The effect of regional development on Chinese people's moving behavior

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Abstract. This paper analyzes the response of people's attitudes towards moving to other places related to regional development in China. With the continuous development of China's social economy, people's overall living standards have been improving. This change has a great impact on the population living in each area. This paper verified that it is not in general people are more likely to move to areas where the economy is more prosperous. In this study, the research object is the population movement of 34 provinces from 2002 to 2018. This paper draws a conclusion through data analysis which is displayed as a GDP per capita change -population change graph. This shows they are lack of correlation. As a result, there is a discussion on the reason that the graph shows no positive trend. The main interference factors are inaccurate original data, natural environment, social influence, and political factors. Therefore, GDP is more likely an economic factor theoretically. It cannot be the only measure of the economic activity of a place.

Keywords: Regional economic development; Population migration; GDP per capita.

1. Introduction

China's population migration is entering a new stage. As one of the important factors affecting regional economic and social development, population determines the development potential in the future. Therefore, it is of great significance to accurately judge the characteristics and trends of the scale, flow direction, and spatial distribution of population flow in our province, and analyze the causes and influences of population flow. So, to improve the population development strategy in the new era, there is a need to guide the balanced development of medium and long-term populations and promote the high-quality development of various regions. Since 2005, the proportion of changing population has been decreasing . The floating population has taken on the characteristics of the nearest range, and more and more people tend to move into the nearest province. The data show that a significant trend of population flow in China's provinces is reflected in the direction of flow, that is, the population flows from the small and medium-sized cities around the provincial capital cities to the provincial capital cities, and the scale is huge . Some researchers have shown that the trend of population mobility in the province is the result of the comprehensive effect of the strategy of strengthening the provincial capital, transforming the industrial structure, the improvement of transportation conditions, and lowering the threshold of settling down .

In recent years, the great changes in China's population and economic situation have triggered a new pattern of regional population migration and flow adjustment, which has had a profound impact on the development of urban and rural society. In any region, there are both some pushing factors for people to move out and some pulling factors for people to move in. The main reasons for population migration are natural factors and human factors. Differences in a natural environment and changes in the natural environment between regions have an important impact on population migration. Areas with a beautiful natural environment, pleasant climates, and rich resources are desirable places for people to settle and will promote migration . On the contrary, environmental problems, and natural disasters can prompt people to move away. Economic factors in human factors often play a leading role in population migration. There are differences in the level of economic development among different regions. In order to obtain a better job, higher income, and more promising development, people often go to areas with developed economies or more employment opportunities . In addition, political, military, cultural, and other human factors will also affect population migration. This suggests that people should be more likely to move to places with higher levels of economic

development, which means higher GDP per capita. That is, it is possible to make the assumption that over the years, as a place's GDP per capita has been higher, so has its population.

This paper selects GDP per capita as the research direction after compiling the above economic theories as well as the current situation of cities. This is both a theoretically informed and extended study, as well as presenting new variables and influencing factors. This leads to a different conclusion from the previous study, which is also a follow-up of the latest economic development, with an adequate sample size and a four-year period selected as a research direction and idea different from the previous ones. This could also provide new ideas for people's migration choices and government policies based on the findings. This article also brings new research directions for subsequent researchers.

2. Literature review

One study has shown that China's population migration has been divided into several stages since ancient times. With the progress of the times, economic development, and political reform, population migration activities are increasingly active, and with the reform and opening up and urbanization process in contemporary China, population migration is affected by the household registration system and marketization in the era of planning . In the period of social transition, the flow direction of population migration is restrained by the economic system to a certain extent. On the contrary, the directional flow of a large population has a negative effect on the economy, and the two are mutually complementary, so population migration has an important social function.

In the past 20 years, China's economy has developed rapidly, the productive forces have been greatly improved, and the living standard of people has been improving. Therefore, the population flow shows a more and more significant growth trend. China's population flow is mainly manifested in two aspects, one is a large number of surplus rural labor into the cities to participate in the construction and development of the city, and the second is the inland provinces of labor flow to the coastal provinces, forming a wave of migrant workers . The flow of population is bound to be accompanied by production and consumption, thus bringing about the disguised transfer of social wealth. This is an important factor that cannot be ignored in the normal operation of the whole economy and society. As for the places where labor is imported, the influx of a large number of cheap labor provides more development opportunities for these areas and promotes rapid economic development. But at the same time, it will also cause some negative effects, such as traffic congestion and deterioration of social order . For the regions where the labor force is exported, the human capital of the exported labor force is greatly improved, and the information and technology of the developed regions are brought back as well as the capital, so as to promote the economic development of the region. This can be said to be a win-win policy. Because farmers in most of China have a low level of education and limited technical ability, a great part of population mobility is reduced to a cheap labor force . If this key factor is ignored and population migration is carried out blindly, it will have adverse effects on the economic development of both sides.

