Proceedings of the 2nd International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/52/20230717

Examining the Effectiveness of Housing and House Registration Policies for Raising Inflow of Talents

— A Case Study in Zhangjiang Science City, Shanghai

Zixin Jin[1,a,*]

[1]*Guanghua Cambridge International School, Shanghai, China*
a. 1911431118@mail.sit.edu.cn
**corresponding author*

Abstract: With the national economic transformation, the advance of the intelligent manufacturing industry is gradually approaching, which has a direct positive correlation with innovations and the development of high-tech industries. Sufficient technical and entrepreneurial talent supply is the key to maintaining a high level of technological progress and sustaining economic development. Therefore, as one of the most developed cities in China, Shanghai adopts several house-related policies to attract the inflow of advanced talent. This paper examines the effectiveness and feasibility of the housing and household registration policies implemented in Zhangjiang Science City, including shortening the time of transferring temporary residence permit into the registered permanent residence (TR-to-PR) and offering talents apartments to reduce rental pressure of young talents. Four simple quantitative indicators used to analyze the effectuality are the number of talents introduced annually and its growth rate; the number of TR-to-PR groups annually and its growth, respectively. As a result, this paper supports that the policies are effective in promoting talent inflow. However, the future talent retention issue is still alarming and it deserves the attention of policymakers. More policies concerning solving house price bubbles and improving the living environment should be adopted to keep talents stay and contribute to economic development in the long run.

Keywords: China economic transition, Zhangjiang science city, government policy

1. Introduction

Taking advantage of the reforming and opening up policy that the Chinese government implemented in 1978, the unprecedented development of the Chinese economy in the previous decades has been witnessed by the whole world, recognized as an indelible economic event in history [1]. Though the value of China's GDP per capita increased steadily, its growth rate falls mildly from 2010 to 2019, maintaining at around 6% annually before 2020 (from which the COVID-19 pandemic started), which is lower than that at the beginning of the 21st century.

However, the growth rate of GDP per capita drops significantly in 2020 and 2022, partially with the belief of the unexpected outbreak of COVID-19. In this post-pandemic era, accompanied by challenges to stimulate consumption of residents who have just suffered from the pandemic, the

DOI: 10.54254/2754-1169/52/20230717

Chinese economy is facing a vital economic transition from an export-led and coastal-city dominated economic agent; to one with strengthened entrepreneurship, ascending innovations, and closely integrated market system nationally and globally [2]. Hence, the significance of sufficient talent supply that can provide advanced technical support and global vision is self-evident. Numerous cities, especially those relatively developed cities (such as Beijing, Shenzhen, and Shanghai), have set Talents Introduction Subsidy policies to attract more high-skill labor for encouraging entrepreneurship and promoting economic growth [3,4].

This paper reveals the effectiveness of the housing subsidy offering to talents in Pudong New Area, Shanghai, particularly focusing on the technical-developing regions in Zhangjiang. The effectiveness will be measured via analyzing data of two main indicators— the number and growth rate of people who transit from temporary residents to permanent residents (hereafter, TR-to-PR) groups in Shanghai before and after the implementation of the policy, which is crucial to the expansion of the consumer market and thus entrepreneurs' settlements in Shanghai; and number of the talents introduced annually, which directly shows the impact of the policy in the short term. It is important to clarify that there are multiple vital factors influencing one's choice of the working place that this paper will not explain in detail, such as happiness, living cost, weather, infrastructure, and education level. Therefore, more research devoted to other dimensions affecting the effectiveness of the talent introduction policy should be conducted to give a more comprehensive outcome examining the feasibility of the policy.

2. Case Study on Zhangjiang Science City, Shanghai

2.1. Economic Development Background

In the ending stage of the reforming and opening up policy, China's economic uptrend is no longer as dynamic as it was decades ago, and it is gradually flattening out in recent years. As shown in Figure 1: the growth rate of China's GDP per capita has decreased gently from 10.1% (in 2010) to 5.6% (in 2019); falling to 2% due to the pandemic shock in 2020[1]. Though the strict epidemic control and people's appetite for consumption have picked up the growth rate in 2021 (8.4%), the figure for 2022 drops sharply to 3%, revealing the brutal social status quo— the existing economic industrial structure is no longer enough to support further progress in economic development. Hence, the desire for economic transition of China, the second largest economic agent in the world, is extraordinarily urgent.

