

Research on educational human capital in the coordinated development of Beijing-Tianjin-Hebei region

Xiaoxiao Geng^{1,a}, Jinsong Pei^{2,b}

¹Beijing Jiaotong University labor economics major, Beijing, China

²Beijing Jiaotong University School of Economics and Management, Beijing, China

^a18811793066@163.com, ^bjs_pei@bjtu.edu.cn

Keywords: Education human capital, Beijing-Tianjin-Hebei integration, suggestion.

Abstract. The Beijing-Tianjin-Hebei region, as a regional economic growth pole in China, bears an important responsibility for China's economic development. Although the Beijing, Tianjin and Hebei a vein into the geographical, cultural and spatial location has certain correlation, and still there is a huge difference in the development, however, investigate its reason, in addition to the material capital investment and labor input, part of the human capital accumulation difference is also important, in which education plays an important role of human capital. This paper mainly discusses the problems and causes of educational human capital in Beijing-Tianjin-Hebei region, and puts forward feasible suggestions based on the actual situation and national policies.

1. Introduction

In modern economy, the flow of human capital is a necessary condition for technology diffusion and an important source of scientific and technological progress and economic growth. In the 1960s, Schulz put forward a new approach to the analysis of human productivity based on the traditional economic theory in his article investment in human capital. He put forward: "in economic growth, experience, knowledge, health and other human capital play a much greater impact than material capital, human capital investment is the driving force to promote economic growth. According to Schultz, "human capital is reflected in the workers and consists of the workers' knowledge, physical strength and skills in the form of investment".

In this paper, the study of human capital mainly focuses on education human capital. By analyzing the existing problems of education human capital in Beijing-Tianjin-Hebei region, the causes are traced, and Suggestions on education human capital for promoting the coordinated development of Beijing-Tianjin-Hebei region are obtained. Human capital of education in the coordinated development of Beijing-Tianjin-Hebei region

2. The problems of educational human capital in the coordinated development of Beijing-Tianjin-Hebei region

2.1 Compared with provinces with developed education, investment in education is lower

The stock of education human capital in Beijing-Tianjin-Hebei is significantly different from that in developed provinces. Compared with Jiangsu province, which has developed education investment, the Beijing-Tianjin-Hebei region is on the low side. From table 1 education funds investment, from 2007 to 2015, the Beijing municipal education funds investment increased by 70.93966 billion yuan, the growth rate of 63.5%, an increase of 39.48628 billion yuan in Tianjin, the growth rate of 70.4%, an increase of 84.57941 billion yuan in Hebei province, the growth rate of 65.8%, and in Jiangsu province increased by 139.50446 billion yuan, the growth rate of 62.1%. It can be seen that Hebei province has the largest educational expenditure in the Beijing-Tianjin-Hebei region, but compared with Jiangsu province, Jiangsu province's educational expenditure has increased by 1.65 times as much as that of Hebei province in the past nine years. To sum up, the human capital investment in the Beijing-Tianjin-Hebei region is insufficient, thus affecting the development of human capital in the Beijing-Tianjin-Hebei region.

Table 1 Education expenditure in Beijing, Tianjin and Hebei region, (ten thousand yuan)

Year	Beijing	Tianjin	Hebei	Jiangsu
2007	4077284	1657108	4403700	851332
2008	4690166	2060843	5584914	9964272
2009	5289432	2381672	6145261	11054890
2010	6134448	2920970	7192734	13146233
2011	7373843	4136097	8447882	15882132
2012	8686105	4917856	9373013	17872484
2013	9998366	5699615	10298143	19862835
2014	10937374	6326265	10861672	20800931
2015	11171250	5605736	12861641	22463773

2.2 Beijing, Tianjin and Hebei have significant differences in educational human capital stock

According to the relevant data of education investment in the Beijing-Tianjin-Hebei region, the stock of education human capital can be obtained through calculation, as shown in table 2. Through longitudinal comparative analysis, it is found that the educational human capital stock in Beijing, Tianjin and Hebei in 2016 is 3.02 times, 3.80 times and 3.15 times of that in 2007, respectively. Through horizontal comparison and analysis, it is found that the educational human capital stock of Hebei province in 2016 was 1.07 times and 2.27 times of that of Beijing and Tianjin respectively, and the educational human capital stock of Tianjin was relatively low. To sum up, the human capital stock of education in Beijing is in a stable growth state with a relatively high level. The stock of educational human capital in Hebei province increased rapidly and the total level increased obviously. The human capital stock of education in Tianjin is growing fast and the absolute level is low.

