The Comparison of Regional Population Resources Endowment: Taking Shandong and Guangdong Provinces as Examples

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Abstract. Resource endowment is an important factor in the economic growth of a country or region. This paper chooses Shandong and Guangdong Province as the sample of analysis, calculates the population resource endowment coefficient, and compares the data of the two regions. Based on the analysis, the thesis comes to the following conclusion: population resources have a certain impact on the regional economic growth, thus Shandong should continue to take advantage of the land, energy and natural resources and other aspects in the future, so as to optimize the allocation of labor resources to achieve economic growth.

1. Introduction

There are many differences of the resource endowment between different Chinese regions, because China has a large land area and a large population. The differences of the resource endowment lead to the differences of factors’ relative price and relative cost. And then this area has their comparative advantages. The differences of an area’s development level and resource endowment influence their comparative advantages in different industries obviously. When we make a long-term and sustainable development planning, we assume that the resource endowment and existing factor structure ratio of the base period are unchanged [3].

This paper chooses the population and natural resources endowment of Shandong and Guangdong provinces as the object of analysis, because both of them are economically developed areas among China’s provinces and their economic structure of them are different. We want to find the advantages and disadvantages of population utilization in Shandong Province through the comparative analysis of the relevant data between the two provinces, and provide some references for the formulation of policies to promote economic growth.

2. Resource Endowment Index System

2.1 Coefficient of Resource endowments

The coefficient of resource endowment is a commonly used calculation index which can reflect the relative abundance of some kind of resources in a region.

Coefficient of Resource endowments’ calculation formula:

\[
E = \frac{E_i/Y}{E_w/Y_w}.
\]  

In the formula (1), \(E_i\) and \(E_w\) denote the capital resource of a certain province and city, respectively. \(Y\) and \(Y_w\) respectively represent the total economic output of a certain province and country, expressed in GDP. If it’s value>1, indicating that the province’s i resources are rich, with comparative advantages, and vice versa do not have a comparative advantage.

2.2 Data sources and research methods
All the original data used in this paper are taken from the official website of the statistical office of People’s Republic of China and network database. This paper makes comparison of population data between the two provinces, and then gets the conclusion.

2.3 The coefficient of resource endowment in Shandong and Guangdong Province

In 2014, the total number of employed persons in Shandong Province was 12,663,400, the total number of employed persons in China was 182,778,000, and the GDP of Shandong Province was 59426.59 billion RMB, and the GDP of China was 643974 billion RMB.

So, the coefficient of resource endowment of Shandong is:

\[
\frac{E_{sd}}{g_{2929}/g_{2914}} = \frac{1266.34/18277.8}{59426.59/643974} = 0.75 < 1
\]

In 2014, the total number of employed persons in Guangdong Province was 19,732,800, the total number of employed persons in China was 182,778,000, and the GDP of Guangdong Province was 67809.85 billion RMB, and the GDP of China was 643974 billion RMB.

So, the coefficient of resource endowment of Guangdong is:

\[
\frac{E_{gd}}{g_{2917}/g_{2914}} = \frac{1973.28/18277.8}{59426.59/643974} = 1.025 > 1
\]

So we can get a preliminary conclusion: compared with Guangdong Province, Shandong Province doesn’t have advantages in population resource endowment. Next, we will conduct a more specific analysis.

3. Comparative Analysis of Population Resource Endowment Data

3.1 Labor abundance

The degree of labor abundance can be expressed as the proportion of employees employed in different regions in the whole country [1].

At the end of 2014, the total number of employed persons in urban units in the whole country was 182,778,000, and the total number of employed persons in urban units in Shandong Province was 12,663,400, accounting for 6.928% of the total number of employed persons in urban units in China. The total number of employed persons in urban units in Guangdong Province was 19,732,800, accounting for 10.796% of the total number of employed persons in urban units in China. The percentage of employed persons in Guangdong Province is higher than that of Shandong Province, so the labor force in Guangdong Province is more abundant than Shandong Province.

3.2 The percentage of employed population

In 2014, the total population of Shandong Province was 53,850,000, of which the total number of employed persons was 12,663,400, accounting for 23.516% of the total urban population. The total population of Guangdong Province was 72,920,000, of which the total number of employed persons was 19,732,800, accounting for 27.061% of the total urban population. The rate of urban population employment of Guangdong Province is higher than that of Shandong Province.

3.3 Labor cost

This paper selects the average wage indicators to examine the labor cost situation [1]. In 2014, the average wage of urban workers in Shandong Province was 51,825 RMB/person, and the average wage of urban workers in Guangdong Province was 59481 RMB/person. The cost of labor in Guangdong Province is higher than Shandong Province.

3.4 Labor productivity

The way this paper used to measure labor efficiency is calculating the ratio of GDP to the number of people employed. The data of GDP used in the article is present [1]. In 2014, the per capita regional GDP of Shandong Province was 60,879 RMB/person, and the per capita regional GDP of
Guangdong Province was 63,469 RMB/person. The per capita regional GDP of Guangdong Province is higher than Shandong Province. So, the labor productivity of Guangdong Province is higher than Shandong Province.

