

Government response and Talent Stickiness: What Causes the Location Transfer of High-Tech Industries

-- Based on Huawei's Location Selection in the Greater Bay Area as an Example

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Abstract. Location selection of high-tech enterprises is one of the key topics in current research. The researchers discovered that Chinese Internet companies have a long tradition of positioning and development in prime cities. In the last few years, more and more Internet businesses have opted to leave the top cities. Through collecting and sorting relevant literature, this paper uses the empirical research method by Process-Tracing Method in a case study to discuss why Huawei's headquarters officially moved from Shenzhen to Dongguan. However, with The Times's development, the city's location advantage has changed. Shenzhen's policies and geographical position are no longer sufficient to attract Huawei's high-tech industry. With the development of the city, Shenzhen has brought increasing production costs for high-technology companies and industries. Compared with Shenzhen, the enterprise will develop better when the factory is relocated to Dongguan. The real estate cost of the enterprise will be significantly reduced, and talent stickiness will also be greatly improved.

Keywords: Location Advantages, high-tech enterprises, GBA.

1. Introduction

In the 1830s Thunnen in the theory of agronomic localization and Weber in the theory of manufacturing localization advanced the concept of more localization. Furthermore, they noted that not all areas have production conditions. Only some regions have committed themselves to the production of benefits, also considering that these regions have committed themselves to this kind of benefits of localizing production [1]. As a result, geographic advantage refers to the specific conditions for the development of the creation or field and the pursuit of profitable effects in a given region. Point of origin, natural location, human being localization, and common activity of the natural world and human localization [2].

The key to development resides in the transformation of regional advantage into a natural power of development. For a city, its increasing power derives mainly from the advantage of location, the formation of a metropolitan economy, and the achievement of institutional innovation [3]. The economy and scale of the urban area are increasing, and the population, economy, and space of the city will carry on booming. Innovative enforcement desire also is a major driver of urban development. The city with the greatest success in China is Shenzhen. However, Shenzhen also offers advantages in terms of geographic and spatial location, and these two advantages are linked to the spatial specifics of its adjacency to Hong Kong. Of these, the political location advantage refers to the central government's advantage over a particular area that does not belong to other regions and towns in China. Geographic superiority refers to the leading power behind Shenzhen's ascent to Hong Kong, which Shenzhen achieves because of its vicinity to Hong Kong. Nevertheless, with the growth of the Times, the technology industry has step by step taken over the leadership of the commercial field. It has built the expansion of this rising field receiving ever greater attention. Having grown up in the contemporary context of the market economy, technology companies are fresh businesses built from technology. Its production and management characteristics differ from those of traditional enterprises. This is an unsympathetic business atmosphere. Its localization standard and localization specifics are

highly dissimilar from traditional businesses, with research into the localization of technological businesses being a significant new subject in the inner-city political economy [4].

Over the last few years, more and more Internet companies have opted out of the top companies. For instance, Huawei officially left its Bantian foundation in Shenzhen and headed to Songshan Lake in Dongguan on July 1, 2018. Since twin cities are also positioned in the GBA, what sort of geographical superiority does Dongguan have that drove Huawei to draw this selection? Why is the advantage of the original site of Shenzhen no further attractive? By exploring these issues, we can persuade a company's development decision through various regional benefits.

This paper focuses on the attractiveness of long-distance site benefits to businesses in the Greater Bay Area. The study is primarily based on a literature review, including reports, official information, academic articles, and analyses. The basis of the research is the basis and factors that influence the siting of high-tech companies. Next, it explores the reasons why Huawei was originally located in Shenzhen and considers the commonality and the distinction between the advantages of the original Shenzhen site and the present-day. If so, why did advantage in the past become a compulsion for Huawei today? How does the advantage of the present location of Dongguan meet the current demand of Huawei? Apart from the level of the company, this article also focuses on the geographic advantage of human factors: the social treatment of employees of the company. This implies not just the advantage of political location, but also the advantage of space-based location. The erect organization of business stand-up research assists to enhance the research of the business situation hypothesis.

