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China Human Capital Report Series

The Brief Report of Human Capital in China

2021

Center for Human Capital and Labor Market Research

Central University of Finance and Economics

Beijing, China

December 2021

Research Team Members

Principal Investigator

Haizheng Li	Special-term Professor
	Center for Human Capital and Labor Market Research (CHLR),
	Central University of Finance and Economics (CUFE)
	Professor, Georgia Institute of Technology

Faculty Team Members

Belton Fleisher	Special-term Professor and Senior Fellow, CHLR (2008- present)
	Professor Emeritus of Economics, Ohio State University
	Editor, *China Economic Review*
Barbara Fraumeni	Special-term Professor and Senior Fellow, CHLR (2008- present)
	Professor Emerita of Public Policy, University of Southern Maine
Zhiqiang Liu	Special-term Professor, CHLR (2008- present)
	Professor of Economics, State University of New York at Buffalo
Xiaojun Wang	Special-term Professor, CHLR (2008- present)
	Associate Professor of Economics, University of Hawaii at Manoa
Cynthia Bansak	Special-term Professor, CHLR (2018- present)
	Professor of Economics, St. Lawrence University
Sophie Xuefei Wang	Associate Professor, CHLR (2012- present)
Fanzheng Yang	Associate Professor, CHLR (2013- present)
Ning Jia	Assistant Professor, CHLR (2015- present)
Nina Yin	Assistant Professor, CHLR (2015- present)
Chen Huang	Assistant Professor, CHLR (2019- present)
Yulong Chen	Assistant Professor, CHLR (2020- present)

Yi Zhang	Assistant Professor, CHLR (2020- present)

2021 Student Team

Project Management Committee

Manager	Hao Zhong
Members	Zhebin Zhang, Xinwei Guo, Xiaoxue Chang

Graduate Students, CHLR

Yifan Chen, Jingfei Gao, Li He, Lingyan Hu, Xiaofei Jin, Zengxiu Kang, Wenbo Li, Yi Li, Hongyu Lin, Yaxin Ou, Qi Shao, Xu Wang, Chunxiao Zhang, Lianfeng Zhang,Meilian Zhang

Doctoral and postdoctoral students participating in this project：

Mingyu Ma	Doctoral Student, CHLR (2019- present)
Xin Li	Doctoral Student, CHLR (2019- present)
Yiting Xu	Doctoral Student, CHLR (2018- present)
Yan Su	Doctoral Student, CHLR (2017- present)

Administrative Members at the CHLR

Rong Huang	Executive Assistant to Director/Project Coordinator (2015- present)
Shujia Zhao	Project Coordinator (2018- present)

A Brief Introduction to

China Center for Human Capital and Labor Market Research

Established in March 2008, the China Center for Human Capital and Labor Market Research (CHLR) at the Central University of Finance and Economics (CUFE) is an integral part of the Advantageous Program Platform in Economics and Public Policy at the CUFE. It is an international research center for the study of human resources and labor markets, focusing on China and related economies.

Current members of the advisory board include Nobel Laureate James Heckman and Professor Dale W. Jorgenson of Harvard University, founder of the income-based method for measuring human capital.

The major research in the Center is related to the broad area of human capital and labor markets, including but are not limited to human capital and skill measurement, human capital investment, human capital mobility, human capital and innovation, and health economics. The main research project at the Center level is China human capital measurement.

All faculty and research fellows of the CHLR hold a Ph.D. degree in economics from major universities in North America and Europe, and some are senior professors at U.S. universities. Currently the Center has 8 full-time faculty members, 5 special-term professors, and 5 senior research fellows.

The CHLR has Master's, doctoral and post-doctoral programs. The Center's graduate programs are internationally oriented. The curriculum and instruction are rigorously designed following research universities in the United States. All courses are taught in English. As of 2021, 1 post-doctoral student, 10 doctoral students and 129 master students have graduated. Currently, the Center has 53 students, with 43 Master's students, 9 doctoral students and 1 post-doctoral student.

Executive Summary

We estimate China's human capital stock and describe its distribution and dynamics at the national and provincial levels from 1985 through 2019[1]. A variety of human capital indices are constructed and reported.

In addition to the traditional metrics, we apply the widely used Jorgenson-Fraumeni income-based approach (hereinafter referred to as "J-F method"), which provides a more comprehensive measurement of human capital.

The following notes define terms and measures used throughout this report:

- Total human capital refers to: female and male with age range of 0-55 and 0-60, respectively, in Mainland; and 0-60 and 0-65, respectively, in Hong Kong; and 0-60 in Taiwan.
- Labor force human capital refers to (not including full-time students): female and male with age range of 16-54 and 16-59, respectively, in Mainland; and 15-59 and 15-64, respectively, in Hong Kong; and 15-59 in Taiwan.
- We use the term "nation" and "mainland" interchangeably to refer to the 31 provinces (autonomous regions and municipalities) of the mainland China, not including Hong Kong, Macau and Taiwan.
- Unless otherwise specified, the monetary values are measured in 1985 RMB.
- Real provincial-level human capital is adjusted using the relevant provincial living-cost-adjustment index (LCI) and the Consumer Price Index (CPI) with 1985 as base year and Beijing as base province.
- Average annual growth rates across years are calculated based on the simple average of annual growth rates.

For more details, refer to the comprehensive China Huan Capital Report 2021.

