citizens during 1982–2000 (National Bureau of Statistics of China). Chinese suburbanization has been hindered mainly by the continuously low number of cars per population and the simultaneously high utilization of public transportation and bikes (Zhou, Ma, 2000). Unlike in western societies, suburbanization in Beijing has not lead to segregation within the suburban districts, regardless of the vast number of floaters coming into the city during the last few decades (Zhou, Logan, 2006).

DEMOGRAPHIC CHANGES IN THE LIGHT OF CHINA'S SOCIAL POLICIES

The Household Registration System, a policy of controlling the geographic movement of people in China widely known as *hukou*, was put into practice in 1958. It is a very powerful state policy, which controls migrations between rural and urban areas. Every person in China is registered in a household registration book which classifies all the citizens as either urban or rural. The great majority of China's population, who resides in rural areas and hold rural *hukou*, is not entitled to such privileges as: subsidized housing, social insurances, medical care or employment in the city (as opposed to urban citizens). This set of *hukou* policies effectively controlled migrations within China's planned economy until the introduction of economic reforms in the late 1970s, when the *hukou* rules were relaxed in response to a rapidly growing demand for manpower in cities. Millions of workers, who in the past were inefficiently employed in agriculture, were able to move to cities and work mainly in construction, manufacturing or

household services. The annual population surveys conducted since 1996 have collected data on floaters residing away from their household registration location for 6 months or longer. The data captures those who have crossed township, town or even district borders (Goodkind, West, 2002).

Before the reforms, all Chinese peasants were part of the ‘production collective’ and no one was allowed to leave the collective without permission, which was very rarely issued. In 1984, the Central Government permitted the rural population to float into small towns. Economic reforms and relaxation of *hukou* policies started multimillion migrations of peasants towards city centres. Since the 1980s, China has been experiencing ‘tidal waves’ (Roberts, 1997) of rural migrants to cities. The number of migrant labourers in the entire country in 1997 was reported to be 80 million by the Office of the Leading Group of the Census of the Floating Population in Beijing and 130 million in 2005 by Ministry of Public Security, but it is entirely possible that this number is higher in actuality. Fig. 2 presents the population growth in the city of Beijing.

Currently, the large surplus of the agricultural labour force, which mainly consists of male workers, is absorbed in poorly paid jobs in the industrial and service sectors of big cities such as Beijing. These rural labourers are almost always classified as temporary urban migrants, as the relaxed *hukou* system still continues to prevent migrants from changing residency. Official changes in *hukou* statuses are extremely complicated and rare.

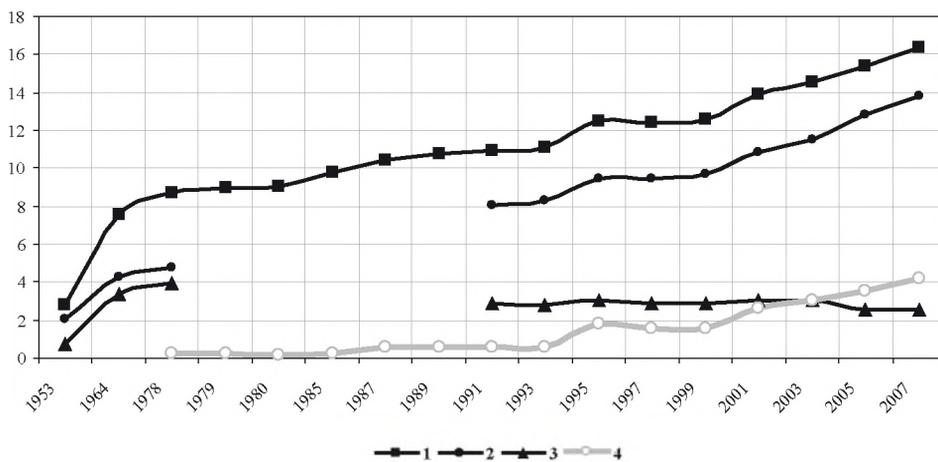


Fig. 2. Population growth in Beijing between 1953 and 2007 (temporary population is either urban or rural, total population is a sum of urban and rural population)
 Explanation: 1 – total; 2 – urban; 3 – rural; 4 – temporary