[1] Source: CEI Data, https://ceidata.cei.cn

DOI: 10.54254/2754-1169/52/20230717

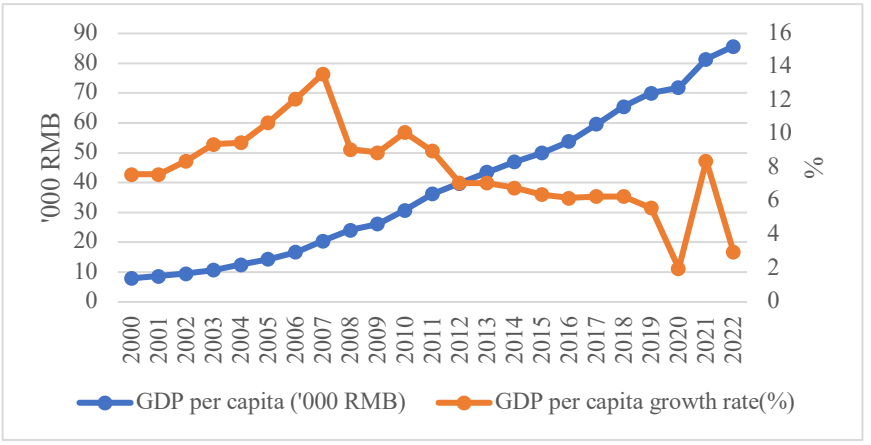

Figure 1: The relationship between China's GDP per capita (USD) and GDP per capita growth rate (%), from 2000 to 2022 (Source: CEI Data).

As the most developed city in China's Yangtze River Delta region, Shanghai generates the largest economic, industrial, financial, foreign trade, and shipping center in China, contributing the largest proportion of the GDP of China in 2022. The trend of Shanghai's GDP per capita and its growth rate is roughly similar to those of China as a whole, with a greater increasing ratio than the national average level during the 2010s. Shanghai's GDP per capita figure is far ahead of the national average, and such a gap widens during the past decades (as shown in Figure 2 and Figure 3).

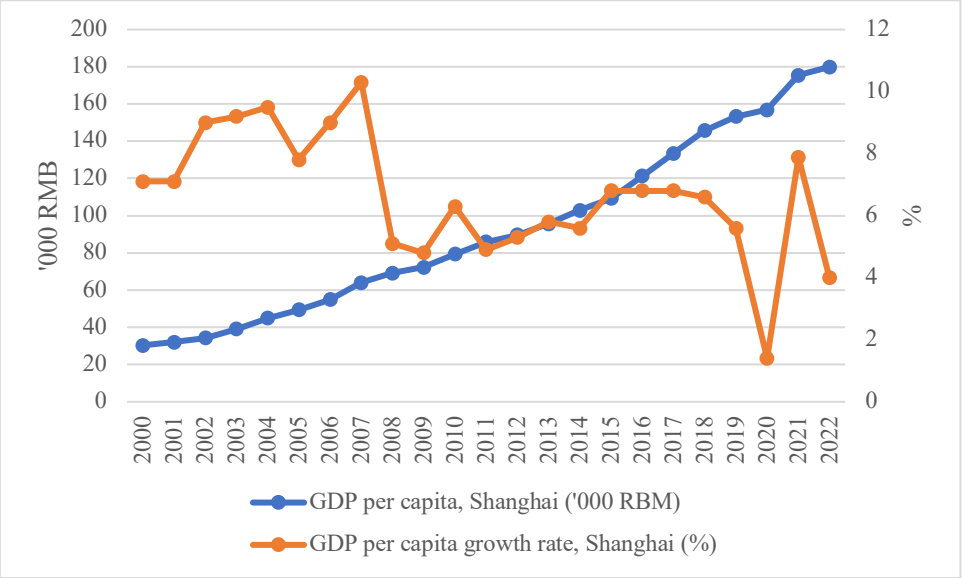

Figure 2: The relationship between GDP per capita (RMB) and GDP per capita growth rate (%) in Shanghai, from 2000 to 2022 (Source: CEI Data).