Table 2 Educational human capital stock (100 million yuan)

Year	Beijing	Tianjin	Hebei
2007	2868.34	1076.05	2943.20
2008	3278.23	1208.44	3513.39
2009	3549.13	1403.05	3988.29
2010	3900.83	1613.79	4613.86
2011	4574.63	2033.18	5263.57
2012	5410.33	2380.12	5774.77
2013	6180.89	2852.52	6659.22
2014	7048.46	3375.59	7388.58
2015	7587.72	3462.39	8566.69
2016	8668.41	4087.09	9278.14

3. The causes of human capital problems in education in Beijing, Tianjin and Hebei

3.1 The level of economic development is uneven

In the Beijing-Tianjin-Hebei region, Beijing is the capital of China and Tianjin is a municipality directly under the central government, while Hebei province has always taken the responsibility of guaranteeing the development of Beijing and Tianjin. Therefore, Beijing and Tianjin have stronger economic strength than Hebei province, and there is a relationship between the level of economic development and human capital rising or falling spirally. On the one hand, regions with a higher level of economic development have stronger economic strength and can allocate more economic resources, which can increase the investment in education, medical care, science and technology, so as to increase the level of human capital. The improvement of human capital level will further increase the speed of economic development, thus forming a virtuous spiral. In Jiangsu province economic development among the top level, its investment in education in Hebei province is about 2 times, so to promote the improvement of the education of the Beijing-Tianjin-Hebei region human capital stock first is to develop the economy, find new economic growth point, especially the Xiong-an New Area construction in Hebei province, provides new impetus for regional economic growth and vitality.

3.2 Education investment and resource distribution

Total funding Beijing-Tianjin-Hebei places of education in 2015 and the share of each component as shown in table 3, Beijing, Tianjin, Hebei education accounts for the proportion of total funds are 2.99%, 1.53% and 3.57% respectively, total investment in education from Beijing, Tianjin, Hebei province, and Beijing-Tianjin-Hebei three per capita education funds is 5572 yuan and 4003 yuan respectively, 1945 yuan, per capita in Hebei province education spending below the national average per capita education spending 2942 yuan, shows that have higher levels of education in Hebei province human capital investment in Beijing, Tianjin is low.

Table 3 Education funding units of the whole country and the Beijing-Tianjin-Hebei region in 2015(Ten thousand yuan)

The index names	Nationwide	Beijing	Tianjin	Hebei
The government appropriation for education	292214511	9810774	4775063	10732988
Social and individual school funding	1876620	10685	2613	29824
Social endowment funds	869960	9623	3194	6080
Business income	58097239	1177133	720132	1941007
Tuition and miscellaneous fees	43173611	925848	586885	1581934
Other educational appropriations	8233597	163034	104735	151742
Total	404465538	12097097	6192622	14443575

The distribution of educational resources in the Beijing-Tianjin-Hebei region is quite different. Table 4 shows that the basic education resources per million people in Hebei Province are not lower than those in Beijing and Tianjin, while the high school and university resources in Hebei Province have obvious disadvantages in the Beijing-Tianjin-Hebei region. Meanwhile, the distribution of teachers in the Beijing-Tianjin-Hebei region is unbalanced. As shown in table 5, the student-teacher ratio of schools at all levels can indicate the allocation of teachers. The smaller this value is, the more teachers each student has on average. Beijing schools at all levels have sufficient teachers, especially those in high schools and institutions of higher learning, which are more than those in Tianjin and Hebei. To sum up, the distribution of educational resources in the Beijing-Tianjin-Hebei region is not balanced, and the distribution of educational resources in Beijing is obviously better than that in Tianjin and Hebei province.

Table 4 Number of schools at all levels per million people in Beijing, Tianjin and Hebei in 2016

	Ordinary junior high school	secondary vocational college	ordinary high school	institution of higher learning
Beijing	17	4	14	4
Tianjin	21	5	12	3
Hebei	32	8	8	1

Table 5 Teacher-student rate of Beijing, Tianjin and Hebei schools at all levels in 2016

	Ordinary primary school	ordinary junior high school	ordinary high school	ordinary college
Beijing	14.05	8.02	7.75	14.97
Tianjin	15.19	9.63	10	17.69
Hebei	17.66	13.59	13.61	16.9

3.3 Policy mechanism

Policy mechanism has an important influence on the formation of human capital difference in Beijing-Tianjin-Hebei region, which is mainly reflected in education mechanism and talent introduction mechanism. Though China has now cancelled the comprehensive compulsory education tuition and fees, for backward area family children can receive good education provides the condition, but the formation of human capital depends mainly on higher education stage, only has a 211 engineering colleges and universities in Hebei province, and the address is in Tianjin, Hebei province, the shortage of higher education resources, students can't enjoy the convenient conditions of short distances to accept higher education.