Source: Authors’ own work based on Beijing’s Statistical Yearbooks

The number of the floating population in Beijing was reported to be as high as 2.9 million by the 1997 Census of Beijing's Floating Population, excluding any outfloaters (Poston, Duan, 1999). Nonetheless, public running records show a lower number of temporary residents, so such figures should be considered with caution. The rapid increase in the total population of Beijing since the early 1980s occurred mainly as a consequence of the immigrants, who floated in from rural areas all over the country. The number of these people, often classified as temporary urban citizens, leapfrogged the rural population in 2003 and still continues to grow at a very high pace. The number of China's rural population has decreased considerably since 2003 and currently remains at slightly over 2 million inhabitants. Thus, irrespective of the great diversity of land-use in Beijing Municipality, the urbanization rate as measured by official data amounts is very high. Presently, over 4 million people of Beijing Municipality's total population are temporary migrants, who started coming particularly after 2000, prompted by the job opportunities generated by the prospective Olympics investments. This phenomenon has fostered urban sprawl greatly as such immigrants tend to float not only into the inner suburban areas of Beijing Municipality, but also to the outer suburbs (Fig. 3).

In 1997, floaters tended to concentrate primarily in the suburban areas adjoining inner-city districts, especially in Fengtai, where their share exceeded 20%. Seeking jobs and life opportunities, migrants clustered in the districts adjoining the inner city, although they did not reside in separate enclaves, but were distributed in a more mosaic way, mingling with the permanent population.

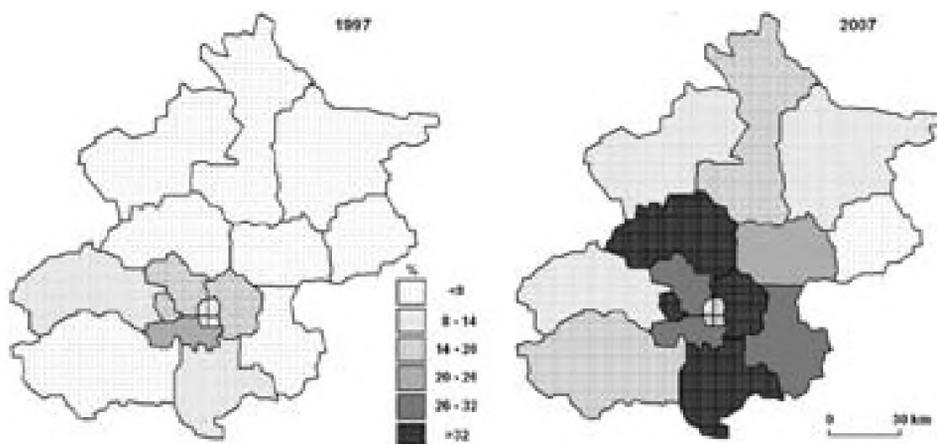


Fig. 3. The share of temporary immigrants in Beijing Municipality in 1997 and 2007

Source: Authors' own work based on Beijing's Statistical Yearbooks

The rural areas of Beijing Municipality have not experienced a vast influx of floaters, where their share has not exceeded 8% of the local population. In 2007, the overall spatial configuration of the migrants' number persisted, but their size changed more than doubled. As in 1997, there was a low floater inflow to inner-city districts, but their overall number tripled in the so-called new districts of urban development which are not adjacent to the inner city. In districts such as Changqing and Daxing, more than one third of their current population comprised temporary migrants. Although these areas are located relatively far from the city centre, rapid development of the public transportation system and expansion of developed areas provide new job opportunities and access to the necessary public amenities for many citizens. Furthermore, expensive apartments, the growing attractiveness of inner-city areas, and high living costs have further hindered the inflow of floaters. Presently, the city of Beijing has a propensity to spread eastwards as areas located to the west mostly cover mountains and thus were classified as ecological preservation lands. The share of floaters has not increased there for the last 10 years.