DOI: 10.54254/2754-1169/52/20230717

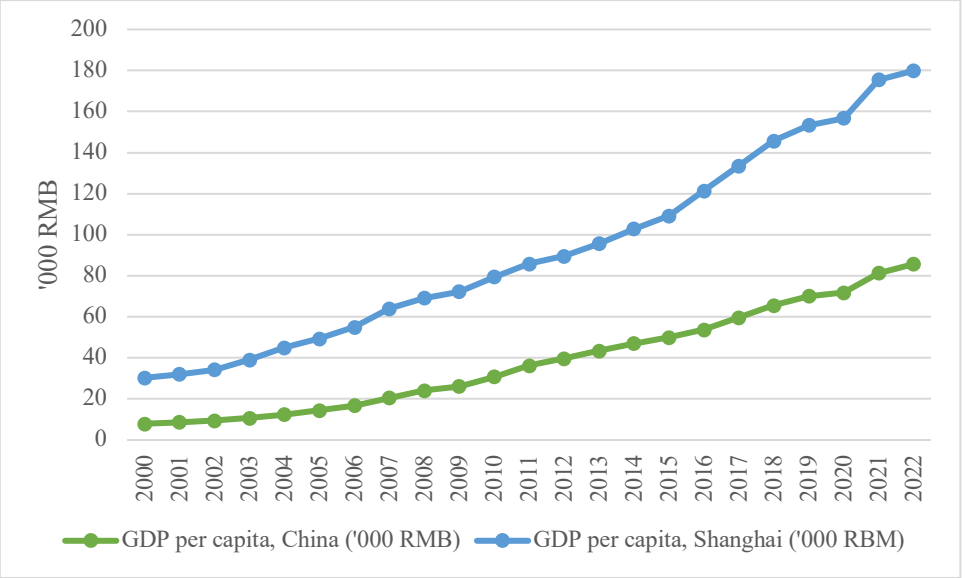

Figure 3: The relationship between GDP per capita in China and that in Shanghai (Source: CEI Data).

The rapid development of Shanghai is inseparable from its extraordinary attraction to high-end talents. According to the publicity that the Shanghai government released in 2022, more than 70,000 masters and doctors, more than 340,000 talents related to the three major industries (Integrated Circuits, Biomedicine, and Artificial Intelligence), and more than 71,000 foreign A-class advanced talents are gathered, making Shanghai's talents reserve the highest in China. Top academic journals published by Shanghai scientist accounts for 28.8% of the country's total; the number of patents granted is 16,340,000. The outstanding innovation performance of Shanghai proves that the technological method is applied to help economic transition and development [5].

2.2. Urgent Needs for Talents

Technological innovation is not only the main output of talent, but also the key to enhancing business environment and economic efficiency [6,7]. Therefore, the government designates multiple scientific and technological zones and implements several talent subsidizing policies to encourage more talent settlements in Shanghai. As the first science city endorsed by the central government since 2005, Zhangjiang Science City reflects China's latest technological and innovation policy, and it is strongly supported by the local government as well.

Zhangjiang is committed to developing three leading industries, namely integrated circuits, biomedicine, and artificial intelligence; and six hardcore industries, including chips research, drugs research, technological smart manufacturing, aerospace, new energy vehicles, and data ports. These development research directions of Zhangjiang are highly in line with the five major fields (Healthcare, Artificial Intelligence, Energy, Future Space, and Material Science) that the state central government of China has focused on for the future. In other words, future economic development will depend on how much progress these industries make. Hence, industry barriers are required to be built through numerous research, developments, and, most importantly, innovation. Since the construction of industry barriers needs the great contribution of talent, the Pudong District government has implemented several practical policies to attract talent inflow.

DOI: 10.54254/2754-1169/52/20230717

2.3. Housing and Household Registration Policies

Shanghai's housing prices are undoubtedly incredibly high, putting a heavy burden on workers, particularly young and non-native labor, which is the source of a large proportion of talent [8,9]. Meanwhile, due to the high-quality education and convenient infrastructure Shanghai provided to the residents, numerous non-local workers strive to get a registered permanent residence, to offer the best educational resources for future generations. Thus, among all policies, talents, especially young talents, are commonly sensitive to housing-related policies. As a result, the Shanghai government has increased subsidies and promoted talented apartment construction for housing and household registration in recent years.

According to the notices issued by Shanghai People's Government and Shanghai Human Resources and Social Security Bureau, the key talents from essential industries (three leading ones and six hardcore ones) in the Zhangjiang Science City can apply for a permanent residence (TR-to-PR) with shortened time from 7 years to 3 years since 2020, provided that he/she has been worked in Zhangjiang Science City for at least 2 years and promise to work there for another 2 years[2,3].