4. Suggestions on accelerating the coordinated development of education and human capital in Beijing-Tianjin-Hebei region

4.1 Increase spending on education in Tianjin and Hebei

Places to improve the quality of education, promote the balanced development of the compulsory education, popularizing high school education, step by step in the classification process of secondary vocational education exempt from tuition and fees of the macro background, should be emphasized to increase the education input to the Tianjin and Hebei, vigorously develops the education investment main body other than the fiscal expenditure of education investment, encourage social groups and individuals to invest education, such as fund raising, can be used to raise educational, social donations and other forms, the applications of education investment to social needed to promote all aspects of the formation of human capital, and to make full use of the spillover of human capital characteristics, We will comprehensively increase the enthusiasm of all sectors of society for investing in education.

4.2 Balanced Beijing-Tianjin-Hebei education resources distribution , established regional higher education resource sharing mechanism

In the integration of the Beijing-Tianjin-Hebei region and construction under the background of Xiong-an New Area, Beijing can be part of the high schools and colleges and universities migrated to Tianjin, Hebei and male the new city, or you can set up campuses, at the same time of the Beijing-Tianjin-Hebei region should keep consistent treatment of teacher and student/teacher ratio, the equilibrium of the Beijing-Tianjin-Hebei region education resources, improve the education of the Beijing-Tianjin-Hebei region human capital. Higher education can be with the aid of the Beijing-Tianjin high-quality higher education resources in Hebei province, around the province industry development needs, and we should encourage strong enterprises joint Beijing-Tianjin, industry associations, institutions of higher education and scientific research institutes to build regional intellectual property registries, expert in the field of intellectual property and patent information platform and cross-licensing and sharing of intellectual property rights, promote the university scientific research achievements conversion rate in Hebei province, improve the overall competitiveness of regional higher education intellectual property rights.

4.3 Substantially improve the economic returns of high-quality human capital in Hebei province

The remuneration of intellectuals in Hebei province, especially senior intellectuals, is seriously low, and there is a huge gap between them and Beijing and Tianjin. Therefore, the most direct way to solve the outflow of human capital is to improve the remuneration of high-quality talents in Hebei province and narrow the gap with Beijing and Tianjin. In order to improve the economic benefits of high-quality human capital, two kinds of high-quality talents should be paid special attention to. The other category is more sensitive to wage treatment, in the human capital pyramid in the middle or upper middle of the talent.

References

- [1] Liang Chen, Jianning Su. A study on the influence of Human Capital accumulation on the Synergetic Development of Beijing-Tianjin-Hebei Province: based on 2000-2015 data [J]. Journal of Hebei University of Economics and Trade, 2017,38 (3): 88-95.
- [2] Mingfan Wang. Research on the effective Development of Talent Capital in Hebei Province based on the Integration of Beijing, Tianjin and Hebei [D].
- [3] Yiqing Wu. Focusing on the New Proposition of Synergetic Development of Human Capital and Province-comment on "Research on the path of Human Capital accumulation in Hebei Province under the background of coordinated Development of Beijing-Tianjin-Hebei Province" [J]. Hebei academic Journal, 2018 (2).

- [4] Jinan Jia, Jinying Wang. The influence of the loss of Human Capital in Hebei Province on the Economic Integration of Beijing-Tianjin-Hebei Province and its Countermeasures [J]. Hebei academic Journal, 2009,29 (3).
- [5] Min Liu. Research on the impact of educational human capital on economic development in Suqian, Jiangsu province [J]. Knowledge economy, 2017(15):43-44.
- [6] Dongping Yu, Wanchun Duan. Health human capital, education human capital and economic growth -- an empirical study based on provincial panel data in China [J]. Journal of Wuhan university of technology (social science edition), 2011, 24(3):332-336.
- [7] Guixian Liu, Qingfang Liu. Research on countermeasures for joint construction and sharing of public education services in Hebei province under the background of Beijing-Tianjin-Hebei coordinated development [J]. Intelligence, 2018(31):100.
- [8] Long Qian, Jie Chen. Relying on education or health: the impact of two types of human capital on the income of migrant workers and the differentiation effect [J]. Xinjiang agricultural reclamation economy, 2018(2): 11-19.
- [9] Yan Chang. Enlightenment of planning and construction of Japanese capital circle on coordinated development of Beijing-Tianjin-Hebei region [J]. Economic research reference, 2014(59):32-35.