Another significant characteristic of the Chinese population is the one-child policy introduced in 1979 by Deng Xiaoping in order to limit population growth. This population control policy limits the number of children to one per married couple in urban areas. Although it was introduced as a temporary measure, it still continues thirty years after its establishment. As a result, a number of punishments were levelled, including fines, abortions and forced sterilization in cases of second or more pregnancies (Hardee et al., 2004). This policy has dramatically altered family sizes in Beijing Municipality. This phenomenon is well-evidenced by spatial disparities in Beijing Municipality's districts, depicted in Fig. 4. The data utilized was extracted from a 1% sample population survey.

Generally, about 70% of all households in Beijing Municipality consist of no more than three persons. This share varies across the districts from 34% in suburban areas with high share of floaters (Daxing) to 81% in the strict city centre (Dongcheng). City core districts possess the highest proportion of one person households (above 10%), which results from the age structure (population ageing fosters single living) as well as modern and independent lifestyles. These phenomena are consistent with European trends, where ageing and depopulating city centres are the most prominent characteristics of market economy countries. Nonetheless, most of Beijing's districts retain a high share of three person households (nine districts with more than 40%). These households are mainly located within the city centre and suburban areas, as the single-child policy is aimed at the citizens with urban *hukou*. Hence, rural districts are distinguished by larger average household sizes and a significantly higher share of households with more than four members. It is essential to add that rural couples in China

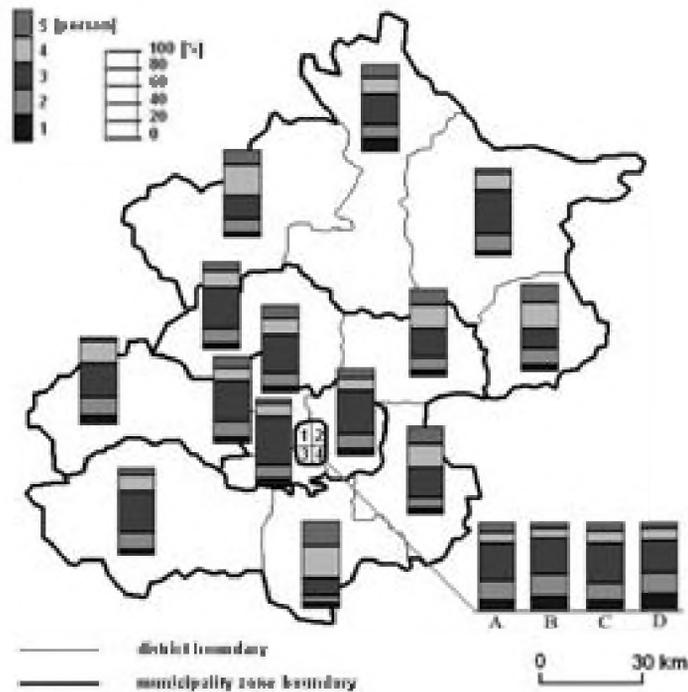


Fig. 4. The share of households in Beijing’s districts in 2003 (by size)
 Explanation: A – Xicheng; B – Dongcheng; C – Xuanwu; D – Chongwen
 Source: Authors’ own work based on Beijing’s Statistical Yearbooks

are allowed to have a second child after 5 years, but in many cases it applies only when the first child is a girl (Hesketh et al., 2005).

China’s one-child policy has always been restricted to ethnic Han Chinese living in urban areas. The policy allows exceptions for some cases, including rural couples, ethnic minorities, and, in some special areas like Beijing, parents without any siblings who can have a second child four years after the first offspring. The newest amendment to the policy allows Beijing residents to have a second child regardless of whether or not their spouse has siblings (Zhao, 2010). The one-child policy has been estimated to have reduced China’s population growth by as much as 300 million people over the first twenty years after its introduction. However, this restrictive policy has created a disdain for female infants; abortion, neglect, abandonment, and even infanticide have not been uncommon in the case of female infants (Wu et al., 2003). This phenomenon of ‘missing girls’ has turned China into a magnet for human traffickers, who lure or kidnap women and sell them into forced marriages or the commercial sex trade.