Simultaneously, workers' demand for renting houses is hiking up in recent years. The data released by Shanghai Housing Administration Bureau in 2020 shows that 40% of the Shanghai resident population holds rental demand, exceeding 10 million. Specifically, about 85% of the population that is not registered as Shanghai residents, which is the main source of advanced talents, have rental needs. Therefore, to meet boosting the demand for renting houses, the Shanghai government has built thousands of talent apartments and rented them to qualified talents at below-market prices to ease talents housing pressure and encourage talent influx.

2.4. Impacts of Housing Policies on Talent Inflow

The effectiveness of policies adopted can be reflected by the number of talents groups introduced, TR-to-PR groups, and their growth rate.

Before the announcement of the policy that shortened the time for transferring residence permit into registered permanent residence, that is, from 2015 to 2019, the number of talents introduced rises steadily, and the annual growth rate fluctuates around 10%; and the growth rate of the number of TR-to-PR groups hovers around 20%, reaching its lowest point (2%) during the range (2015-2019) in 2019.

After the policy is noticed, the talents (in the group) introduced increased rapidly from 8,855 to 13,042 from 2019 to 2020. Furthermore, the rate of increase in talents is even sharper after the policy is implemented in 2020— the number of talents (in group) introduced rises from 13,042 to 35,444 from 2020 to 2021, and the growth rate triples from 21% to about 171% (as shown in Figure 4)[4]. Following a similar trend, the number of TR-to-PR groups doubles from 18,418 to 37,684 after the policy has adopted (as shown in Figure 5)[5]. It is necessary to note that values in Figure 4 and Figure 5 represent the number of groups, and each group includes not only the talents themselves, but also their family members.

Hence, the sharp increases in the above values from 2020 to 2021 are strong evidence to support the effectiveness and feasibility of the housing and household registration policies adopted in Zhangjiang Science City, Shanghai.

[2] Source: Shanghai Municipal Human Resources and Social Security Bureau, https://www.rsj.sh.gov.cn
[3] Source: Shanghai Municipal People's Government, https://zwdt.sh.gov.cn
[4] Source: Shanghai Municipal People's Government, https://zwdt.sh.gov.cn
[5] Source: Shanghai Municipal People's Government, https://zwdt.sh.gov.cn

DOI: 10.54254/2754-1169/52/20230717

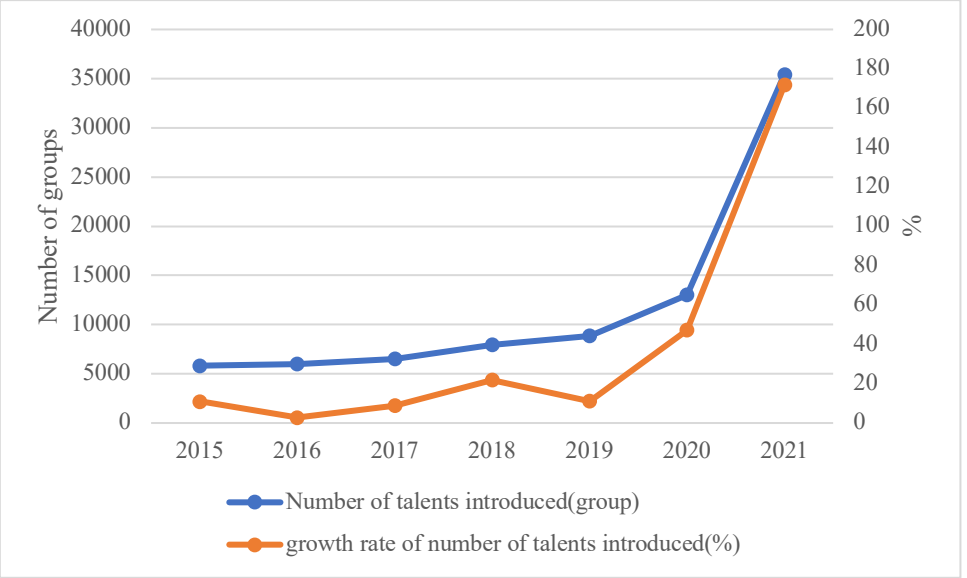

Figure 4: The trend of number of talents introduced (group) and its growth rate (%), from 2015 to 2021 (Source: Shanghai People's Government).

