

Analysis of Factors Influencing Inter-provincial Population Flow

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Abstract. Population mobility and economic growth can play a role in promoting each other to a certain extent. Only by clarifying the corresponding relationship between population flows and indicators related to economic growth, can we develop various favorable factors so that population mobility can better serve economic development. This paper uses mixed OLS, fixed effect model and random effect model to analyze the factors affecting the inter-provincial population flow. The research results show that the population flow is mainly affected by agglomeration effect, resource effect and social security effect. The research in this paper can also be relevant. The department provides a basis for rationally formulating relevant policies for population mobility.

Introduction

China's economy has entered the deep-water zone of reform, supporting a large part of China's economy in the first 30 years. Low-end manufacturing industries should be replaced by junior service industries in the foreseeable future, and the flow of population will be clearly seen. Recalling the 30 years of rapid development of our country, the essence is the accelerated release of the demographic dividend for the past 30 years. During this period, China's total net population has increased by 324 million, of which the 15- to 64-year-old population has maintained a continuous increase for 12 years, and the demographic dividend has grown rapidly. The release accelerated the accumulation of urban and rural areas and also promoted the development of urban agglomerations and the release of demand from related industries. Population mobility and economic growth can play a role in promoting each other to a certain extent. Only by clarifying the corresponding relationship between population flows and indicators related to economic growth, can population mobility be better served by economic development.

Literature review

American economist Lewis linked economic growth and population mobility to observe economic development in backward countries. He believes that there are dual economic structures in the developing countries. One is the traditional agricultural sector and the other is the urban industrial sector. The surplus labor force in the agricultural sector flows to the urban industrial sector, and the labor supply and capital accumulation needed for the urban industrial sector to expand the reproduction. Provides the source[1]. Todaro believes that it is the expected urban-rural income difference that influences farmers' decisions to make inflows from rural areas to cities. In the case of large urban-rural disparities, even if there is a high level of unemployment in the cities, farmers will be sourced from rural areas. Constantly flock to the city [2]. Wang Deand others studied the relationship between China's population movement and regional economic growth from 1985 to 2000, and considered that the population movement increased the GDP of more than a dozen provinces in China by an average of 1.5% around 1990 [3].

The above research results are a good illustration of the relationship between population mobility and economic growth. It is a huge promotion and innovation of research in this field, but the estimation method is simple. Second, the choice of variables is rather one-sided. Most of them only use per capita GDP and each The shortest railway distance between provincial capital cities is estimated. Compared with previous studies, the main contributions of this paper are: First, redefining the calculation method of population mobility; Second, re-influencing inter-provincial

population mobility in terms of economic factors, resource factors, and social security. The factors were analyzed. Third, based on the use of mixed OLS models, a random effect model and a fixed effect model were selected for comparison.

Data selection

China is the most populous country in the world, but China's population is unevenly distributed[4]: the eastern coastal area is densely populated with more than 400 people per square kilometer; the central region is more than 200 people per square kilometer; and the western highland is a sparsely populated area, in terms of square kilometers. Less than 10 people.

Taking into account the population growth of typical cities in the country and the related research experience of urban population growth, the four-level classification of changes in permanent residents between 15 years has been reduced ($0.9 < v \leq 1.0$) and basically unchanged ($1.0 < v \leq 1.1$), increased ($1.1 < v \leq 1.2$), and significantly increased ($1.25 < v \leq 1.6$).



Figure 1. Finite Population density distribution

From the Fig. 1, it can be seen that the density of the eastern coastal provinces has increased as a whole, and the four regions of Beijing, Tianjin, Shanghai and Guangzhou have been particularly noticeable, which has attracted a large population in the inland and coastal areas. At the same time, the population of the central and western regions has a clear trend of outflow, especially in Henan, Hubei, Sichuan, Guizhou, Hunan, and Guangxi. These regions are relatively underdeveloped and easily flow to the more economically developed Yangtze River Delta and the Pearl River Delta. One area.

Since there are no direct population movement data for each province, this paper calculates according to the following formula. Net floating population in all provinces = total population at the end of the year - total population at the end of last year - natural growth rate (total population at the end of last year + total population at the end of the year)/2. You can get the scale of "moving in population - moving out of population".