SPATIAL DISTRIBUTION OF DEMOGRAPHIC CHANGES IN 1997–2007

Population increase and city growth in Beijing Municipality have tended to sprawl spatially throughout the recent years. This is evidenced by administrative zone alterations as well as influxes of floaters into land further from the city centre. Such incremental spatial development makes it difficult to delineate boundaries between urban, suburban and rural areas. As Qu Lei (2007: 5) indicates, Beijing's periphery is a place of 'various socio-economic activities reflected mostly by the coexistence of formal and informal settlements'. Moreover, immigrants have a tendency to settle in low-standard housing often located in the outer suburbs, as shown in the previous sections of this paper. From a geographical perspective, it is very interesting to discover how such immense city development is mirrored by the spatial distribution of demographic processes over the study area. In order to trace the pace of these demographic changes, a dynamic spatial typology was constructed using a set of socio-demographic variables concerning shares of population with urban/rural *hukou*, population density, children and elderly dependency rates, feminization rate, shares of temporary migrants, birth and death rates, and household size. Utilizing Ward's grouping method, six types of socio-demographic development in 1997–2007 were obtained, as shown in Fig. 5.

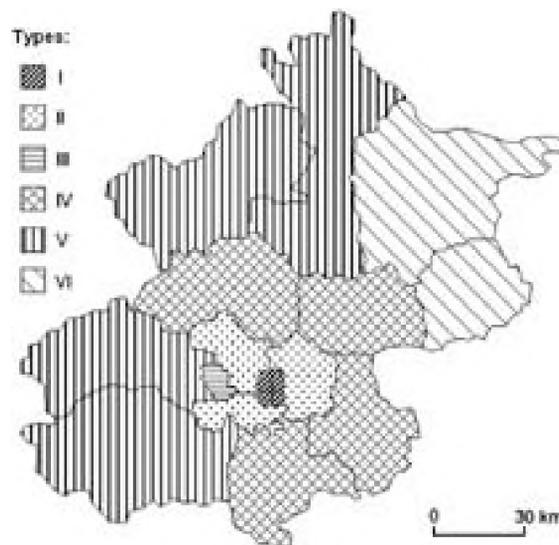


Fig. 5. The spatial typology of socio-demographic changes in Beijing's Municipality districts in 1997–2007

Source: Authors' own work based on Beijing's Statistical Yearbooks

Type I – depopulating inner-city districts – this type encompasses four districts in Beijing’s historical centre. There are no people with rural *hukou* classification residing in this area. Depopulation processes have been the most prominent demographic feature in this area for the last 10 years. This is evidenced by a decreasing population density (from 31.5 thousand persons per 1 km² in 1997 to 28.5 thousand persons per 1 km² in 2007). Moreover, although Type I districts possess the oldest population in the whole of Beijing Municipality, the pace of ageing has slowed down. Unlike in other parts of the city, the average household size here remains high and stable (2.8 persons). In inner-city districts there are now slightly more women than men (101 women per 100 men), a difference which has been caused by both ageing and increasing employment in the service sector. Finally, the share of floaters in this area is rising at a very slow rate and stays the lowest among all of the presented types.

Type II – districts of residential suburbanization – this type includes another four districts which were greatly affected by the recent suburbanization processes. The increase in population density has almost doubled in the recent 10 years, i.e., in Haidian the population density grew from 4 thousand persons per 1 km² in 1997 to 7 thousand persons per 1 km² in 2007. Such population growth is also a consequence of new, high-tech industrial investments. For example, the Zhongguanchun area in the Haidian district was designated to be ‘China’s Silicon Valley’, and as such, the Chinese government invested tremendous effort and resources in the creation and development of knowledge-oriented industries and services (Ding, 2004). Suburbanization is accompanied by the highest population ageing (4.4% increase in elderly dependency rate), which indicates that people mostly from older age groups move to the suburbs. What is more, there is also a sizeable influx of temporary migrants, especially those who are more affluent, who then strive to acquire urban *hukou*.