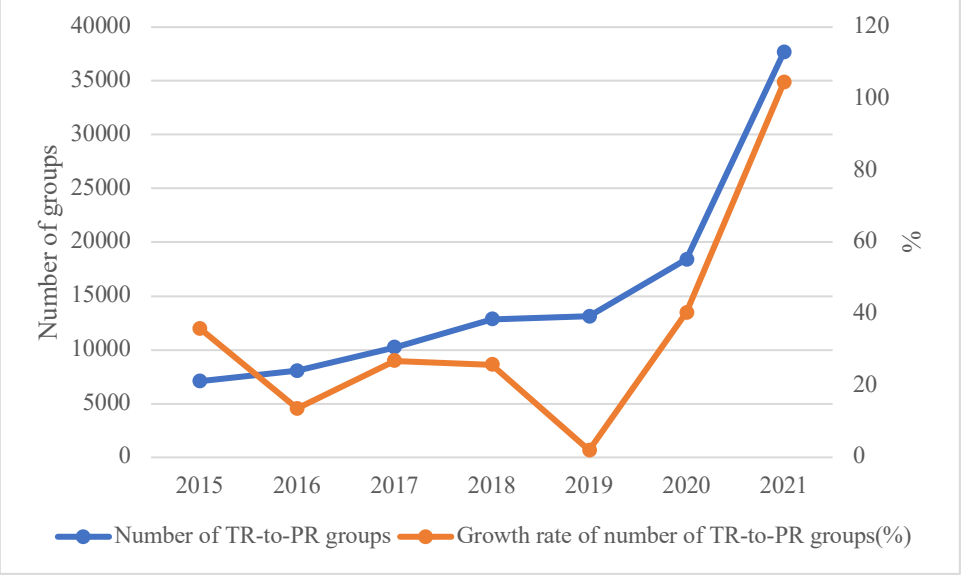

Figure 5: The trend of the number of TR-to PR groups and its growth rate (%), from 2015 to 2021 (Source: Shanghai People's Government).

3. Discussion and Suggestions

Admittedly, policies implemented have significantly increased household registrations in Shanghai, expanding the local consumer market and attracting settlements of entrepreneurs and companies. According to the annual reports from 2016 to 2022, which are published by the Shanghai Bureau of Statistics, the number of high-tech enterprises has increased from 12848, in 2019, to 22000, in 2022 (As shown in Figure 6)[6].

[6] Source: Shanghai Municipal People's Government, https://zwdt.sh.gov.cn

DOI: 10.54254/2754-1169/52/20230717

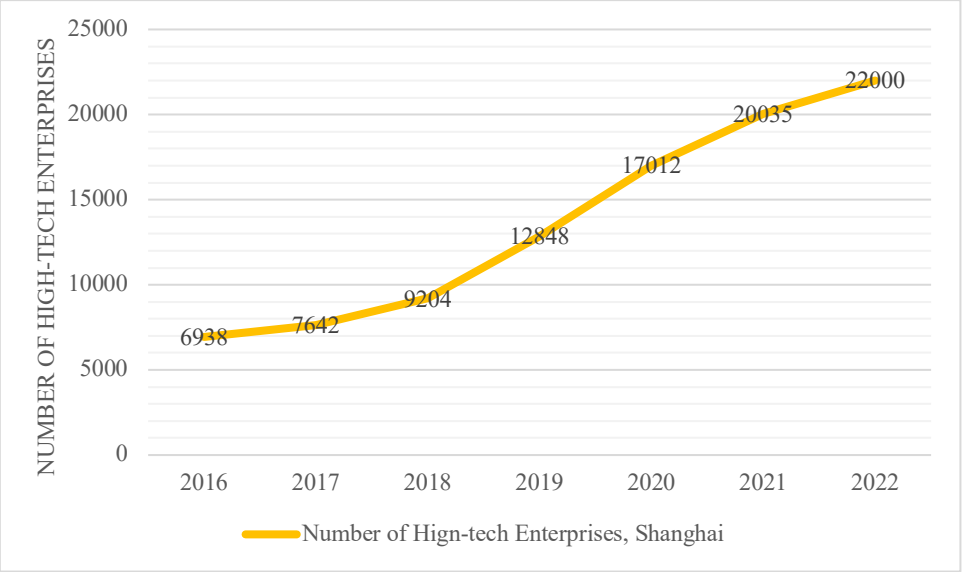

Figure 6: The number of high-tech enterprises in Shanghai, from 2016 to 2022 (Source: Shanghai Municipal People's Government).

