

Development of Factor Market: The Case Study of Shenzhen

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Abstract. Shenzhen has been fast developing city since the 21st century. The rapid growth of the economic process can't be without the development of factor markets. However, not many academic papers nowadays have discussed the reasons for this. This article will mainly explain the basic information of Shenzhen's factor market since the 1980s, the problems of the factor market nowadays and solutions to them. This paper mainly used quantitative analysis to gather the most essential issues in the past decades and try to provide solutions. They are all just possible suggestions since the future may be affected by global changes and it is unpredictable. The experiences of Shenzhen are valuable and other cities in the world can learn from it.

Keywords: Factor market, development, Shenzhen.

1. Introduction

In the modern economy, a complete market usually contains a commodity sub-market and a factor sub-market. Factor markets are all the resources that a business uses to produce, hire, or rent what they need in order to produce the products they want. Usually, the outcome is produced by producers from the commodity market. The consumers of the commodity market are usually the constitution of the labor factor market, one of the factor markets. Factor markets are an indispensable part of a modern economy. A healthy economy would not be able to operate with the lack of a factor market. According to research, factor markets such as the labor factor market and financial factor market can contribute largely to the economy, since the distortion of them affects the processes [1].

Shenzhen is one of the fastest-developing cities in the world. However, there are not many people who study Shenzhen nowadays. This paper chose Shenzhen as an example to analyze why it has such a fast development so that other cities in the world can learn from it. This paper will talk about the basic circumstances of the factor market in Shenzhen nowadays, use quantitative analysis and literature documentation to research the issues of the factor market in Shenzhen and seek to give suggestions to solve the issues. Shenzhen started its development of a factor market in the 1980s when Shenzhen was first established. The first two factor markets that developed in Shenzhen were the labor factor market and the land factor market. Policies of these two have been made and amended since the 1980s. At that time, land could be sold and traded personally, which had never been seen in China before. This is the start of the reforming of the land factor market in Shenzhen. The financial factor market in Shenzhen started to develop a few years after the previous two. The data factor market and technology factor market developed in the 21st century, which was later. This was because high-tech industries required more skills, so it took more time to develop. However, the progress of factor markets in Shenzhen is not always well-off. Shenzhen has experienced some problems in factor markets. For example, data asymmetry, peri urbanization, and inefficient use of land have been seen respectively in the data factor market, labor factor market and land factor market.

2. Current Situation of the Factor Market in Shenzhen

Generally, factor markets in Shenzhen contain the technology factor market, labor factor market, land factor market, financial factor market and data factor market. These factors are relatively independent but also rely on each other. Only when these five sectors work together, can the whole factor markets as a whole be complete and improve.

2.1. Technology Factor Market

Science and technology are the main production forces. Zhang Zongfa thinks that in modern society, the essence of technology is systematic knowledge and skill, a technological operation method and skill formed according to the principles of natural science and production experience, and the systematic application of scientific or organized knowledge in actual economic and technological activities [2]. Shenzhen started reforming by changing the institution and establishing relevant policies to create a good environment for scientific personnel to innovate. In 1978, in the third plenary session of the 11th Communist Party of China Central Committee, the national government first mentioned that technology could be a commodity. In 1984, technology became a commodity that could be bought, and this was when the technology factor market became one of the factor markets of China. In 1987, the Shenzhen government enacted "Interim provisions on encouraging scientific and technological personnel to set up private science and technology enterprises" to attract foreigners to come and establish firms in Shenzhen, including the founder of Huawei, Ren Zhengfei. In 1999, Shenzhen held the first China international high-tech fair, which established an important trade platform for the domestic technology factor market. The fair has created conditions for the transformation of scientific and technological achievements into productive forces and achieved great results. The High-tech Forum has also become one of the most high-end forums in China's high-tech field. In 2013, Shenzhen launched the reform of the commercial registration system, lowered the market threshold, and created a good market environment for the innovation and entrepreneurship of scientific and technological personnel [3]. Since 2016, the whole Guangdong province has started to cultivate technical managers and has started to create training bases. In 2015 and 2020, the transfer of talent to Shenzhen made done great contribution to the development of the technology market in Shenzhen. In the first half year of 2022, the total number of granted patents in Shenzhen reached 144.8 thousand, patents per ten thousand people reached 124.9 pieces, which is six times that of the rest of the areas in China. On the other hand, the covid-19 has stimulated the germination and development of the new economy, and offline industries such as traditional retail, tourism, and education have been greatly impacted, while the "stay-at-home economy" has grown against the trend in areas such as direct broadcasting, unmanned distribution, and task trading, and digital transformation and industrial digital upgrading have created favorable conditions for Shenzhen to improve its key market system [4].