Type III – industrial district of urban development – this type is comprised of only one district (Shijingshan), which has significantly different socio-demographic characteristics than all of the other types because of its industrial function. In 1919, a giant steel factory in Shijingshan (Shougang industrial complex) was erected and is now the third largest steel producer in China and employs a total of about 70,000 workers. Therefore, the Shijingshan district is distinguished by the highest male to female ratio – 108.4 men per 100 women in 2007, actually a drop from 1997, when the ratio was 112.1 men per 100 women. The share of residents with rural *hukou* decreased to zero because suburbanization processes and floater inflow affected this area simultaneously. Hence, the child dependency rate decreased only a little as compared to in other area types.

Type IV – floaters catchment districts – this type includes four districts located quite far from the city core. Although this type does not possess the

highest share of temporary immigrants, they have floated into those areas rapidly during the last decade. Daxing district is the best example of this, with nearly a 9% population of floaters dwelling in the area in 1997, which grew to 37% ten years later. Temporary immigrants coexist with rural inhabitants, although the latter group is shrinking. In some areas, population changes are fostered by the de-concentration of industries, new high-tech investments and the simultaneous expansion of transportation links. Incomers are usually young, male workers, often single; thus, this area type is also illustrated by a decline in mortality and elderly dependency rates. Additionally, these floater catchment districts have also experienced the largest decrease in child dependency rates (almost 15 percentage points decrease).

Type V – semi-urban districts with ecological preservation areas – a vast majority of the population residing in the districts of this area type is rural, except for the Mentougou district – a large ecological preservation area and recreational centre for Beijing. The Huairou district also serves a touristic function, as it is a frequently visited Great Wall touristic destination. The decrease of rural inhabitants is noticeable in all of the districts of this area type, yet it is not as high as elsewhere. The population density in this area increased only a little, as the share of immigrants has not exceeded 15%, with only a slightly elevated rate of inflow during last decade. However, the average household size dropped significantly (from 3 persons to 2.5 for rural population and from 2.5 to 2.1 for urban population in 1997–2007) as a result of the modern family model, since this area type converges with the more urban areas.

Type VI – peripheral districts with declining rural population – only two districts are included in this type, and are located northeast of Beijing's centre. These districts have experienced the largest loss of inhabitants with rural *hukou* (in the Miyun district there was a drop from almost 80% in 1997 to 62.2% in 2007). Nonetheless, the current share of rural dwellers remains high, what allows for the assumption that these districts still possess rather high, but diminishing agricultural potential. Migration flows in this area type occur mainly in the towns or districts seats. Similarly to the previous type, the rate of increase in the total number of floaters has been very slow, with a total share of floaters at no more than 8%. A high growth rate of urban citizens has affected the fertility rate – a very high birth rate in 1997 (more than 1%) dropped to 0.8% in 2007. Accordingly, a slight increase in the overall mortality was noticed that did not happen in other area types. As in the rest of Beijing Municipality, the average household size in Type VI areas has decreased significantly during the examined period.

To recap, some socio-demographic changes observed in the city of Beijing during last decades correspond to similar processes well-known from Western Europe and the USA. Nevertheless, a few distinctive and typically Chinese

characteristics could be found in Beijing and other cities in Eastern Asia. First and foremost, Chinese cities still remain in the urbanization stage – they grow persistently due to immense inflow of rural dwellers prompted by unabated industrialization. This population increase has shifted from the inner-city districts to the outer districts. Secondly, suburbanization processes in China have not acquired as high pace as these in western countries. This means that many Chinese families still cannot afford their own house allowing for uncontrollable immigration to settle in further from the city core. On the contrary, areas of this value in the USA have been constantly occupied by single-house estates since early 1950s. Thirdly, Beijing city centre remains a prestigious and reputable area, which is consistently regarded as an attractive place to live. Accordingly, no significant immigrant inflows occur in the inner city, which, in turn, is very characteristic for central districts in American cities. From this perspective, Chinese city centres are similar to European example. Fourthly, Chinese traditional residential development – *hutong* – is unheard of in Europe and America. These substandard housing estates are currently being renovated and modernized in most Chinese cities. This advancement takes place on an enormous scale and sometimes results in complete reconstructions turning small dilapidated buildings into high-status estates.