The settlements of these enterprises have boosted the demand for talents in further extent, providing more job vacancies, and contributing more output values for Shanghai and China. Moreover, the development of those high-tech enterprises in Shanghai will encourage other provinces and cities to grow technological industries, accelerating the pace of China's economic transition into *smart manufacturing.*

Though the talent outflow is dwarfed by the inflow, talent retainment should still be a severe problem that is worth attention paid and policies devoted. This paper suggests the government should adopt policies in restricting residential house prices and improving the living environment.

Several TR-to-PR groups who already have registered permanent residence in Shanghai are facing hardships in purchasing houses. The median market prices of ordinary commercial houses in all zones (A-class, B-class, and C-class) have increases in varying degrees, where the A-class sections' prices rise the most (as shown in Figure 7)[7]. Specifically, exuberant speculation on houses generates speculative demand, leading to a demand upsurge and an illusion of shortages in the housing market. As a result, boosting demand and finite supply of real estate fuel up house prices, causing house price bubbles, which occur frequently with long durations around 2017. Some previous research has shown a strong positive correlation between high house prices and innovation, suggesting misgivings for talent outflows are needless. However, such correlation becomes weaker these days, especially in first-tier cities [10]. Therefore, to retain talent, policies preventing real estate speculation and bubbling house prices should be implemented urgently to safeguard the interests of individual buyers and avoid the emergence of the bubble economy.

From a demand-side perspective, the Shanghai government has adopted policies in preventing firms from purchasing residential properties, limiting house prices, and strengthening supervision of real estate speculation [11]. After 2018, the falling peak and frequency of the house price bubbling phenomenon have been observed, proving the effectualness of restrictions [12]. While the house prices are stabilized via the efforts of demand-side policies, more supply-side policies should be applied simultaneously, such as suburban houses construction and public rental houses construction, easing the housing burden of young workers by lessening houses price.

[7] Source: CEIC, https://insights.ceicdata.com

DOI: 10.54254/2754-1169/52/20230717

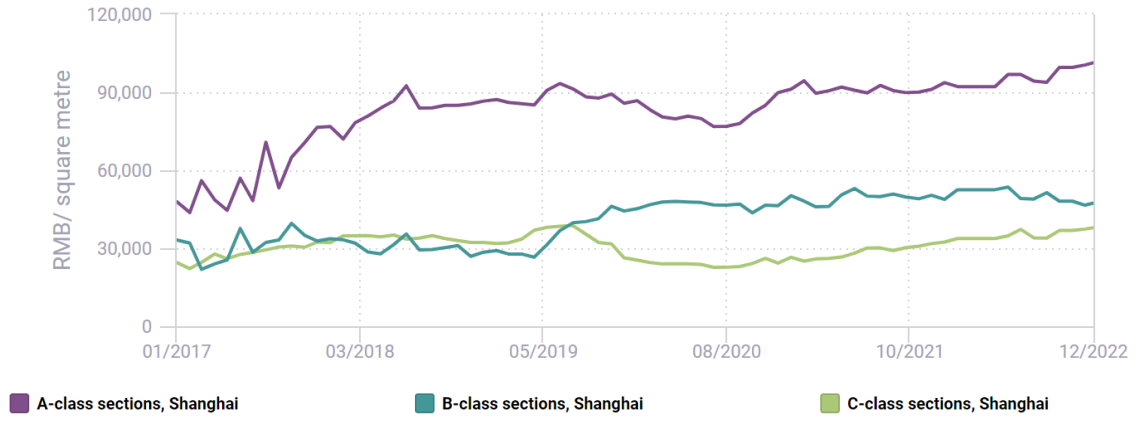

Figure 7: The median market price of ordinary commercial houses in A-class sections, B-class sections, and C-class sections from 2017 to 2022 (Source: CEIC).

In the past decades, intensive industrial and urbanized actions enable the rapid growth of the Chinese economy, but the radical production has brought irreversible ecological damage to nature, affecting people's health conditions and hindering economic growth.