2. Literature Review

Consequently, spatial advantage means the ideal conditions to develop a particular product or field and engage in fiscal activeness in a peculiar region. The source, natural position, human being situation, and the combination of nature and human being location [2]. The modern concept of location advantage relates more to industrial location. The modern concept of location advantage relates more to industrial location. Industrial location theory examines traditional factors that influence the location of firms -- cost factors (production and transportation costs) and market factors.

According to the theory of industrial localization, under certain constraints, the objective function which determines the industrial configuration and economic activities of companies minimizes the cost of production. According to Wood's research, cost minimization has also become one of the factors that companies need to consider when deciding where to invest [5]. Represented by the classical regional theory of Thunnen and Weber, cost minimization is the site selection standard. Within the Weber base site, departmental costs cover deportation costs, salary, land costs, raw material and fuel costs, construction costs, and apparatus costs. Further, consideration should be given to the agglomeration of economic benefits and costs.

The high-tech company is a new kind of company based on high and new technology, which grows in the condition of the modern market economy. It has different production and management characteristics and a different economic environment than conventional companies. Its requirements and site selection specifications are completely various from conventional companies. Now, based on the expansion of science and technique and the economy, the administration objective of advanced technology companies has been separated from the objective of direct near-term benefit. It concentrates on the pursuit of long-term survival and business development space. Economic conditions are changing rapidly. With rapid advances in science and technology, product improvement is accelerating, and a shorter lifespan, the high-tech business is facing a survival crisis. However, this new type of business localization theory, based on the production and exploitation of the characteristic features and change in the financial atmosphere, has initiated the research of business localization thesis [4]. Factors such as science and technology have a decisive influence on the location choice of enterprises. This can be entirely demonstrated by the space-based allocation characteristic features of advanced technology companies, namely localization characteristics. In general, hi-tech companies have the after locational characteristic features: Enterprises have a

professional parking establishment: from Silicon Valley in the United States to Beijing Zhongguancun Academic Park, Taiwan Hsinchu Business Park, and Shenzhen Special Zone Academic and technique Commercial park, technology companies all over the world are developing in the form of specialist parks. High-tech firms with equal or nearly linked fields are comparatively grouped, creating parks with different occupational special characteristics in space. Business localization focuses on new urban community areas and rising cities: Unlike classic industries, high-tech companies are almost all in a big city, a new neighborhood, or an emerging city. The new district must be set up to meet the construction standards of the new city and the location of high technology companies. This could mean that high-tech companies depend on the state of the plant and use it in large cities, which would increase environmental requirements.

Companies are distributed in areas where scientific research resources are abundant: Due to their reliance on the power of scientific research, high-technology firms tend to have similar distribution with academic investigation property. Indeed, in cities with full-blown economies and academic and engineering, the locality where universities and academic investigation institutes have abundant resources for scientific research. These regions tend to have numerous high-tech companies.

3. From Shenzhen to Dongguan: Huawei's Location Transfer in the Greater Bay Area

3.1 Advantages of the Greater Bay Area

Comprising Guangdong, Hong Kong, and Macao, the Greater Bay Area is an open geographical unit. Because of its relatively independent location, it constitutes an important maritime transportation hub for China. As a channel for China's foreign exchanges, the Greater Bay Area is also one of the important foreign trade ports on the maritime "Silk Road". The Guangdong-Hong Kong-Macao Greater Bay Area has excellent geographical conditions, "surrounded by mountains on three sides and converged by three rivers", with a long coastline, good port groups, and a vast sea area. With a vast economic hinterland, the Pan-Pearl River Delta region covers about 1/5 of the country's land area, 1/3 of its population, and 1/3 of its total economic output. Hong Kong and Macao have always been the two regions of economic and cultural exchanges between China and the West. Guangdong, which has always been adjacent to them, also became an important treaty port and world-free trade port of its proximity. They are not only dynamic world-class city clusters, but also international centers of science and technology, and innovation with global influence. They are also important supports for the Belt and Road Initiative [1].