Taking the above as a whole, the study of economic development and population migration is a relationship of mutual influence and restraint. Economic development is the main reason for population migration, which in turn will change the economic situation of a region.

3. Methodology

The original data of this paper was collected from the official website of the China National Political Database. The object of this paper is the population migration of 34 provincial-level regions in China. GDP, also known as a gross national product, can reflect the economic activity of a region more directly. Using GDP per capita to calculate the overall economic development situation can better eliminate the flaws in the GDP data. Because some regions have high GDP because they are large or have a large population, but this does not accurately reflect the individual. First, the total

GDP of each province was collected. This part of the data includes the changes in the GDP of each province in the past 20 years. It is generally believed that the period is four years. Therefore, we extracted the data every four years from 2002 to 2018 and put it into the Excel table. Due to the global outbreak in 2020, various regions need to take a lot of measures to prevent and control the epidemic, and the economic development of all regions has been greatly hindered. In this way, the overall GDP trend will be greatly affected. Therefore, data taken in this paper for 2020 and beyond were excluded from the analysis.

Next, we collected the population change of each province in the same period. Population change reflects the population migration trend of a region, and then we divided the total GDP by the total population of the province to obtain the per capita GDP. Because this paper studies a changing trend, it is necessary to reflect the data into the percentage of the change of per capita GDP in the previous year, which can show the changing state more intuitively and help to draw the plane rectangular coordinate system better.

The article links these two variables in the form of points drawn on an axis. And on the horizontal axis, the independent variable is population change. The vertical axis is GDP per Capita change because what we want to conclude is whether people are more willing to move to areas with more developed economic activity. In other words, what we want to see in this graph is that where GDP per capita is higher, population change is higher. The position of these coordinate points and their density can reflect people's preferences. Each point on this coordinate corresponds to the change in the original EXEL table every four years. The range of population change on the horizontal axis is selected from 0 to 140% in this paper. Because by observing the data value of population change in the original table, we found that designing this range can better balance the distribution of points. Similarly, the vertical axis GDP per Capita change is chosen from minus 10% to plus 25%. Such a range of axes can be relatively clear to include all points in the table and balanced distribution.

4. Result

As can be seen from the chart, the distribution of each point is relatively scattered, without showing a centralized trend. Where GDP per capita change is relatively high, there is not as much population growth as we expected. As can be seen from the chart, the population growth change is evenly distributed between 0 and 40%, while the GDP per capita change is concentrated between 0 and 10%. In other words, the dots are randomly scattered over a third of the graph. We can see that the population change is 60% in places with the highest GDP per capita. This figure is in the middle of the overall change in migration. Of course, the cities where GDP per capita fell the most also had the least migration. This is consistent with the hypothesis. The point at which people move the most corresponds to a change in GDP per head of exactly 0%.

This shows that our previous assumptions do not hold. In other words, some of the factors in the hypothesis are very problematic. Because the results in the graph do not show the expected trend. The results did not go in the opposite direction of the hypothesis. In fact, as a result, there is no direct correlation between the migration of the real population and the per capita GDP, and there is no influencing relationship. But some news reports and people's actual thoughts can confirm our hypothesis.

This article follows up with a second chart. Considering that when the per capita GDP of a place is higher, that is, economic activity is more developed, people's migration response may be delayed. So we plot the change in population and the change in GDP per capita over the previous year as a new point on a new graph. To see how this year's population change corresponds to last year's per capita change in GDP. The results are shown below. On the whole, the distribution of the figure has no significant change from the previous figure, which means that people do not move to the place where economic activity has greater advantages according to the hypothesis even if there is a delayed reaction.