All the data and results are available at the China human capital database and are

[1] The results for Hong Kong and Taiwan are reported starting from 1997.

free for public use. The data can be downloaded at：

Official website of Center for Human Capital and Labor Market Research:

http://humancapital.cufe.edu.cn/rlzbzsxm.htm

Official website of Central University of Finance and Economics & University of Electronic Science and Technology of China Joint Research Data Center:

http://cedcdata.cufe.edu.cn/cedc/metadata/list.html

Brief Human Capital Report

A. Human Capital at National Level

I) Traditional Human Capital Measures

1. In 2019, the average age of the labor force at the national level was 38.8 years. The five provinces with the oldest labor force were Heilongjiang, Liaoning, Jilin, Inner Mongolia and Zhejiang, and the five provinces with youngest labor force were Ningxia, Guangdong, Hainan, Guizhou and Tibet.
2. In 2019, the average schooling years of the labor force at the national level was 10.5. The five provinces with highest years of schooling were Beijing, Shanghai, Tianjin, Jiangsu and Liaoning, and the five provinces with the lowest years of schooling were Gansu, Guizhou, Yunnan, Qinghai and Tibet.
3. In 2019, the proportion of the labor force with high school education or higher was 41.6%, with 21.6% in rural areas and 54.6% in urban areas.
4. In 2019, the proportion of the labor force with college education or above was 20.6%, with 5.6% in rural areas and 30.4% in urban areas.

II) The Jorgenson-Fraumeni (J-F) Based Human Capital Measures

5. The J-F measure of China's nominal total human capital reached 2776.4 trillion yuan in 2019, with 2418.9 trillion yuan (87.1%) in urban areas and 357.5 trillion yuan (12.9%) in rural areas.
6. Nominal human capital per capita was 2.5 million yuan in 2019, 3.3 million yuan for urban residents and 0.9 million yuan for rural residents. Average human capital for male was 3.1 million yuan and for female was 1.7 million yuan.
7. In 2019, the five provinces with highest human capital stock were Shandong, Jiangsu, Henan, Guangdong and Hebei, and the five provinces with lowest human capital stock were Gansu, Hainan, Ningxia, Qinghai and Tibet.
8. The five provinces with highest human capital per capita were Beijing, Shanghai, Tianjin, Zhejiang and Jiangsu, and the five provinces with lowest level were

Xinjiang, Tibet, Yunnan, Gansu and Qinghai.

9. The five provinces with highest average labor force human capital were Beijing, Tianjin, Shanghai, Zhejiang and Jiangsu, and five provinces with the least were Xinjiang, Hainan, Yunnan, Gansu and Qinghai.
10. In 2019, the proportion of the population aged 0-15 among non-retired people at the national level was 21.9%, and their human capital accounted for 48.5% of total human capital.
11. In 2019, the proportion of the population aged 25-45 to the total labor force was 54.9% at the national level, and their human capital accounted for 66.3% of the total labor force human capital.
12. China's total real human capital in 2019 was 11.5 times its level in 1985, having grown at an average annual rate of 7.9%. The average annual growth rate during the decade 2010-2019 was 8.0%.
13. From 1985 to 2019, rural human capital grew at an average annual rate of 3.2%, and urban human capital grew at 10.4%; while during the decade 2010-2019, the growth rate was 9.8% for urban areas but only 0.7% for rural areas. This decline in the average annual growth of rural human capital largely reflects China's rapid urbanization.
14. Urban human capital surpassed the rural human capital before 1994 and has remained higher since then.
15. Human capital per capita grew from 43.7 thousand yuan to 474.4 thousand yuan, at an average annual rate of 7.5% over the period 1985-2019 and at a rate of 8.4% over the years 2010-2019.
16. The average annual growth rate of human capital per capita during the period of 1985-2019 was 6.5% and 5.3% for urban and rural areas, respectively. For the years 2010-2019, the growth rates were 7.8% and 4.2%, respectively.

B. Human Capital in Hong Kong and Taiwan

17. In 2019, the average age of the labor force was 42.1 years in Hong Kong and 40.8 years in Taiwan.

18. In 2019, the average schooling years of the labor force were 12.4 years in Hong Kong and 13.8 years in Taiwan.
19. In 2019, the proportion of the labor force with high school education or above was 75.6% in Hong Kong and 87.4% in Taiwan.
20. In 2019, the proportion of the labor force with college education or above was 42.3% in Hong Kong and 55.4% in Taiwan.
21. In 2019, the proportion of the population aged 0-15 among non-retired people was 16.9% in Hong Kong, and their human capital accounted for 21.0% of total human capital in Hong Kong.
22. In 2019, the proportion of the population aged 0-15 among non-retired people was 17.8% in Taiwan, and their human capital accounted for 18.8% of total human capital in Taiwan.
23. In 2019, the proportion of the population aged 25-45 to the total labor force was 49.0% in Hong Kong, and their human capital accounted for 59.2% of total labor force human capital in Hong Kong.
24. In 2019, the proportion of the population aged 25-45 to the total labor force was 40.8% in Taiwan, and it accounted for 49.4% of total labor force human in Taiwan.
25. In Hong Kong, the average annual growth rate of J-F based total human capital between 1997 and 2019 was 0.7% while the annual growth rate of human capital per capita was 0.2%. Over the years 2010-2019, the corresponding rates were 2.9% and 2.7%, respectively.
26. In Taiwan, during 1997-2019, the average annual growth rate of J-F based total human capital was -1.4%, and it was -1.0% for human capital per capita; while over the years 2009-2019, the corresponding rates were -1.3% and -0.4%, respectively.

C. Human Capital at the Provincial Level

I) Average Age of the Labor Force

Table 1.1 shows the average age of the labor force in 2019 among all provinces in China in descending order. In general, the average age of the labor force was between 36 and 40 years in 2019, and the three northeast provinces of China (Heilongjiang, Liaoning, and Jilin) ranked as the oldest, while Tibet was the youngest.

