

Population Strategy and Economic Development in Shantou

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Abstract: A city's population size and quality will affect its economic development level and pace of development, which has been demonstrated by both theoretical research and practical experience. After an evaluation of Shantou City's social economic development, it is found that the quality of the existing population and the size are unable to meet the needs of further social economic development. Therefore, to accelerate social economic development comprehensively in Shantou, a suitable population size and quality of the population must be reached, which is one of the key issues to be considered.

1. Introduction

Existing economic theory and empirical studies indicate that the social economic development level of a region is closely related to its population size and quality (Li et al. 2007; Mahesh, Canning, and Wilde 2016). Moderate population growth and therefore its augmentation by immigration will generate generally beneficial effects upon economic growth and the welfare of the existing population (Simon 1989). The GDP growth per head resulting from faster growth in the labor force is higher than that in the entire population as well as from increased savings and investment (Ahmed et al. 2014). Moreover, demand from an increasing urban population will help farmers with access to markets in towns and cities (Cleland and Machiyama 2016).

After conducting a comparative analysis of the population sizes and qualities of Shantou, Zhuhai, Xiamen and Shenzhen, it is easy to find that the population size and quality of Shantou could not meet its social economic development need, and in fact have become a key factor restricting Shantou's all-round social economic development. Therefore, relevant policy making bodies and theorists, in developing the future social economic development strategies for Shantou, must consider the match between the population size and quality and the social economic development level, and then conduct comprehensive analytical investigation to present specific and practical policy suggestions, and thus to accelerate the all-round development of the social economy for Shantou SEZ.

2. Theoretical Thinking and Model of Population and Economic Development

The theories on population and economic growth include the population and economy theory of Malthus, the Harrod-Domar economic growth model, the Solow economic growth model and the endogenous economic growth model. However, these three theories fail to effectively explain many practical issues. While the endogenous economic growth theory broadens the hypothesis of the Solow economic growth model, taking technological progress and population factors as endogenous variables and considering technological progress as the engine of economic growth, therefore, this theory is more applicable to the real economic growth environment and deserves detail description here. This theory aims at certain developed countries in the world, such as the United States, exploring why the economy could realize a growth rate of 2% in the 20th century and analyzing the source of technological progress behind the economic growth. Its production function is as follows: $Y=AF(K, L)$

Where: A is the given technological level. In the production function, the returns to scale of K and L are constant and putting the creativity A into production as a production factor results in increasing returns. That is to say, if only labor force and capital are considered in the production function, the returns to scale will not change; however, if technological progress is added, the output will certainly increase, i.e., n times of labor force, capital and creativity stock generate a output over n times. To realize economic growth, new creativity must increase gradually. In case that the quantity of researchers fails to increase with the increasing of population, creativity will not increase either. Only more researchers can produce more ideas, facilitating the constant increase of output, in this case, the growth rate of creativity is obviously related to the growth rate of population. In the endogenous economic growth model, another important aspect is that human capital is deemed as a key factor in technological progress, more people means more creative ideas and higher output level. Hence, when including the variable of human capital, the economic growth can be calculated by the equation: $\Delta Y/Y = \alpha \Delta K/K + \beta \Delta L/L + \Delta A/A$

That is, output growth = labor share \times labor force growth + capital share \times capital growth + technological progress, where α denotes the share of capital in the output, β denote the share of labor in the output, $\Delta A/A$ denotes technological progress, and $\alpha + \beta = 1$. The above equation shows that: the source of economic growth is the growth of production factors and technological progress (Lewis and Liang 1990).

3. Population Restrictions on Shantou's Economic Development

Figure 1 describes the GDP growth rates and annual permanent population increase rates of the four SEZs of Shantou, Xiamen, Shenzhen and Zhuhai. It demonstrates that 1) in most years, the GDP of Shantou increases/decreases as the increase/decrease of population; 2) generally, the population and GDP growth rates of Shantou are lower than those of other cities; and 3) the population increase of Shantou always stays at a relatively low and stable level. Currently, Shantou's low population growth rate matches its low economic growth rate; however, in the long run, when the GDP growth rate of Shantou reaches or even exceeds those of other SEZs, its population growth rate must increase correspondingly.

To catch up with the rapid economic growth of Shantou in the future, Shantou's population growth rate must reach and maintain a higher level. In the case of Guangzhou, the provincial capital of Guangdong, in recent years, the natural population growth rate fell between 2‰ and 4‰, while the population growth rate of immigrants was as high as 10%. There are reasons behind the rapid immigration expansion of Guangzhou. Each economic boom was followed by the influx of a swarm of immigrants, which became a part of the population of the city. During economic development, Guangzhou's GDP always stayed in 12% -15%, which brought in waves of immigrants. It is especially worth noting that in 2007, the permanent population of Guangzhou exceeded 10 million to 10.0458 million, and in the same year, its GPD jumped from RMB 606.8 billion to RMB 705.1 billion year over year. The coming of many young adults guaranteed the sufficient labor supply of Guangzhou, which filled the labor gap caused by the accelerated aging of the local people. It is true that Guangzhou was forced to accept immigrants due to the requirements of economic development; however, the fact that we cannot deny is that immigrants have become an important force promoting the economic development of Guangzhou.