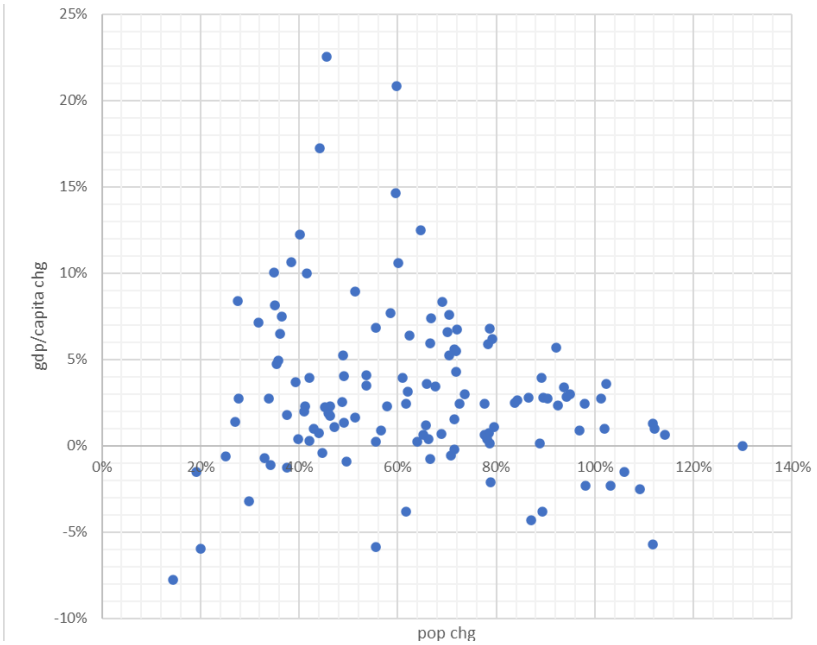

Figure 1. The relationship between GDP per capita and people's mobility

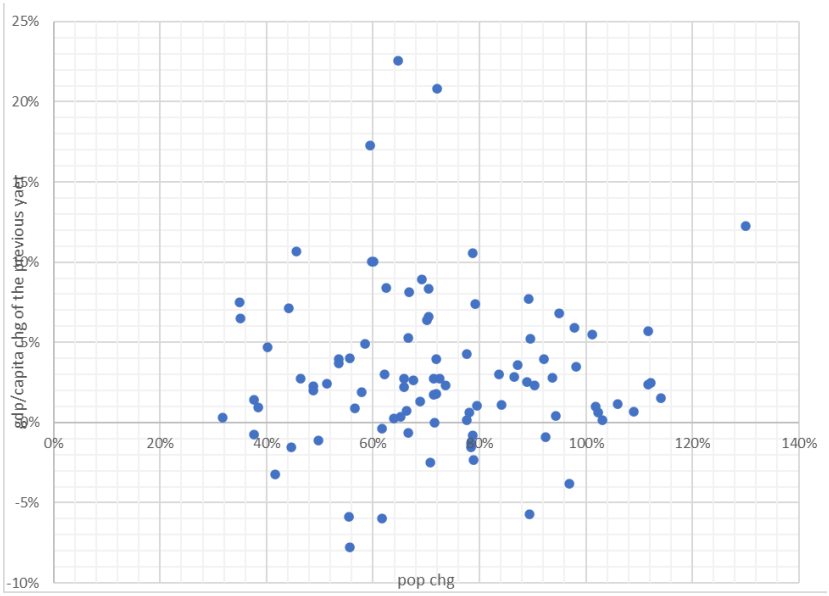

Figure 2. The relationship between GDP per capita od previous year and people's mobility of current year

5. Discussion

The basic logic of population migration: people go with the industry. people go to better places. In general, the key to determining population agglomeration is the size of the region's economy and the per capita income gap with the rest of the country. In people's cognition, industrial development needs to be concentrated, and industrialization drives urbanization . Therefore, the population is concentrated from the countryside to the city, and the development of the service industry needs to be gathered more than the industry. Moreover, in the middle and late stages of urbanization, the population is concentrated in large cities and metropolitan areas. This corresponds to the assumption that the population will migrate to areas with high per capita GDP.

Also, the assumption is supported by some theories. New-classical economists introduced the relationship between supply and demand in economics into the study of population migration and believed that the regional differences in labor supply and demand caused the adjustment of the labor

force between different regions, and population migration is the embodiment of this adjustment process. According to Schultz's theory of human capital, migration is seen as an investment in individual human capital that enhances their own economic efficiency and thus improves their overall standard of living . Most studies have shown that migration is primarily a market-regulated choice of economic opportunity for immigrants.