Table 1.1 Average Age of the Labor Force (2019)

Unit: Year (of age)

Rank	Province	Average Age		
		Sub-Total	Urban	Rural
1	Heilongjiang	40.5	40.4	40.6
2	Liaoning	40.3	40.3	40.4
3	Jilin	40.2	40.0	40.4
4	Inner Mongolia	39.6	39.2	40.4
5	Zhejiang	39.5	39.0	40.7
6	Hunan	39.5	39.6	39.3
7	Shandong	39.4	38.8	40.4
8	Chongqing	39.4	39.6	39.0
9	Jiangsu	39.2	38.9	39.9
10	Hubei	39.2	38.7	39.9
11	Sichuan	39.0	38.5	39.7
12	Hebei	39.0	38.8	39.2
13	Shanghai	38.8	38.8	-
14	Tianjin	38.7	38.6	39.2
15	Fujian	38.6	38.3	39.1

Rank	Province	Average Age		
		Sub-Total	Urban	Rural
16	Jiangxi	38.5	38.5	38.4
17	Anhui	38.4	38.2	38.6
18	Shanxi	38.4	38.4	38.3
19	Guangxi	38.2	37.8	38.7
20	Shaanxi	38.1	37.4	39.1
21	Qinghai	38.1	38.4	37.6
22	Beijing	38.1	37.9	39.3
23	Gansu	38.0	37.7	38.2
24	Henan	38.0	37.9	38.0
25	Yunnan	38.0	37.6	38.3
26	Xinjiang	37.7	38.1	37.3
27	Ningxia	37.6	38.0	36.9
28	Guangdong	37.3	37.3	37.2
29	Hainan	37.0	36.8	37.4
30	Guizhou	36.7	36.5	36.9
31	Tibet	36.5	32.8	38.9
	Mainland	38.8	38.6	39.1

II) Education Indicators

Table 2.1 shows the provincial rankings by average years of school of the labor force in 2019. In general, the provinces with better economic development have more schooling; leading examples are Beijing, Shanghai and Tianjin; and in contrast, underdeveloped provinces, such as Yunnan, Qinghai and Tibet, rank at the bottom. Average school years of the urban labor force exceeds that of the rural labor force in

each province, and the urban-rural gap is greater in the less-developed provinces. For example, the urban-rural differential in Tibet was 4.4 years while the gap in Beijing was only 2.8 years.

Table1.2.1 Average Years of School of the Labor Force at Provincial Level (2019)

Unit: Year

Rank	Province	Average Years of Schooling		
		Sub-total	Urban	Rural
1	Beijing	13.1	13.4	10.6
2	Shanghai	12.1	12.1	-
3	Tianjin	11.5	11.8	9.6
4	Jiangsu	11.1	11.6	9.8
5	Liaoning	11.1	11.9	9.1
6	Shaanxi	10.9	12.0	9.5
7	Hubei	10.9	11.9	9.4
8	Shanxi	10.8	11.7	9.7
9	Inner Mongolia	10.8	11.7	9.1
10	Hunan	10.8	11.7	9.6
11	Shandong	10.7	11.5	9.3
12	Guangdong	10.7	11.1	9.6
13	Chongqing	10.6	11.3	9.1
14	Jilin	10.6	11.8	8.9
15	Zhejiang	10.5	10.9	9.4
16	Hainan	10.4	11.2	9.4
17	Hebei	10.4	11.4	9.3
18	Heilongjiang	10.4	11.5	8.8

Rank	Province	Average Years of Schooling		
		Sub-total	Urban	Rural
19	Henan	10.4	11.3	9.4
20	Anhui	10.3	11.3	9.1
21	Fujian	10.3	10.9	9.0
22	Jiangxi	10.3	11.2	9.2
23	Xinjiang	10.2	11.8	8.7
24	Guangxi	10.1	11.3	8.9
25	Sichuan	10.1	11.3	8.8
26	Ningxia	10.1	11.2	8.4
27	Gansu	9.9	11.7	8.3
28	Guizhou	9.5	10.7	8.3
29	Yunnan	9.4	10.9	8.1
30	Qinghai	8.8	10.4	6.9
31	Tibet	7.4	10.0	5.6
	Mainland	10.5	11.4	9.1

Table 2.2 shows the 2019 provincial rankings for the proportion of worker with high school education and above in the labor forces. Beijing, Shanghai and Tianjin had the highest average years of school, while Yunnan and Tibet were at the bottom.

Table 2.2 The Proportion of High School Education and Above of the Labor Force (2019)

Unit：%

Rank	Province	The proportion of high school education and above		
		Sub-total	Urban	Rural
1	Beijing	73.1	77.5	43.7

Rank	Province	The proportion of high school education and above		
		Sub-total	Urban	Rural
2	Shanghai	60.1	60.1	-
3	Tianjin	51.8	57.3	22.1
4	Jiangsu	48.7	56.2	30.6
5	Hunan	46.2	60.3	29.1
6	Hubei	46.2	60.5	23.8
7	Shaanxi	46.1	59.9	27.2
8	Inner Mongolia	45.3	58.0	22.0
9	Shanxi	45.0	58.5	26.8
10	Liaoning	44.7	58.4	14.1
11	Guangdong	44.5	50.6	28.0
12	Chongqing	43.9	53.5	22.8
13	Shandong	41.6	54.6	21.0
14	Zhejiang	40.8	46.6	27.4
15	Ningxia	40.6	54.7	20.5
16	Hainan	39.7	51.8	22.1
17	Fujian	39.6	47.8	23.3
18	Jilin	39.5	59.0	13.3
19	Gansu	39.0	61.6	20.0
20	Sichuan	38.5	54.7	19.7
21	Henan	38.5	53.6	22.3
22	Jiangxi	38.2	51.3	22.2
23	Xinjiang	37.1	64.7	12.4
24	Anhui	37.0	52.3	18.8

Rank	Province	The proportion of high school education and above		
		Sub-total	Urban	Rural
25	Hebei	36.9	51.9	19.2
26	Heilongjiang	36.4	52.8	11.7
27	Guangxi	35.0	52.1	16.1
28	Qinghai	32.1	48.2	12.5
29	Guizhou	31.8	49.0	15.7
30	Yunnan	30.7	48.6	14.5
31	Tibet	21.4	35.1	12.3
	Mainland	41.6	54.6	21.6

Table 2.3 shows the provincial rankings for the proportion of workers with college education and above in the labor force in 2019. The rankings are consistent with the rankings of the proportion of workers with high school education in general. However, some provinces rank lower in their proportions of college graduates than of high-school graduates, for example, Liaoning.