The data in this article come mainly from China Statistical Yearbook, China Population and Employment Statistics Yearbook, China Labor Statistics Yearbook, China Insurance Yearbook, National Railway Passenger Train Timetable, Wind, and National Bureau of Statistics.

Model Construction, Empirical Results and Analysis

Based on the above descriptive analysis, the build model is as follows:

$$\ln mig = \beta_0 + \beta_1 \ln pop + \beta_2 \ln pdi + \beta_3 \ln colleges + \beta_4 \ln endowins + \beta_5 \ln injuryins + \beta_6 \ln disputeindex + \varepsilon_i \quad (1)$$

Among them, mig denotes the net floating population in each province, pop denotes the total population of the provinces at the end of the year, pdi denotes the per capita disposable income of each province, colleges denotes the number of regular higher education schools in each province, endowins denotes the number of pension insurance participants in each province, and laborins

denotes provinces The number of industrial injury insurance participants, displeindex indicates the labor dispute settlement index. With the exception of the labor dispute settlement index, all the variables in this paper have taken logarithms. Therefore, they reflect the elasticity of the impact of inter-provincial population movements. The empirical results are shown in the following table:

Table 1 Regression results

Model	OLS	OLS	OLS	FE	RE
lnpop	0.4954*** (0.1201)		0.9163*** (0.3164)	0.8302 (1.8252)	1.0702** (0.5420)
lnpdi		1.1003*** (0.2009)	0.2781 (0.327)	1.1762* (0.6671)	0.9303*** (0.3509)
lncolleges			1.579*** (0.453)	2.6874*** (0.7765)	2.1310*** (0.6132)
lnendowins			-0.2671 (0.3152)	-1.2721 (0.8707)	-0.7145 (0.4535)
lninjuryins			0.4731** (0.1932)	0.7645*** (0.1944)	0.6903*** (0.1782)
disputeindex			0.2606 (1.8834)	1.2644 (1.7625)	0.7841 (1.7173)
_cons	-2.703*** (0.9722)	-9.134*** (1.930)	3.9680 (3.6821)	-2.3122 (13.3503)	10.3133** (4.6403)
R ²	0.04	0.06	0.15	0.14	0.22
N	434	434	428	428	428
Bilateral				F(30, 391) = 7.81	

Note: ***, **, and * are significant at the 1%, 5%, and 10% levels, respectively; the bracketed values are regression standard errors.

Model 1 includes only the total population at the end of the year as an influencing factor. It can be seen that the total population of a province has a significant positive impact on population mobility. The positive impact of the total population of the emigrated province is reflected in those provinces with large populations, such as Henan, Shandong, Sichuan, etc., have more people to move out, and the total population of the provinces that have moved in has a positive impact on areas with high population density such as Guangdong, Beijing, and Shanghai.

Model 2 includes only the variable of disposable income per capita. Thanks to its favorable geographical location, congenial industrial base and a series of preferential policies, the eastern coastal areas have taken the lead in realizing economic growth. [5,6].The economic development gap between the central and western regions and the eastern region has gradually widened. The ever-increasing gap in economic development has become a huge driving force for the inter-provincial mobility of the population. For the provinces that have moved into the country, the per capita disposable income has a significant positive effect on the population flow, reflecting that the population is more likely to flow from places where disposable income per capita is lower to areas where disposable income per capita is higher.

Model 3 introduces all control variables on the basis of Model 1 and Model 2. It can be seen that the number of colleges and universities has a significant positive impact on population mobility. More and more young people are starting to flood into areas with advanced education[7]. Educational resources determine the potential supply of a region's highly-qualified labor force and the purchasing labor force[8]; work-related injury insurance affects the population. The influence of the flow also passed the significance test.

In model 4, the fixed effect model has a lower estimate of the impact on the total population at the end of the year, and estimates for the remaining variables are slightly higher, but some variables do not pass the significance test. Within the group differences, differences that do not change with time are given to the difference. Now. Model 5 uses random effects for estimation. The random effects model assumes that the error term is not related to all other explanatory variables. Although the significance test of several variables of the fixed effect model and the random effect model is not high, the fitting result is consistent with expected.