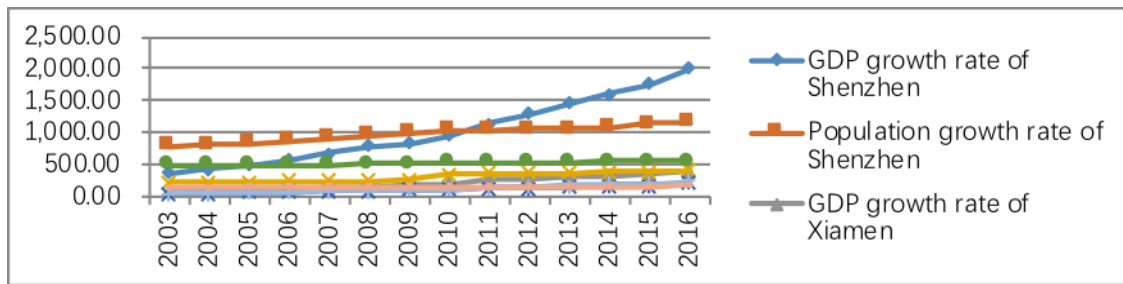


Fig. 1 Population and Economic Development Trends of the SEZs in China*

*Data sources: the statistical yearbooks of the SEZs, Beijing: National Bureau of Statistics of the People's Republic of China, 2016

Table 1. Educational Backgrounds of the Population in SEZs*

	People with the background of college and higher education	People with the background of high school and vocational education	People with the background of college and higher education/10,000	People with the background of high school and vocational education/10,000
Shantou	224461	783191	416	1453
Xiamen	628560	667726	1780	1891
Shenzhen	1779018	2482326	1718	2397
Zhuhai	286911	383569	1839	2458

*Data resources: the statistical bureaus of the SEZs, Beijing: National Bureau of Statistics of the People's Republic of China, 2016

The data of the 6th nationwide census in 2010 show that in the permanent population of Shantou, 224,461 people were with the associate degree or higher degree, and 783,191 people had received high school education (including vocational education), and if we divide the numbers by 10,000, we can get 416 and 1,453 respectively. In contrast, in Xiamen, the numbers were 628, 560 and 667,726, namely, 1,780 and 1,891 in every 10,000 people respectively; in Shenzhen, the numbers were 1,779,018 and 2,482,326, or 1,718 and 2,397 in every 10,000 people respectively; in Zhuhai, the numbers were 286,911 and 383,569, or 1,839 and 2,458 in every 10,000 people respectively (for details please refer to table 1).

The contrastive analysis results of the above data indicate that Shantou falls far behind Xiamen, Shenzhen and Zhuhai in the higher education level, especially university education level of population, thus requiring a great increase of population quality. It is widely held that improvement of human capital, notably health and education, is the key to social and economic progress (Lutz, Butz, and KC 2014; Cuaresma, Lutz, and Sanderson 2014). In Shantou, there is only one comprehensive university—Shantou University, and according to its graduate employment statistics, most of the graduates chose to go to the Pearl Delta, and only less than 10% graduates stayed in Shantou. Besides, statistics show that the average years of schooling of the jobholders in Shantou are 9.12 years, lower than the average of 9.79 years in Guangdong, while in Shenzhen, Zhuhai and Xiamen, the numbers are 10.93, 10.96 and 11.1 years, respectively. As for the proportion of people with higher education background, the numbers for Xiamen, Shenzhen and Zhuhai are 21.1%, 22.5% and 16.7% respectively, but only 9% for Shantou (for details please refer to table 2).

Table 2. Educational Levels of the Jobholders in SEZs*

	Average years of schooling	Proportion of people with higher education background
Shantou	9.12	9.01%
Xiamen	11.1	21.1%
Shenzhen	10.93	22.5%
Zhuhai	10.96	16.3%

*Data sources: the statistical bureaus of the SEZs, Beijing: National Bureau of Statistics of the People's Republic of China, 2016

It is evident that Shantou is still far behind other SEZs in both population and labor quality. According to the endogenous growth theory model, namely, $\Delta Y/Y = \alpha \Delta K/K + \beta \Delta L/L + \Delta A/A$, if output increase = labor share \times labor growth + capital share \times capital growth + technological progress, the increase of capital share ($\Delta K/K$), labor share ($\Delta L/L$) and technological progress ($\Delta A/A$) can all lead to the increase of output growth rate ($\Delta Y/Y$). Therefore, to achieve a higher output growth rate ($\Delta Y/Y$), Shantou needs to have faster increase in capital share ($\Delta K/K$), labor share ($\Delta L/L$) and technological progress ($\Delta A/A$), while the rapid increase of labor share ($\Delta L/L$) and technological progress ($\Delta A/A$) require the rapid increase of population size and quality, for they are supportive factors for the rapid development of Shantou in the future.

The rapid economic development of Shantou in the future requires a faster population growth; however, without the sufficient supplement of immigrants, the fertility rate of Shantou cannot support a rapid population growth. In this case, focus should be given to immigration policies, for injecting labor force into Shantou's rapid economic development. In terms of population quality, due to the lack of educational resources, the policies to attract and retain talents, and the attention to talents, the overall population quality of Shantou is relatively low compared with other developed areas, which restricts the powerful development of Shantou. Hence, measures shall be taken to increase the investment in educational resources, increase the attention of the government to talents, and develop various policies to attract and retain talents, thus improving the population quality of Shantou.

4. Conclusions

The economic development of a region is closely related to its population size and quality, and the speed of economic development needs the support of a certain population size. Among various production factors, labor is the most actively one which plays a key role in the social and economic development of the region. With the increase of the quality of labors, the innovation capacity and labor productivity of the region will go up, playing a significant role of constantly injecting vitality into the economic development of the region. Shantou is a SEZ, however, compared with other SEZs like Shenzhen, Zhuhai and Xiamen; it still falls far behind them in population size and quality. Therefore, to realize a rapid social economic development in the future, Shantou must take effective measures to increase its population size and quality greatly. In terms of the increase of population size, Shantou is required to make breakthroughs in labor immigration, business immigration and skilled immigration; while for the increase of population quality, Shantou should increase investment in education resources to create a good employment environment in which talents are respected and values and develop new payment and incentive systems which are attractive to talents.

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