Table 2.3 The Proportion of College Education and Above of the Labor Force (2019)

Unit: %

Rank	Province	The proportion of college education and above		
		Sub-total	Urban	Rural
1	Beijing	54.3	59.7	17.5
2	Shanghai	40.9	40.9	-
3	Tianjin	32.0	36.5	7.5
4	Liaoning	26.6	36.6	4.2
5	Shaanxi	26.2	39.1	8.5

Rank	Province	The proportion of college education and above		
		Sub-total	Urban	Rural
6	Jiangsu	25.9	32.8	9.3
7	Hubei	24.1	35.0	7.1
8	Inner Mongolia	24.0	33.1	7.4
9	Zhejiang	22.5	28.4	9.2
10	Ningxia	21.5	31.8	6.7
11	Jilin	21.3	34.2	4.1
12	Chongqing	21.3	28.5	5.2
13	Shandong	21.0	31.3	4.8
14	Shanxi	20.9	31.3	6.9
15	Fujian	20.5	27.4	6.5
16	Hunan	19.4	30.8	5.4
17	Heilongjiang	19.3	30.0	3.1
18	Gansu	19.2	34.8	6.0
19	Guangdong	18.5	23.4	5.3
20	Sichuan	18.3	29.7	5.1
21	Anhui	18.2	28.9	5.4
22	Hebei	17.8	29.1	4.5
23	Xinjiang	17.6	33.2	3.7
24	Hainan	16.8	23.9	6.4
25	Jiangxi	16.5	25.8	5.0
26	Guangxi	16.3	27.9	3.7
27	Qinghai	15.4	24.4	4.5
28	Yunnan	15.3	27.5	4.3

Rank	Province	The proportion of college education and above		
		Sub-total	Urban	Rural
29	Henan	15.0	25.3	4.1
30	Guizhou	13.7	23.6	4.4
31	Tibet	13.1	27.4	3.6
	Mainland	20.6	30.4	5.6

III) J-F Human Capital

3.1 Total Human Capital

Table 3.1 presents the provincial J-F human capital in 1985 prices. Real human capital is created by deflating nominal human capital with a Living Cost Index (LCI) based on Brandt and Holz (2006) as well as using provincial Consumer Price Index (CPI). Shandong has the highest real human capital, followed by Jiangsu; Tibet ranks the lowest. From the comparison of cross-provincial differences, the adjustment of the cost of living index has narrowed the gap between developed and underdeveloped provinces to some extent, because the price level is generally positively correlated with the level of development.

Table 3.1 Real Human Capital Comparison (2019)

Unit: 100 Billion Yuan

Rank	Province	Real Human Capital
1	Shandong	457.0
2	Jiangsu	436.4
3	Henan	398.5
4	Guangdong	397.4
5	Hebei	307.7

Rank	Province	Real Human Capital
6	Zhejiang	305.3
7	Sichuan	292.1
8	Anhui	290.9
9	Hubei	282.2
10	Hunan	220.1
11	Fujian	201.5
12	Guangxi	195.6
13	Jiangxi	193.8
14	Beijing	191.5
15	Shaanxi	147.4
16	Liaoning	146.2
17	Shanghai	141.7
18	Guizhou	136.5
19	Yunnan	131.1
20	Chongqing	127.9
21	Shanxi	110.4
22	Inner Mongolia	106.4
23	Tianjin	94.0
24	Jilin	93.8
25	Heilongjiang	92.2
26	Xinjiang	74.8
27	Gansu	61.0
28	Hainan	29.1
29	Ningxia	26.3

Rank	Province	Real Human Capital
30	**Qinghai**	**11.6**
31	**Tibet**	**9.5**

3.2 Human Capital Per Capita

Table 3.2 shows the provincial human capital per capita in real value (1985 RMB and Beijing as the base). The provincial ranking of real human capital per capita shows Beijing, Shanghai and Tianjin as the top three and Qinghai at the bottom. The per capita human capital ranking presents a good picture of the inequality of the development stage of the provinces. The ranking of provinces is basically consistent with the ranking of developed level, average education level and the proportion of high school or above population. The ranking is influenced by income levels, income growth rates, education level and population structure.

Table 3.2 Real Human Capital Per Capital Comparison (2019)

Unit: Thousand Yuan

Rank	Province	Real Human Capital Per Capita
1	**Beijing**	**1082.4**
2	**Shanghai**	**802.6**
3	**Tianjin**	**789.1**
4	**Zhejiang**	**684.0**
5	**Jiangsu**	**683.5**
6	**Hubei**	**616.7**
7	**Fujian**	**589.9**
8	**Shandong**	**585.1**
9	**Anhui**	**567.9**
10	**Chongqing**	**562.7**

Rank	Province	Real Human Capital Per Capita
11	Inner Mongolia	533.8
12	Hebei	512.5
13	Jiangxi	504.6
14	Shaanxi	500.5
15	Henan	498.2
16	Liaoning	466.5
17	Sichuan	460.9
18	Jilin	460.2
19	Guangxi	457.8
20	Ningxia	436.6
21	Guizhou	431.2
22	Guangdong	411.6
23	Hunan	405.5
24	Shanxi	374.0
25	Hainan	357.3
26	Heilongjiang	339.4
27	Xinjiang	336.8
28	Tibet	329.7
29	Yunnan	327.1
30	Gansu	278.7
31	Qinghai	224.6

3.3 Real Labor Force Human Capital

Provincial real labor force human capital is displayed in Table 3.3. Overall,

Guangdong has the highest real labor force human capital, followed by Shandong and Jiangsu; Tibet has the least. The provincial rankings by real labor force human capital can differ from their ranking based on total human capital because of the different sizes of the provincial labor forces. The provinces with large labor population will rank relatively in the forefront of labor human capital.