2.2. Labor Factor Market

The labor factor market is also an essential constituent of the factor markets. At the start of reforming and opening up, Shenzhen has started to try out market-oriented recruitment of enterprises. This means that enterprises recruit workers and pay for them according to their working time and their quality. In 1980, Shenzhen started to recruit talented workers from all over the country. 5 years later, Shenzhen established the first firm for servicing the labor factor market. In 1993 and 2007, Shenzhen enacted "Regulations on Labor Workers in Shenzhen Special Economic Zone" and "Shenzhen Residence Permit Trial Measures" to help the rights of the non-registered population. In the past 40 years, the number of fully employed workers has increased from nearly 0 to fifty million workers. (From Shenzhen statistical yearbook 2022) Even in recent years, Shenzhen's working population is still growing. From 2017-2020, the net talented workers' flow ratio was 0.1%, 0.4%, 0.2%, 1.3%. This brought Shenzhen a 3.1% increase in the speed of GDP growth, which is higher than the national average of 2.3%.

2.3. Land Factor Market

Land is the most basic production factor. The allocation of land directly affects the economic processes and the lives of people. According to The Wanyi and Zhou Hanxian [5], in the last 20 years, the development of Shenzhen's land factor market can be concluded as four parts. The first part is from 2003-2006. In their 4 years, a policy named "call for bid, auction, and hang for sell" has been enacted. This means that all the land in Shenzhen can be traded between people and people. To this

extent, Shenzhen has already successfully controlled the trading of the land factor market. In the second part, which is from 2007-2011, in this era, the use of industry land is the most primary, and residential land has decreased. In 2007, due to the national university students' sports meeting, Shenzhen started to develop faster than before and the supply and demand of land increased massively. The ratio of land supply during these five years is 60% of the total land supply in the past 20 years. In the third part, from 2011-2015, the land market starts to decrease. The total number of lands sold decreased in the five years. The public transportation land use shirked the most. In the last part, from 2016-2021, the house price boosted, up to the highest point of 60%. The supply of land increased in this era. Residential land area also increased.

2.4. Financial Factor Market

The financial factor market in Shenzhen started from scratch. In 1981, Shenzhen introduced Nanyang Commercial Bank, the first foreign bank in China. In December 1985, the first foreign exchange adjustment center in China, Shenzhen Foreign Exchange Transfer Center, was officially opened. In 1986, China International Finance Co., Ltd., the first Sino-foreign joint venture finance company in China, was born; In April of the following year, China Merchants Bank, the first joint-stock commercial bank in China, was established, setting a precedent for enterprise groups to run banks. In 1988, Ping An, China's first joint-stock and local insurance company, was also born in Shenzhen. In 1991, the Shenzhen Stock Exchange was opened, and the capital market operation has had an official carrier since then [6]. Until the end of June this year, the total value of loans in Shenzhen exceeded nine trillion yuan, increasing at a rate of 8.9%.

2.5. Data Factor Market

The data factor market includes industries such as the Internet. Shenzhen, its data factor market first started at the beginning of the 21st century. In fact, in December 2021, Shenzhen established the first data exchange market. This is when Shenzhen actually started developing the data factor market. In 2023, the Shenzhen government enacted "Shenzhen Interim Measures for the Management of Third-Party Service Institutions for Data Vendors and Data Circulation and Transactions" and "Shenzhen Interim Measures for the Management of Data Transactions". These two policies first stipulated the types of data trading, what types of data trading are allowed to be traded, and the operating agency for trading data factors. Also, one significant problem for the data factor market is hard to manage. Shenzhen has made some innovations in ways of managing by setting up special groups that focus on data supervision mechanism, which is responsible for tracking the trade of data factors. With the strict policies and the fast development of Shenzhen, until January 31st, 2023, the Shenzhen data trading agent has successfully traded over 505 trades, and the total value of money traded has exceeded 1.4 billion. In the next stage, data agents in Guangzhou and Shenzhen will be the center of the development of the data factor market, and these two cities will strive to become the national data agents [7].