3.2 Shenzhen's Location Advantage for High-Tech Companies

The policy of the specific area and the market economy, and the atmosphere provide a virtuous basis for the scientific and technological entrepreneurial spirit of Shenzhen. As China's first special economic zone, Shenzhen's privileged policies and the reform of the market-based economic system are the geographic advantages of attracting scientific and technological projects and talent to settle. It also encourages the development of high-tech industries. Due to the system's advantage and market apparatus, the high technology industry in Shenzhen gradually drew up from scrape. The original establishment of the technology field placed the foundations for the commercial expansion of the Shenzhen Special Area. Consequently, it constitutes a matching accumulation apparatus and plays a role in attracting and stimulating the development of the high-tech industry in the future. The local budgetary core offers a considerable financial atmosphere for high-technology companies in Shenzhen. The high-technology industry is a high-risk, high-investment field that demands matching capital and expenditure. Shenzhen is among the first cities to explore how the capital market works. Shenzhen has solid financial support terms and global economic apparatus. Shenzhen has a groundbreaking technological expenditure budget constituted of regional businesses as well as foreign venture capital wherewithal. The technological expansion of high-technology businesses in

Shenzhen can catch a regular flow of capital injection. Furthermore, the geographic profit neighboring Hong Kong, the Asian fiscal center, reaches it appropriate for technological companies in Shenzhen to carry the profit of the Hong Kong capital trading. The comparatively great tier of inner-city erection in rising cities is for Shenzhen's urban environmental benefit to attract high-tech firms. As a rising city, Shenzhen has always preserved a great tier of inner-city development to accommodate inner-city building and economic improvement. Shenzhen has a strong construction of urban infrastructure and a magnificent eco-friendly atmosphere. It is the sole township in China with comprehensive maritime, ground, and airport facilities. Shenzhen's level of the built-up building is in the vanguard of extensive and moderate-sized cities in China [6].

3.3 Transfer Decision and Process

During the 2008 financial crisis, the real global economy seriously declined for Dongguan, economic growth slowed down, and Dongguan had many contract manufacturing enterprises bankrupt. After the heavy blow of the financial crisis in 2008, Dongguan introduced strategic, innovative institutions and emerging high-end industries at the outlet of the industrial Internet and gave full play to the geographical advantages of Guangzhou and Shenzhen, gradually transforming from a low-end contract manufacturing industry into high-tech electronic information industry, and vigorously developed the tertiary industry. More and more factors of production and capital close to Dongguan produce positive external effects. Furthermore, policy and environment encourage domestic leading enterprises to settle in Dongguan. Compared with Shenzhen, Dongguan Songshan Lake High-tech Industrial Development Zone has complete infrastructure construction and vast and cheap land, which meets Huawei's demand for capacity expansion and is in line with Huawei's strategic layout of building Huawei's green town.

In 2011, Huawei's supply chain department started to move to Dongguan. In 2012, Huawei registered Huawei Terminal (Dongguan) Co., LTD in Songshan Lake. In 2015, Huawei Terminal (Dongguan) became Dongguan's most significant revenue and taxpayer. In 2016, Huawei's 1,900 mu of land in Songshan Lake was on par with its 2,460 mu of land in Shenzhen [7]. In 2018, Huawei moved its production lines to Songshan Lake in Dongguan in five major moves, becoming one of the two hundred-billion-level enterprises in Dongguan. After Huawei moved to Dongguan, many of Huawei's suppliers also moved. DJI, PWC, and other high-tech enterprises followed in Huawei's footsteps in planning to lay out the Dongguan market and relocate their factory production lines to Dongguan [8].

3.4 Effect of Transfer

For the regional economic development of Dongguan, Huawei's relocation, on the one hand, has promoted high-tech development in Songshan Lake and attracted many enterprises and production factors to gather. On the other hand, since Huawei's relocation, the economic level of Songshan Lake and its surrounding areas has improved, positively impacting the city's regional economy. As for Shenzhen, Huawei will go out of its core business to other businesses, leading to the transfer of many suppliers and some high-tech enterprises, effectively vacating much space for the future development of Shenzhen and promoting the efficient allocation of the city's industrial structure [8].