Table 3.3 Real Labor Force Human Capital Comparison (2019)

Unit: 100 Billion Yuan

Rank	Province	Real Labor Force Human Capital
1	Guangdong	162.9
2	Shandong	156.0
3	Jiangsu	148.3
4	Henan	143.6
5	Sichuan	118.4
6	Zhejiang	115.5
7	Anhui	108.3
8	Hebei	106.8
9	Hubei	93.3
10	Hunan	79.1
11	Beijing	77.0
12	Jiangxi	69.1
13	Fujian	68.6
14	Guangxi	61.5
15	Liaoning	60.8
16	Yunnan	54.5
17	Shanghai	53.9

Rank	Province	Real Labor Force Human Capital
18	**Shaanxi**	**53.0**
19	**Shanxi**	**50.4**
20	**Guizhou**	**49.9**
21	**Heilongjiang**	**49.5**
22	**Inner Mongolia**	**48.3**
23	**Chongqing**	**46.5**
24	**Jilin**	**39.1**
25	**Tianjin**	**37.9**
26	**Xinjiang**	**31.1**
27	**Gansu**	**28.8**
28	**Hainan**	**11.2**
29	**Ningxia**	**10.6**
30	**Qinghai**	**5.5**
31	**Tibet**	**4.1**

3.4 Labor Force Human Capital Per Capita

Table 3.4 shows the provincial comparison for real labor force human capital per member of the labor force. Beijing remains at the top, Tianjin and Shanghai follow; Qinghai remains at the bottom. From the perspective of inter-provincial comparison, excluding the factor of population base, the population structure is dominant. We can see that the provinces with a high proportion of labor force in the total population rank at the top.

Table 3.4 Real Labor Force Human Capital Per Capital Comparison (2019)

Unit: Thousand Yuan

Rank	Province	Real Labor Force Human Capital Per Capital
1	Beijing	550.5
2	Tianjin	399.7
3	Shanghai	383.6
4	Zhejiang	347.7
5	Jiangsu	320.6
6	Inner Mongolia	312.2
7	Anhui	299.1
8	Fujian	294.7
9	Shandong	287.6
10	Chongqing	286.0
11	Hubei	284.2
12	Henan	273.6
13	Jiangxi	265.7
14	Hebei	262.4
15	Sichuan	255.9
16	Shaanxi	253.1
17	Ningxia	252.0
18	Liaoning	247.2
19	Jilin	241.7
20	Guizhou	237.7
21	Guangdong	235.8

Rank	Province	Real Labor Force Human Capital Per Capital
22	Guangxi	230.5
23	Shanxi	229.1
24	Heilongjiang	219.9
25	Hunan	209.4
26	Tibet	208.6
27	Xinjiang	208.5
28	Hainan	200.3
29	Yunnan	194.0
30	Gansu	178.8
31	Qinghai	150.6

IV) Other Important Human Capital Indicators

Table 4.1 The Proportion of Aged 0-15 Among Non-retired People and Their Share of Total Human Capital (2019)

Unit: %

Province	Proportion of Population		Proportion of Human Capital	
	Proportion	Rank	Proportion	Rank
Guangxi	29.7	1	55.5	2
Xinjiang	27.0	2	45.6	23
Henan	26.8	3	51.6	9
Tibet	26.7	4	45.4	24
Guizhou	26.3	5	49.5	14
Fujian	26.1	6	56.8	1

Province	Proportion of Population		Proportion of Human Capital	
	Proportion	Rank	Proportion	Rank
Jiangxi	25.7	7	51.6	8
Hebei	25.0	8	52.4	7
Hainan	24.9	9	50.7	11
Yunnan	24.2	10	47.0	20
Shandong	23.9	11	54.1	5
Ningxia	23.6	12	47.4	19
Hunan	23.2	13	50.0	13
Guangdong	22.5	14	48.5	17
Anhui	22.5	15	49.1	16
Qinghai	22.4	16	40.2	29
Hubei	21.6	17	54.6	4
Jiangsu	21.1	18	54.8	3
Shaanxi	21.1	19	49.3	15
Chongqing	20.7	20	48.4	18
Gansu	20.5	21	40.2	30
Sichuan	20.0	22	46.0	22
Zhejiang	19.6	23	51.3	10
Shanxi	19.3	24	42.7	28
Inner Mongolia	17.3	25	44.4	25
Beijing	15.4	26	50.2	12
Liaoning	14.8	27	44.3	26
Shanghai	14.4	28	52.5	6
Jilin	13.8	29	43.4	27

Province	Proportion of Population		Proportion of Human Capital	
	Proportion	Rank	Proportion	Rank
Tianjin	13.5	30	46.5	21
Heilongjiang	11.5	31	32.8	31

Table 4.2 The Proportion of Aged 25-45 in the Labor Force and Their Share of Total Labor Force Human Capital (2019)

Unit: %

Province	Proportion of Population		Proportion of Human Capital	
	Proportion	Rank	Proportion	Rank
Shanghai	52.5	1	30.6	3
Beijing	51.4	2	31.6	2
Tianjin	46.6	3	28.5	8
Heilongjiang	43.4	4	35.8	1
Liaoning	42.8	5	29.4	5
Guangdong	42.4	6	27.3	11
Jilin	42.4	7	28.1	9
Zhejiang	41.7	8	25.6	13
Jiangsu	41.5	9	24.4	14
Inner Mongolia	41.4	10	29.0	6
Hainan	40.9	11	24.3	15
Shanxi	40.3	12	28.9	7
Fujian	39.8	13	23.1	21
Tibet	39.5	14	21.9	27
Shaanxi	39.5	15	23.7	17