Air quality plays an important role in improving people's living conditions. Air pollution may trigger respiratory diseases, type 2 diabetes, and cancer in the human body [13]. The knock-on effects of defective civil health conditions are working days lost due to illness and falling productivity, reducing productive potential and impeding economic growth in the long term. Moreover, with the increase in healthcare awareness national wide, people tend to migrate to regions where living environments are better; and such migration perception is no exception for highly educated talents [14].

Speaking of protecting the future ecological environment, President Xi has initiated several environmental-friendly calls, consisting of the idea of "lucid water and lush mountains are invaluable assets" [15]. In practice, China is striving to realize a smooth transition to a green, circular, and low-carbon economy. The Shanghai government has responded to the calls actively, and the air quality has got significant improvements over the past decade. The PM2.5 concentrations have halved from 59.86 μg/m3 in 2013 to 26.52 μg/m3 in 2022 (as shown in Figure 8)[8].

[8] Source: Statista, https://www.statista.com/statistics/1283503/china-annual-pm25-particle-levels-shanghai/

DOI: 10.54254/2754-1169/52/20230717

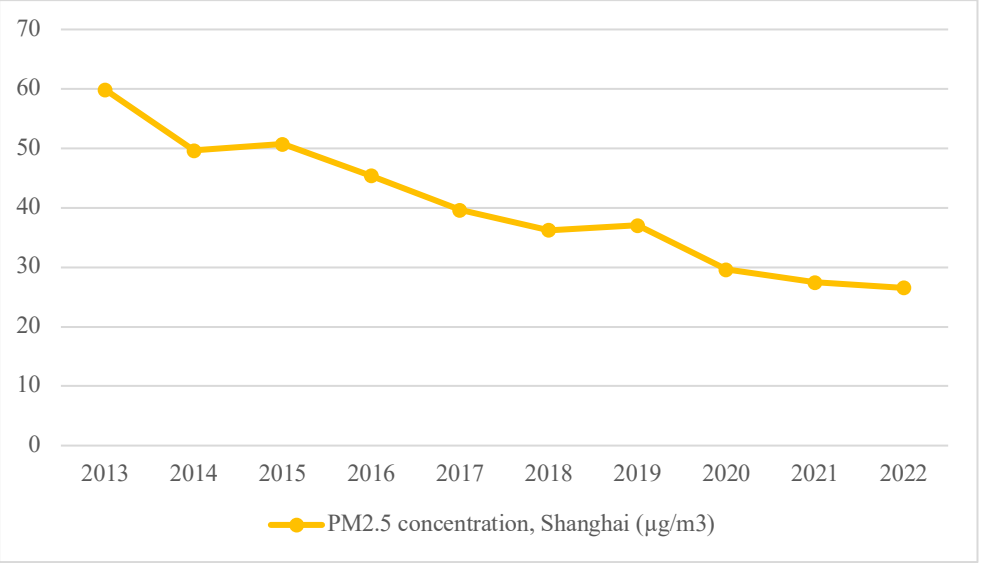

Figure 8: PM2.5 annual concentration (µg/m^3) in Shanghai, from 2013 to 2022 (Source: Statista).

It is undeniable that the air quality has improved through vertical chronological comparison; however, the lowest PM 2.5 concentration (26.52 µg/m3 in 2022) is still more than 5 times higher than the upper-bound value that the World Health Organization suggested (5 µg/m3 annually) [16]. Hence, more regulations aiming to reduce air pollution should be issued and implemented strictly. Additionally, industrial structure replanning also deserves investigation, so that enterprises can gradually transition to low-carbon and environmentally friendly production with minimum cost paid.

4. Conclusion

Innovation is a necessary and sufficient condition for China's economic transformation into a greener and smarter economy. Shanghai, as one of the first-tier cities in China, is recognized as the financial, technological, and many other industrial developing foci. For China's economic transition to succeed, Shanghai must take the lead to encourage innovation and settlements of high-tech enterprises, which is inseparable from gathering talent. Moreover, Zhangjiang Science City locating in Pudong District in Shanghai represents the most advance technological achievements national wide, and its main three leading industries and six hardcore industries contribute large proportion of GDP for Shanghai. Therefore, a surge in demand for talent and high-tech enterprises in Zhangjiang emerges, and government adopts several talent housing and household registration policies to encourage talent inflow. Through data analysis and visualization, this paper supports the feasibility and effectuality of policies implemented in 2020, since both number of talent and TR-to-PR groups doubles from 2020 to 2021. Though Shanghai's performance in talent inflow is remarkable, prophetic policies concerning the issue of brain drain is still needed. This paper suggests two approaches that the Shanghai government can practice. Firstly, government should prevent house prices bubble and ease talents' burden on purchasing houses through simultaneous demand-side and supply-side policies. To lower demands for residential houses, regulations on real estate speculation should be supervised, and companies should be strictly prevented from purchasing residential houses. Moreover, public house and talent apartment construction programs can be applied to alleviate the problem of housing shortages. Besides, there is still space for improvement in air quality, and the government should plan ahead for an environmentally friendly industrial structure to enhance living conditions in the future, which not only benefits residents' health, but also facilitating productivity and economic growth.