4. The Causes of Location Transfer of High Tech Industries

4.1 The Level of Economic Development Affects the Government's Responsiveness to Enterprises

Shenzhen's ballooning property market has weighed on Huawei. Shenzhen has a great deal of real property and too little commercial territory. Now the land used for industrial development in Shenzhen is getting smaller and more expensive, and there is less and less room for industrial development. For Huawei, Dongguan can take over the production of the Huawei terminal. Huawei is prepared to move its depot manufacturing department to Dongguan because the Dongguan

government delivers superior conditions than the Shenzhen government. According to the traditional practice of local governments, they are generally very friendly to new enterprises. On the contrary, they are not enthusiastic about establishing enterprises for a long time, especially local ones. What Huawei needs is sustainable service and not a one-time service. Compared to the high price of housing in Shenzhen and the narrow space, Dongguan's greatest competitiveness is biased government policies, more places, and lower prices, which is "cabbage price" matched to Shenzhen. In 2014, a Huawei affiliate purchased two home-based and commerce plots in Dongguan for less than a tenth of the cost of corresponding plots in Shenzhen. Huawei is struggling to receive the same level of care and assistance as Dongguan. Inevitably, Huawei headquarters will be evacuated.

The relocation of Huawei headquarters is a good thing for Huawei and a win-win result for the Dongguan government and enterprises. For Dongguan, in 2015, Huawei Terminal (Dongguan) Co., Ltd. ranked number one in Dongguan in terms of both tax and income payments, with an approximate turnover of 100 billion yuan and tax revenues of 2 billion yuan. In 2014, Huawei paid only RMB 240 million in taxes to Dongguan, ranking 10th. In a single year, Huawei became the brightest company in Dongguan [9]. These figures prove that the Dongguan government's efforts are well worth it.

4.2 Talent Stickiness is the Cornerstone of the Development of High-Tech Industries

In addition to the enterprise-level reasons to promote the relocation of Huawei headquarters, the improvement of the treatment of internal employees is also a strong reason for the relocation. As the economy grows, there are still plenty of challenges to creating welfare working and living atmosphere for academic and engineering talent in Shenzhen. Shenzhen is implementing the urban rejuvenation strategy through science and technology. While there is a good atmosphere of scientific and technological development in Shenzhen, it is silent far away from offering elevated sociable standing to scientific and technological talent. In Shenzhen, policy-making authorities still do not have the voice of scientific and high-technology talent. Government officials are still ideologically inclined to use scientific and technological skills for the government. Shenzhen has also not done sufficiently to build satisfying conditions for scientific and technological talent, such as the lack of construction of clubs and affiliated organizations required. Furthermore, the needs of scientific and technological personnel for life services are different from those of everyday citizens. They need suitable urban transportation and an adequate standard of living. Most importantly, to adapt to the higher demands of scientific and technological personnel, high-level hospitals, stadiums, and various high-level leisure and entertainment facilities. The relevant facilities in Shenzhen obviously cannot meet the requirements [10].

As early as 2009, the Dongguan government made a plan to build apartments and clubs for Huawei employees in Dongguan. The project is located in the Science and Technology Park north of Songshan Lake, Dongguan City, covering an area of 144 644.3 square meters. The base is surrounded by a nine-year compulsory school, kindergarten, and company dormitory area. The planned buildings include dormitories, clubs, commercial supporting rooms, and underground garages [11]. Businesses should cultivate employee culture and increase company loyalty, and well-being is also critical to employee retention. Employees refer to support infrastructure and the atmosphere, not mercantile complexes and high-costly real estate, merely transportation, education, care of the elderly, and other living problems.

5. Conclusion

The theory of industrial localization makes it possible to study the spatial distribution characteristics of production factors. Unlike traditional businesses, which have high demands for local natural capital and travel, meteorology, and environmental requirements of high-tech companies are based on the work and living requirements of scientific and technological talent. As a leading domestic high-tech company, Huawei chooses to build a factory in Shenzhen due to its political and space advantages. However, with the economy's development, local governments' attitude toward

real enterprises has become more subtle, among which there are few likes. Huawei could take root in Shenzhen and become a communications company with strong global competitiveness thanks to its efforts and a favorable development environment in Shenzhen at the time.