Province	Proportion of Population		Proportion of Human Capital	
	Proportion	Rank	Proportion	Rank
Hubei	39.3	16	22.9	22
Hebei	38.8	17	23.7	19
Qinghai	38.2	18	29.5	4
Ningxia	38.0	19	24.2	16
Xinjiang	37.6	20	26.3	12
Shandong	37.3	21	22.0	26
Hunan	37.0	22	23.7	18
Yunnan	37.0	23	23.6	20
Gansu	36.7	24	27.9	10
Anhui	36.5	25	22.7	23
Jiangxi	35.9	26	20.7	29
Chongqing	35.7	27	22.3	25
Sichuan	35.6	28	22.7	24
Guangxi	35.1	29	19.6	30
Henan	34.6	30	21.2	28
Guizhou	32.8	31	18.3	31

D. The Labor Force Human Capital of Beijing and Shanghai

I) The Proportion of Labor Force by Age Group

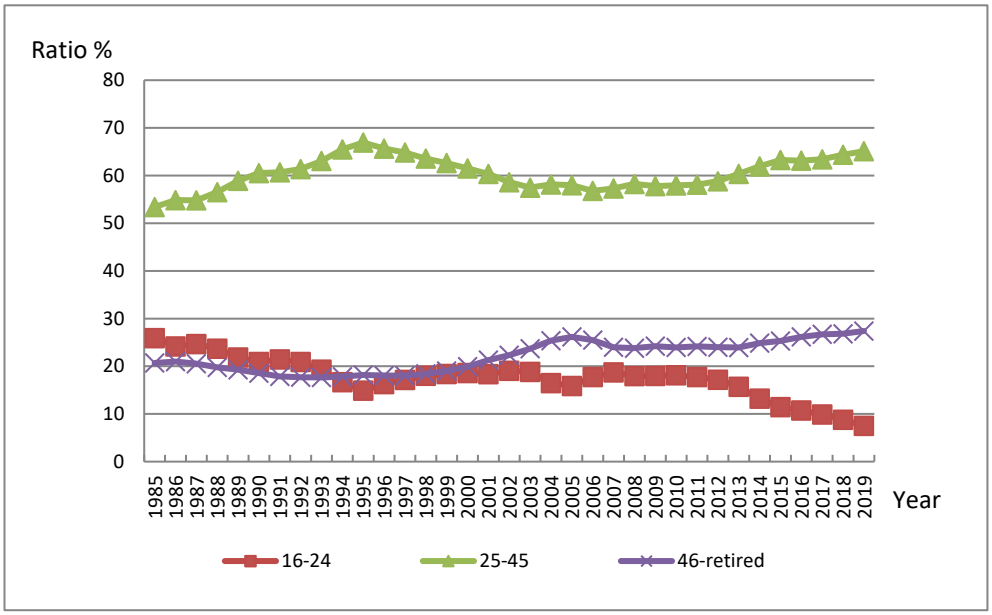

Figure 3.1.1 Proportion of Beijing's Labor Force by Age Group

Figure 3.1.1 shows the changes in the proportion of labor force by age group in Beijing from 1985 to 2019. In Beijing, the proportion of the labor force aged between 16 and 24 showed a decreasing trend, from 25.9% in 1985 to 7.5% in 2019, which is the lowest proportion. The proportion of the labor force aged between 25 and 45 increased from 53.4% in 1985 to 65.1% in 2019, which is the highest proportion. The proportion of the labor force aged from 46 to retirement age (59 for men and 54 for women) shows an upward trend, from 20.7% in 1985 to 27.4% in 2019. Overall, Beijing's labor force is gradually aging.

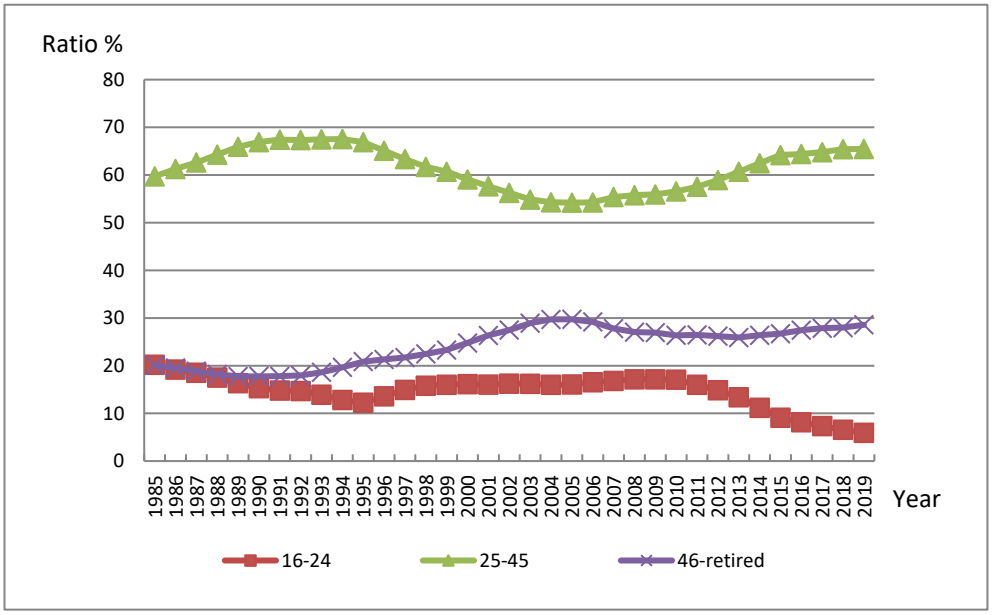

Figure 3.1.2 Proportion of Shanghai's Labor Force by Age Group

Figure 3.1.2 shows the changes in the proportion of labor force by age group in Shanghai from 1985 to 2019. In Shanghai, the proportion of the labor force aged between 16 and 24 showed a decreasing trend, from 20.2% in 1985 to 5.9% in 2019, which is the lowest proportion. The proportion of labor force aged between 25 and 45 increased from 59.7% in 1985 to 65.5% in 2019, which is the highest proportion. The proportion of the labor force aged from 46 to retirement age shows an upward trend, from 20.1% in 1985 to 28.6% in 2019. Overall, Shanghai's labor force is gradually aging.