Conclusions and Suggestions

This paper uses the mixed OLS, fixed effect model, and random effects model to estimate the factors affecting the inter-provincial population flow. The experimental results in this paper show that the inter-provincial population flow is mainly affected by the following effects:

Agglomeration effect. From an economic point of view, the floating population's decision-making is mainly affected by two aspects. One is the economic development trend of the floating destination, and the other is the size of the economic disparity between the migrant population's location and destination. By comparing the relationship between per capita disposable income and net immigrants in each region, it is found that there is a clear positive correlation between the two, indicating that regions with higher levels of economic development have a huge attraction for migrants.

In addition, Lu Ming believes that the influx of people living in the housing will also stimulate the local housing market demand, so that the real estate industry will continue to develop, while promoting the rapid development of related industries. All these have greatly expanded the scale of market demand, promoted the development of manufacturing and service industries, which led to the concentration of industries and factors and the increase of urbanization levels, and formed a virtuous cycle of development, thus promoting economic development [9].

Resource effect. Regional resource factors include multiple factors, including urban infrastructure facilities, medical facilities, and educational facilities. Among them, educational resources determine the potential supply of a region's highly-qualified labor force and purchasing power, and also the accumulation of human capital at the influx. In general, younger, more educated and better-skilled personnel will tend to enter economically developed regions. At the same time, in addition to their own contribution to economic development, high-skilled labor inflows will also generate technology or knowledge spillovers at the local level, thus creating a "multiplier effect."

Social security effect. The provinces and regions with higher levels of social security and better social welfare have increasingly attracted population inflows. [10]. At the same time, we estimate the number of old-age insurance participants, and we find that the place where the local pension insurance participation rate is higher will have a certain inhibitory effect on population movement. This is also in line with China's thought of relocating Antu since ancient times, and it's also for us. Formulating relevant policies provides good advice.

Although the government has issued a series of policies to narrow the regional gap and the urban-rural gap, so far, the economic gap between China's regional and urban-rural development is still very clear, which is also the fundamental reason that affects China's population flow. With China's economic growth and social development, as well as the reduction in transportation costs, the cost of distance migration as a cross-provincial population is declining. This means that in the long run, the scale of population movement will continue to expand. Reasonable population movement can promote better allocation of human capital and labor, and unreasonable population movement will lead to traffic congestion, deterioration of public security, and excessive pressure on the environment. With the development of the market economy, the government should control economic migration through economic policies rather than administrative measures.

Reference

- [1] Arthur Lewis, Dual Economic Theory [M]. Beijing: Beijing Economic Publishing House, 1989, 12-20.
- [2] Michael P. Todaro, Economic development [M]. China Economic Publishing House, 1999, 15-26.
- [3] Wang De, Zhu Xi, Ye Hui. A study on the balanced effects of population movement on regional economic disparities in China from 1985 to 2000[J]. Population and Economy, 2003(6), 2-9.
- [4] Li Yumeng. Empirical study of economic development in China's population movement [D]. Nanjing University: Nanjing University, 2016.

- [5] Xue Dan, Li Xianzong. Analysis of the relationship between population flow and economic growth: An Empirical Analysis Based on Shandong Province[J]. Value Engineering, 2010, (17): 109-110
- [6] Liang Jianzhang, Li Jianxin. Population crisis challenges Chinese release of birth without delay. [J]. Decision & Information, 2015, (2): 10-61
- [7] Kong Gaowen, Liu Shasha, Kong Dongmin. Why did we leave our hometown? Family Social Capital, Gender, Competence, and Employment Options for Graduates [J]. Economics Quarterly, 2017, 16(2): 621-648
- [8] Jiangxiao Guo, Jia Xingmei, Economic growth effect and model interpretation of population mobility [J]. Decision Making, 2016, (17): 58-61
- [9] Lu Ming. Great Power Great City [M]. Shanghai People's Publishing House, 2016.
- [10] Liu Shenglong. Influencing factors of population migration in China's provinces[J]. Research on Quantitative Economics and Technology, 2014(4):83-98