3. Problems of the Factor Markets in Shenzhen

Since the reforming and opening up in the 1980s, Shenzhen has started to boost its economy. The five sectors of the factor market that have been discussed above have developed vastly. The factor market has made a great contribution to the economy of Shenzhen, and the GDP of Shenzhen nowadays has exceeded 3 trillion yuan. However, developing too fast may also bring some issues to the factor market. For example, Shenzhen has only been established for 40 years, it is mostly constructed with migrant and floating populations, so the allocation of land and registered permanent residence may not be reasonable. In other sectors of the factor market, problems also have been seen such as data asymmetry in the data factor market. The following part of this article will talk about the issue of the factor market of Shenzhen.

3.1. Data Asymmetry

Data asymmetry occurs in the data factor market. In the era of the digital economy nowadays, data, one of the newest factors of production, is an important social asset and essential social productivity. Shenzhen's digital economy and data factor development have been disturbed by the uneven information between different institutions. This is mainly due to the Hierarchical management mechanism that Shenzhen uses. The hierarchical management mechanism is to divide enterprise management into multiple levels. It is supposed to be scientific and systematic. Every gradation has its own responsibility, and when different gradations cooperate together, the firm can work as a highly efficient system. When a suggestion or information is needed to tell the entrepreneur, the lower level of gradation sends the information to the higher level of gradations step by step. However, the process of transforming information in Shenzhen is relatively efficient. Due to a large number of divisions of gradations, it is way too hard and takes a lot of time to transfer information from different sectors of the firm. Therefore, in the process, important information may be lost. One other reason for data asymmetry may be the lack of ability of the government. The government has not created a fully impartial environment for data trading. Therefore, a party to a transaction may have more information than the other one. This directly causes data asymmetry in the data factor market. An uneven trading environment is also commonly seen in the financial factor market.

3.2. Peri-urbanization of Labor

Peri-urbanization occurs in the labor factor market. The household registration system is the basic policy for controlling the urban population in China. "Hukou" decides whether one person can live in a city permanently or not. If people have "hukou", they are allowed to take advantage of the local education, local sanitation and more privileges than the non "Hukou" people. Therefore, it would be unfair since the non-permanent workers can not enjoy the welfare benefits. This is a big issue occurring in Shenzhen. Until 2022, according to the Shenzhen government, nonresident population in Shenzhen has reached nearly 12 million, which is 67% of the total population in Shenzhen. If the large population of fluent workers cannot experience full social welfare, they may move out of Shenzhen and go to other cities since living in Shenzhen is way too hard. On the other hand, if education and sanitation cannot be fully enjoyed by the non-residential population, it would be hard for Shenzhen to pass on to the next generation since people are afraid to bear more children. Therefore, this would restrict the development of Shenzhen.

3.3. Inefficient Use of Land

The issue of land efficiency occurs in the land factor market. Due to the insufficient supply of land management system, the lack of urban planning control and the lack of policy implementation, Shenzhen has produced a large number of problems left over from the history of land and construction. Most of these remaining problems of land do not conform to spatial planning, and due to unclear property rights and incomplete powers, these lands cannot enter the market for circulation, forming inefficient use of stock land [8]. Shenzhen, compared to other big cities in China such as Shanghai, Guangzhou, and Beijing, is a relatively small city. Its area is even smaller than 20 million square meters. Also, the population density in Shenzhen has reached 5963 people per square kilometer. Therefore, such a small and crowded area restricts the flow of other factors of production and talented workers. What's more, some firms may move out of Shenzhen. This means that talented workers and factors of production will leak out, which is not an advantage for Shenzhen to centralize the factors of production. Therefore, the economic growth of Shenzhen will decrease. On the other hand, 1/6 of Shenzhen's area is a village in the city. This means that although Shenzhen has a small area, 1/6 of it cannot be used as commercial land or industrial land.

4. Suggestions

Governments have been trying to solve the issues of factor markets. In 2020, the government announced "Opinions on building a more complete institutional mechanism for market-oriented allocation of factors" (the following article will be called "opinions"), to deepen reform of the factor market system. It is mentioned that Shenzhen should increase the independent and orderly flow of factors of production, and increase allocative efficiency. Other policies or innovations have also been tried out in Shenzhen, and the following part of the article will discuss them.