II) Average Age of the Labor Force

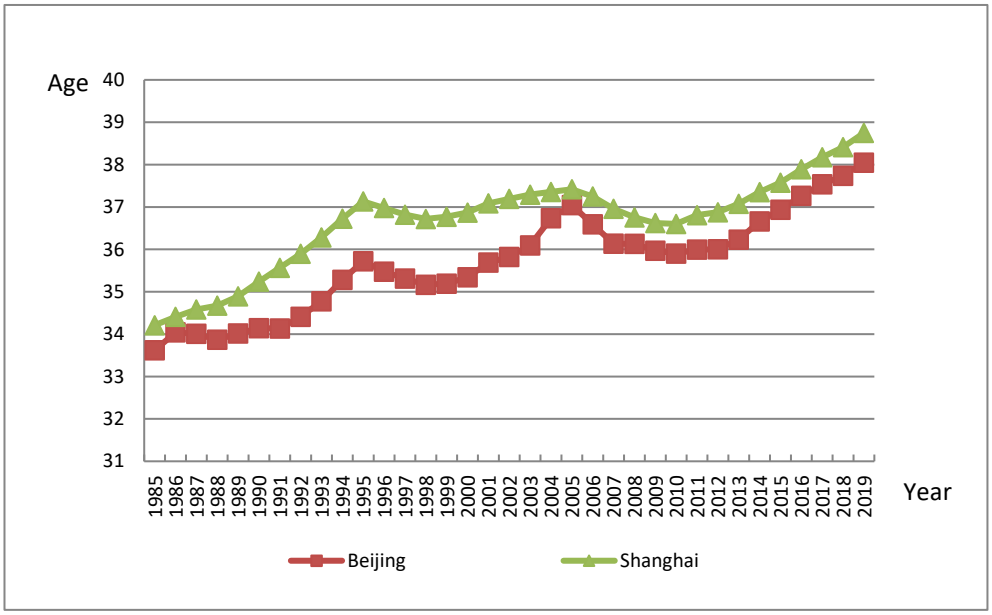

Figure 3.2.1 Average Age of the Labor Force in Beijing and Shanghai

Figure 3.2.1 compares the average age of the labor force in Beijing and Shanghai from 1985 to 2019. In 2019, the average age of the national labor force is 38.8 years old, the average age of Beijing's labor force is 38.0 years old, the average age of Shanghai's labor force is 38.7 years old, the labor force in Beijing is younger than that in Shanghai. From 1985 to 2019, the average age of the labor force in the two cities show an upward trend. The average age of the labor force in Beijing increased from 33.6 years old to 38.0 years old, and that in Shanghai increased from 34.2 years old to 38.7 years old.

III) The Proportion of Labor Force by Education Level

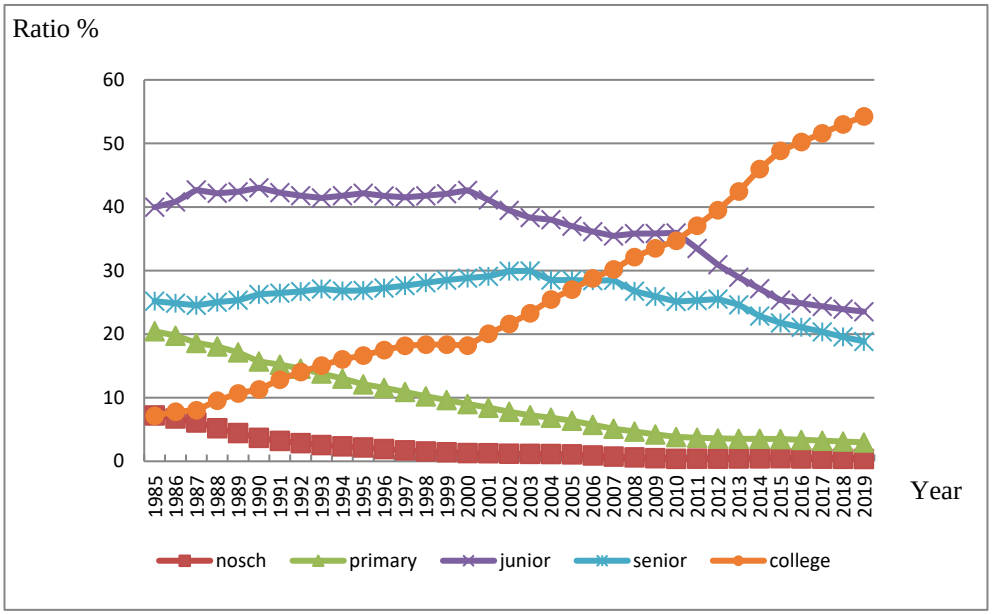

Figure 3.3.1 Proportion of Beijing's Labor Force by Education Level

Figure 3.3.1 shows the change of the proportion of labor force at different education levels in Beijing from 1985 to 2019. In Beijing, the proportion of the non-school population is the smallest in the labor force, which has gradually decreased from 7.2% in 1985 to 0.4% in 2019. The proportion of primary school population gradually decreased from 20.5% in 1985 to 3.0% in 2019. The proportion of the population in junior high schools showed a decreasing trend, from 40.0% in 1985 to 23.5% in 2019. The proportion of senior high school population showed a trend of first increasing and then decreasing, rising from 25.2% in 1985 to 30.0% in 2003, and then falling to 18.9% in 2019.The number of people with a college degree or above has gradually increased from 7.2% in 1985 to 54.3% in 2019. Overall, the education level of Beijing's labor force is higher and the growth rate is relatively faster.