But now, the development environment has changed, fewer factors are encouraging business development, and businesses cannot grow as much as in the past. This change compelled Huawei to seek better development by changing the location of its head office. Huawei chose to move to Dongguan because of the government's new policies and an excellent living atmosphere. Shenzhen has too much property and too seldom commercial land. Dongguan's greatest competitive advantage is political orientation and cheap land. Subtle differences in government policies can have a crucial impact on the survival and development of enterprises. As an established and well-known enterprise, it is a win-win choice for Huawei to settle in Dongguan. Huawei was number one in paying taxes and income in Dongguan, which greatly improved the city.

The high price of a property in Shenzhen has affected the future development of the company's market, as well as the demand for employees within the company. High company salaries cannot meet the day-to-day needs of employees, making businesses far less attractive to employees. The supportive environment that high-tech talent wants is not commercial networks and cost-intensive buildings, but subsistence issues such as transport, education, and care for the elderly. Huawei has moreover obtained attractive government policies in Dongguan, not only for commercial sites but also for employee accommodation. As a result, Huawei's business costs have been significantly reduced.

The significance of geographical superiority in competition has remained unchanged since Antiquity. Since the reformation and opening, with the development of the Times, Shenzhen has become a first-class city with the unique advantages of the location. For high-tech industries, the cost of manufacturing of natural capital and transport is well below the cost of business real estate. However, with the development of the city, Shenzhen has brought increasing production costs to the state-of-the-art industry. This change renders Shenzhen's localization advantage far behind Dongguan in this regard. Once a dream town, Shenzhen will eventually face the difficult situation of urban exodus and an economic bubble.

References

- [1] Li Qin, Lin Runhui & Tan Huiping. Analysis of the location advantage of Guangdong's development of living industries. *Modernization of shopping malls*, 2008, (16): 268.
- [2] Li Bo, Li Li & Guo Yuanyuan. How the "Shenzhen-Hong Kong" space proximity affects Shenzhen's economic system: Taking the changes in Shenzhen's land management system as a case. *Urban Development Research*, 2015, (08): 86-91, 106.
- [3] Li Guicai. Learning Shenzhen: How to Create Space for the Rise of the City? *Hangzhou (Weekly)*, 2017, (23): 16-17.
- [4] Yuan Yicai. Discussion on the location theory of high-tech enterprises—Also on the locational advantages and disadvantages of attracting high-tech enterprises in Shenzhen. *Special Economic Zone*, 2001, (11): 17-19.
- [5] Wu Wei. The location advantage of Guangdong in attracting foreign direct investment and its changes. *Guangdong Science and Technology*, 2006, (07): 20-22.
- [6] Yuan Yicai. The stage characteristics and experience of Shenzhen Special Economic Zone Development in 40 years. *China Special Economic Zone Research*, 2020, (00): 60-80.
- [7] Wu Ying. Shenzhen is no longer dreaming. *China Industry News*, A02, 2016-06-03.
- [8] Zhang Chongkai. Analysis of urban economic agglomeration in the Growth pole Region of the Greater Bay Area -- A case study of Dongguan City. *Modern business*, 2022, (14): 26-29.
- [9] Yue Tao & Li Dongyang. Shenzhen to the left, Huawei to the right. *East, West, North and South*, 2016, (13): 17-19.

- [10] Yuan Yicai & Liang Xuehui. A Humble Opinion on the Modernization of Shenzhen-Dongguan-Huizhou Regional Governance System. *Special Zone Practice and Theory*, 2015, (05): 113-118.
- [11] Zhang Yan, Li Yiyang, Cao Ying, Yang Xuesong & Wang Wenge.. Huawei Dongguan Staff Apartment and club. *Building Technology and Design*, 2009, (01): 94-99.