4.1. Promote Data Brokers

Establishing data brokers is used to solve the issues occurring in the data factor market. As mentioned above, one issue occurring in the data factor market of Shenzhen is data asymmetry. Li Jie and Ye Qian thought that government departments should further improve the public data sharing and exchange platform system and promote data development focus on solving the problem of "information islands" in government departments [9]. Data brokers can solve this issue to an extent. A broker is usually in the middle of a consumer and the seller. Its main usage is to introduce sellers to consumers, transform information, and also give advice during the trade. As the internet develops quickly, more and more trades are done online. Also, more and more information is posted online and it is hard for a human to remember all the information. Therefore, a data broker will need to be established to deal with all the messages. Basically, it collects, analyzes, and sells data from data providers to third parties. In the era of the digital economy, data brokers are important participants in the digital economy as an intermediate role in collecting or hosting the basis, and sharing or reselling data to users [10]. After the establishment of data brokers, the trade market can be monitored by it. Data brokers provide privacy protection for consumers. Data brokers also fill the gap of missing talent in the data factor market. Data trading agents may cooperate with the data brokers to complete trades more efficiently.

4.2. Change the Household Registration System

Shenzhen should change its household registration system. First, Shenzhen should relax its point-based household registration. The part-time population, which are people who are not students of universities or high schools, and people who are not workers from companies, are not allowed to receive a "Hukou", which is the evidence of living in a city. They will have to work for a long time in Shenzhen so that they can apply for a "Hukou". Therefore, if this policy is not too harsh, it would be easier for people to apply for "Hukou" so that they can enjoy fully the social welfare benefits of Shenzhen. Secondly, weakening the social welfare that can be enjoyed based on the household registration system, such as education and sanitation. Therefore, the gap between non-permanent residents and permanent residents would be smaller. Thirdly, since Shenzhen is a crowded city, the overflow population should be given a Hukou in nearby cities such as Huizhou and Dongguan. This idea of a metropolitan area will be discussed further in the following article. As they are transferred to nearby cities, the burden of population in Shenzhen decreases.

4.3. Optimize Land Space

As mentioned above, Shenzhen is actually in a situation of inefficient use of land. There are a few suggestions that can help Shenzhen to optimize land space. First, it is important to reconstruct the areas of villages in cities. 1/6 of the area in Shenzhen contains 45% of the population, which is bringing a strong burden to Shenzhen. Shenzhen should develop into a metropolitan area. This means that the original administrative boundary should be adjusted. Due to the large crowd in Shenzhen that has been mentioned previously in the article, most of the industries and firms are moving out of Shenzhen to nearby cities such as Dongguan and Huizhou, which have high potential for development. If Shenzhen breaks its boundary and set connects with the two nearby cities, and becomes a big metropolitan area, it would bring high benefits to the area. For example, data asymmetry between the

three cities may decrease. The flow of factors of production, especially for the labor factor market, would be more convenient. Shenzhen could also receive help from the two nearby cities, such as buying raw materials from the factories that are located in Huizhou and Dongguan. Another important issue may also be solved: the issue of villages in cities in Shenzhen. 45% of the population can transfer to Huizhou and Dongguan to live and work. The next suggestion is that Shenzhen should increase its residential land area. As a development economic zone, the population, whether floating population or permanent residential population, has been increasing fast. Therefore, a large amount of the population is highly concentrated in one area, and the need for residential area increase. In order to let the labor stay in Shenzhen, the government will have to build more apartments for building. The reconstruction of villages and cities can be built into higher quality working-class housing, where the lower floor of apartments can be constructed into working places and higher floors can be constructed into living places.

5. Conclusion

After the analysis of the factor market in Shenzhen, the following statements can be made. First, although Shenzhen has been developed fast, there are also a number of issues. It is important for the government to focus on these issues and create solutions. Secondly, the Shenzhen government should invest more in data brokers and invest more in the technology factor market and data factor market. In the fast-developing era nowadays, the digital economy has become the mainstay of an economy. To catch up with the global trend, Shenzhen should act as a good example for other cities in China and do more research in high-tech industries. Real estate in Shenzhen has already saturated, so the upper limit of gaining profits from real estate will be low. In the next decades, the digital economy will be the focus of development. Thirdly, the idea of metropolitan should be carried out soon. The population burden in Shenzhen is way too large now. Shenzhen will have to spread some of its industries out. During this process, the economy of the surrounding area can be boosted. However, this paper has not used any models for analyzing the future and it has only considered the circumstances in Shenzhen. Due to global trends or the changes in international situation, the future of Shenzhen's factor market may be unpredictable. It will be better for the future analysis of Shenzhen to be focused on influences by the global trend.

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