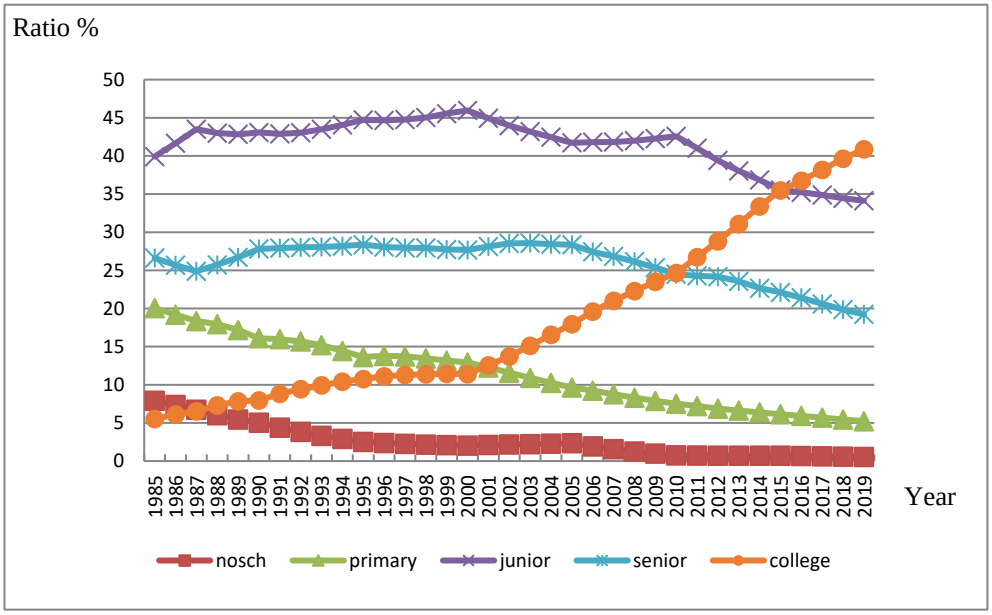

Figure 3.3.2 Proportion of Shanghai's Labor Force by Education Level

Figure 3.3.2 shows the change of the proportion of labor force at different educational levels in Shanghai from 1985 to 2019. Shanghai has the smallest proportion of the labor force without schooling, which has gradually decreased from 7.9% in 1985 to 0.5% in 2019. The proportion of primary school population gradually decreased from 20.1% in 1985 to 5.2% in 2019.The proportion of junior high school population showed a decreasing trend, from 39.9% in 1985 to 34.1% in 2019. The proportion of high school students showed a decreasing trend, from 26.6% in 1985 to 19.2% in 2019. The population with a college degree or above gradually increased from 5.5% in 1985 to 40.9% in 2019. Overall, Shanghai's education level is higher and its growth rate is faster.

IV) Average Years of Schooling of the labor Force

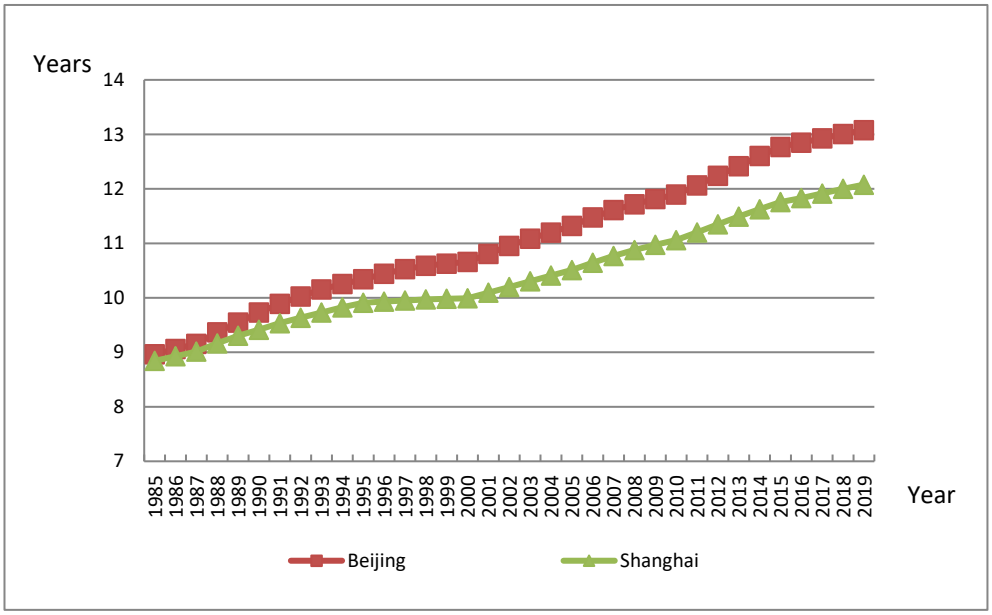

Figure 3.4.1 Average Years of Schooling of the Labor Force in Beijing and Shanghai

Figure 3.4.1 compares the average years of schooling of the labor force in Beijing and Shanghai from 1985 to 2019. In 2019, the average years of schooling of the national labor force was 10.5 years, the average years of schooling of Beijing's labor force was 13.1 years, and the average years of schooling of Shanghai's labor force was 12.1 years. The average years of schooling of the two cities' labor force are both higher than the national level, and the average years of schooling of Beijing's labor force is higher than that of Shanghai's. From 1985 to 2019, the average years of schooling of Beijing's labor force increased from 9.0 years to 13.1 years, and that of Shanghai's labor force increased from 8.8 years to 12.1 years.