DOI: 10.54254/2754-1169/52/20230717

Nevertheless, there are a few subjective factors influencing or limiting the residence choices of talent, such as working happiness index, weather conditions and personal lifestyles. These subjective indicators are excluded from the evaluation section in this paper owing to their difficulties in measuring them in a uniform standard at current stage. Hence, more researches investigating the relationship between non-objective factors and the image of talent settlement can be developed in the future.

References

[1] Roland, G. (2019). Coexisting with China in the 21st century. Acta Oeconomica, 69(s1), 49–70.

[2] Song, Y., and Zhou, Y. (2022). China's Transition to a New Phase of Development. In library.oapen.org. ANU Press. Retrieved from https://library.oapen.org/handle/20.500.12657/61564

[3] Gong, Y., and MacLachlan, I. (2020). Housing allocation with Chinese characteristics: the case of talent workers in Shenzhen and Guangzhou. Eurasian Geography and Economics, 62(4), 1–26.

[4] Zhou, J., and Ronald, R. (2016). The resurgence of public housing provision in China: the Chongqing programme. Housing Studies, 32(4), 428–448.

[5] Fang, C., Ma, H., Wang, Z., and Li, G. (2014). The sustainable development of innovative cities in China: Comprehensive assessment and future configuration. Journal of Geographical Sciences, 24(6), 1095–1114.

[6] Zhu, K., Zhang, F., and Wu, F. (2022). Creating a state strategic innovation space: the development of the Zhangjiang Science City in Shanghai. International Journal of Urban Sciences, 1–23.

[7] Li, J., Chen, L., Chen, Y., & He, J. (2021). Digital economy, technological innovation, and green economic efficiency—Empirical evidence from 277 cities in China. Managerial and Decision Economics, 43(3).

[8] Li, H., Wei, Y. D., and Wu, Y. (2019). Analyzing the private rental housing market in Shanghai with open data. Land Use Policy, 85, 271–284.

[9] Liu, Z., Wang, Y., and Chen, S. (2016). Does formal housing encourage settlement intention of rural migrants in Chinese cities? A structural equation model analysis. Urban Studies, 54(8), 1834–1850.

[10] Lin, X., Ren, T., Wu, H., and Xiao, Y. (2020). Housing price, talent movement, and innovation output: Evidence from Chinese cities. Review of Development Economics, 25(1), 76–103.

[11] Chen, L. (2018). Shanghai announces new policies to curb real estate speculation. Retrieved from https://www.chinadaily.com.cn/a/201807/03/WS5b3b186ca3103349141e06a8.html

[12] Gu, Z. (2023). A Study on the Measurement of Real Estate Bubble Based on GSADF: A Case Study of Four Super First-tier Cities in China. Highlights in Business, Economics and Management, 5, 499–506.

[13] European Environmental Agency. (2023). How air pollution affects our health. Retrieved from www.eea.europa.eu website: https://www.eea.europa.eu/en/topics/in-depth/air-pollution/eow-it-affects-our-health#:~:text=The%20World%20Health%20Organization%20(WHO

[14] Lai, W., Song, H., Wang, C., and Wang, H. (2021). Air pollution and brain drain: Evidence from college graduates in China. China Economic Review, 68, 101624.

[15] Huang, R. (2021). Huang Runqiu: Adhere to the concept of "lucid waters and green mountains are golden mountains and silver mountains" to promote comprehensive green transformation of economic and social developmen. Retrieved from: https://www.gov.cn/xinwen/2021-01/15/content_5580195.htm

[16] World Health Organization. (2021). WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Retrieved from https://www.who.int/publications/i/item/9789240034228