CONCLUSIONS

This study illustrates the contemporary population changes in Beijing Municipality with a special regard to state social policies as a background for numerous socio-demographic variations within and between districts of Beijing. A high significance of governmental reforms along with social restrictions imposed in the past is a very strong determinant of most changes within the study area. As a whole, the transition from a planned economy to a free market economy is the greatest effect of these reforms. The pace of this transformation is astonishing. For example as shown in Fig. 6, in Beijing Municipality in 1978, almost 30% of the total population was employed in the agricultural sector. In 2007, this number dropped to 7%, but the service sector jumped to almost 70% of the municipality's total employment.

The relaxation of the *hukou* household registration system also gave a boost to an unusually large inflow of temporary workers, which is believed to be the highest economic migration worldwide that has occurred during such a short time period. The one-child policy, in turn, limited the number of children born, especially in the urban areas. As a result, Beijing inner-city districts still display a negative natural increase, whereas families in semi-urban and rural districts tend

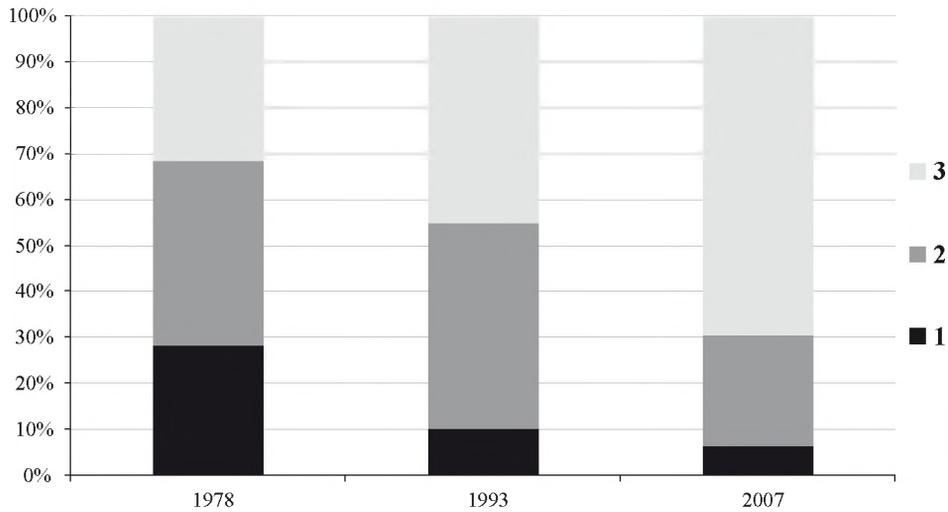


Fig. 6. Employment in three sectors in Beijing Municipality between 1978 and 2007
 Explanation: 1 – sector I; 2 – sector II; 3 – sector III

Source: Authors' own work based on Beijing's Statistical Yearbooks

to have more than one child. Negative natural increase, though, is not the only reason for depopulation in the city core. A lack of free land, dispersion policies and increasing costs of living efficiently reduced the population density in the four inner-city districts. On the other hand, the relaxation of one-child policy has caused an increase in the overall fertility in the core city districts, and decreased the fertility in the districts located further outward. Hence, many households of semi-urban areas sometimes consist of four members or more. The immigration of a temporary population has significantly changed the demographic structure of many districts in accordance with the floaters' characteristics. As other researchers imply, floaters are usually young people, males, often singles, who settle in catchment districts which then become less feminized and younger. These people are usually lured by job opportunities, e.g., in the high-tech industries but were also prompted by the investments accompanying the 2008 Olympics. The inner suburbs became more affluent as a result of suburbanization, however, the high share of a temporary population attests to the phenomenon of coexistence between the temporary workers and the permanent population. However, there are very few floaters who managed to build and/or obtain their own apartments and increase their standard of living. These processes do not indicate that the floating population finds it easy to live in Beijing; rather, a lot of these people just increase the ranks of the urban lower class. Finally, the semi-urban and rural areas

experienced a rapid decrease in population members holding rural *hukou*. In spite of the migration of rural dwellers to towns, a positive natural increase augments the overall population of the peripheral districts. In short, a vast expansion of the city also affects the outlying areas, changing Beijing Municipality into an expansive metropolitan area.

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