3.5 Human capital

There are two commonly used methods for measuring human capital, one is the degree of education, and the other is the proportion of graduates with different educational degrees. It is difficult to compare horizontally, because there is no measure of weight between human capitals at various educational levels [1]. This paper chooses the proportion of graduates in ordinary colleges and universities to reflect the degree of education of the labor force. In 2014, the total urban population of urban population in Shandong Province was 53,850,000, and the number of students in general colleges and universities was 464,100, accounting for 0.862% of the total urban population. The total urban population of Guangdong Province was 72,920,000, and the number of students in general colleges and universities was 441,000, accounting for 0.605% of the total urban population. The proportion of high level education population in Shandong Province is higher than Guangdong Province.

4. A Comparative Analysis of Specific Industries of Employment Personnel in Shandong Province and Guangdong Province

This paper compares the situations of Shandong Province and Guangdong Province by calculating the proportion of the total number of employed persons.

Table 1. The number and percentage of employment in different industries (2014).

<table>
<thead>
<tr>
<th>Number of employed persons (10 thousand)</th>
<th>Guangdong Province</th>
<th>Percentage of total%</th>
<th>Shandong Province</th>
<th>Percentage of total%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban employment</td>
<td>1973.28</td>
<td>-</td>
<td>1266.34</td>
<td>-</td>
</tr>
<tr>
<td>Agriculture, forestry, animal husbandry and fishery employment</td>
<td>5.67</td>
<td>0.287</td>
<td>1.65</td>
<td>0.130</td>
</tr>
<tr>
<td>Mining industry employment</td>
<td>2.99</td>
<td>0.152</td>
<td>71.15</td>
<td>5.619</td>
</tr>
<tr>
<td>Manufacturing employment</td>
<td>1015.16</td>
<td>51.44</td>
<td>425.75</td>
<td>33.621</td>
</tr>
<tr>
<td>Electricity, gas and water production and supply industry employment</td>
<td>30.80</td>
<td>1.560</td>
<td>23.72</td>
<td>1.873</td>
</tr>
<tr>
<td>construction industry employment</td>
<td>149.41</td>
<td>7.572</td>
<td>177.51</td>
<td>14.081</td>
</tr>
<tr>
<td>Transportation, warehousing and post and Telecommunications business employment</td>
<td>85.40</td>
<td>4.328</td>
<td>49.75</td>
<td>3.929</td>
</tr>
<tr>
<td>Information transmission, computer services and software industry employment</td>
<td>34.63</td>
<td>1.755</td>
<td>16.97</td>
<td>1.340</td>
</tr>
<tr>
<td>Wholesale and retail employment</td>
<td>95.84</td>
<td>4.857</td>
<td>62.82</td>
<td>4.961</td>
</tr>
<tr>
<td>Accommodation and catering industry employment</td>
<td>37.06</td>
<td>1.878</td>
<td>15.58</td>
<td>1.230</td>
</tr>
<tr>
<td>Financial industry employment</td>
<td>43.15</td>
<td>2.187</td>
<td>38.83</td>
<td>3.066</td>
</tr>
<tr>
<td>Real estate employment</td>
<td>55.84</td>
<td>2.830</td>
<td>25.58</td>
<td>2.020</td>
</tr>
<tr>
<td>Leasing and business services employment</td>
<td>60.61</td>
<td>3.072</td>
<td>21.55</td>
<td>1.702</td>
</tr>
<tr>
<td>Scientific research, technical services and geological prospecting industry employment</td>
<td>31.93</td>
<td>1.618</td>
<td>18.42</td>
<td>1.455</td>
</tr>
<tr>
<td>Water, Environment and Public Facilities Management employment</td>
<td>17.28</td>
<td>0.876</td>
<td>16.75</td>
<td>1.323</td>
</tr>
<tr>
<td>Resident services and other services employment</td>
<td>7.49</td>
<td>0.380</td>
<td>3.14</td>
<td>0.248</td>
</tr>
<tr>
<td>Education industry employment</td>
<td>124.50</td>
<td>6.309</td>
<td>120.35</td>
<td>9.504</td>
</tr>
<tr>
<td>Health, social security and social welfare employment</td>
<td>59.68</td>
<td>3.024</td>
<td>58.69</td>
<td>4.635</td>
</tr>
<tr>
<td>Cultural, sports and entertainment industry employment</td>
<td>11.52</td>
<td>0.584</td>
<td>7.14</td>
<td>0.564</td>
</tr>
<tr>
<td>Public administration and social organization of employment</td>
<td>104.33</td>
<td>5.287</td>
<td>111</td>
<td>8.765</td>
</tr>
</tbody>
</table>

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5. Conclusion

Different resource endowments correspond to different growth paths. However, it is biased to make the development plans of provinces and cities on the basis of a single resource endowment or a comparative advantage based on single resource endowment [2]. There are many factors influencing the regional economic growth. This paper only selects two aspects of regional resource endowment and population resource endowment, to make a simple comparative analysis of the two provinces. Shandong Province is a national economic province, but the degree of economic development is still not as good as Guangdong, through comparative analysis we found that population resource endowment has a certain impact on this, so in the future development process, Shandong should continue to use the advantages in the land, energy and other aspects of resource endowment, and then optimize the allocation of labor resources to achieve economic growth.

References