However, New-classical economics assumes that the individual is the smallest unit of the migration process, and in practical research, many scholars have found that individual decisions often have a great relationship with the family, thus producing a new theory of family migration on the basis of neoclassical economic theory. The theory holds that individual migration decisions are made by family members, that migration is attributed to a family strategy that maximizes economic benefits and minimizes risk, while cyclical round-trip migration is the full use of urban and rural family resources. People's migration behavior is not only affected by the expected income of the individual but more importantly, by family factors. The theory has broader universality for Southeast Asian countries and China, where family views are more important.

The model assumes "full employment" in cities. However, in the past 20 years, the actual situation has shown that in many developing countries, the problem of urban unemployment has become quite serious, and a large number of rural people continue to flow into cities. Obviously, the Lewis model cannot explain this phenomenon. In view of this situation, the American development economist Todaro proposed in 1969 to explain this problem by the size of the "expected returns" obtained by rural human resources in cities, which is the "Todaro model". According to this model, the widening of the expected income difference between urban and rural areas is the main reason for the increasing scale of rural migration in developing countries, and the urban unemployment rate also affects the migration decision of rural residents . Therefore, looking for the relationship between per capita GDP and population migration alone, there are many disturbing factors. This makes sense for the results presented in the table.

Based on the above analysis, the trend presented in the table in this paper is inconsistent with the previous hypothesis. There are mainly the following reasons. First of all, GDP per capita cannot completely represent the level of economic development of a region. This problem happens both in measures and on the economic side. As GDP is the sum of domestic product, its value will strongly consist of a small number of extreme wealth people. this means the GDP change is lack the overall representativeness of the whole economic activity. In addition, GDP may be calculated wrong as some output in rural areas may not take into account or some has been counted twice. There are also some other factors, such as the unemployment rate, per capita national income, and inflation. In addition, our calculations of GDP per capita may not be particularly accurate, such as missing rural output, or double counting. Therefore, it is an overgeneralization to use GDP per capita to replace the economic activity of a place, which will lead to a big deviation in the data. The second reason is that migration is primarily driven by choice. When people choose to move to another area, they often consider not only the economics of the area but also many other costs. Such as family factors, cultural differences, climate change, income levels, etc. These factors are not directly related to the economic activity of a region. Migration is human behavior, so it is also largely influenced by subjective opinions, and in many cases, it is hard to predict.

In fact, the literature review shows that population migration is influenced by GDP to a large extent. Therefore, we can conclude that there is a causal relationship between GDP and population migration. However, they are not correlated because the relationship is influenced by many other factors. As I mentioned in the figures above, it is important to control for the same factors as much as possible to get a causal relationship between GDP and population migration, so that we can improve and innovate in the next study.

6. Conclusion

This paper mainly studies population migration in different regions of China. Migration generally refers to the spatial movement of people between two areas. Such movement usually involves a permanent or long-term change in the population's place of residence from the place of departure to the place of arrival. Population migration plays an important role in adjusting population distribution, labor surplus, and shortage, promoting regional cultural exchanges, developing new resources, establishing economic and cultural areas, and integrating ethnic and racial groups. Therefore, this paper reviewed some studies and presented a hypothesis. People tend to move to places with higher economic activity. This is also based on several economic theory, which shows that the economic reasons for migration are mainly to escape poverty and unemployment, to improve their lives, or to become rich and successful in their careers.

Then, the article collects data from 34 provinces in China. The data contain the statistic of their GDP and population from 2002 to 2018. These data are transformed into GDP per capita change and population change every 4 years. The paper shows the result through a coordinate graph. However, it does not follow the hypothesis trend. Afterward, there is a graph of population change against previous GDP change as there may be a delay in people's behavior. The result is almost the same.

Therefore, we discussed some other factors. One is related to the accuracy and representation of the data GDP itself in the research. Politics, religion, culture, war, and famine can also lead to migration. Climate, not only directly affects the human body, but also affects the soil, vegetation, and hydrology of a region, and has an important impact on human production and life. Political factors have a particular impact on migration. A country's policies, especially the implementation of policies related to migration, will have an important impact on population migration. Reasonable policies can promote population migration to proceed reasonably and normally . However, if the policy is not reasonable, or if the implementation of the policy is not reasonable, it may have the opposite effect. In addition, marriage is the main factor affecting the migration of young people, while family factors play an important role in the migration of minors and elderly people. So, these factors explain the result displayed. Next time to acquire more accurate conclusion, it is better to control some variables mentioned above.

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