China Human Capital Report Series

Human Capital in China
2014

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Central University of Finance and Economics
Beijing, China

October 2014

This project is funded by

National Natural Science Foundation of China

and

Central University of Finance and Economics

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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, labor markets, and their impact on economic development, focusing on China and related economies.

The CHLR has Master's, doctoral and post-doctoral programs. Nobel Laureates Kenneth J. Arrow and James Heckman, and Professor Dale W. Jorgenson of Harvard University and the founder of the income-based method for measuring human capital, serve on the Advisory Board.

The major research areas in the Center include but are not limited to human capital and skill measurement, human capital investment, human capital mobility, human capital and innovation, and health economics.

All of the faculty and research fellows of the CHLR hold a Ph.D. degree in economics from major universities in North America and some are tenured professors at U.S. universities. The CHLR Special-term Director, Dr. Haizheng Li, is Professor in the School of Economics, Georgia Institute of Technology. Currently the Center has 1 "Changjiang Fellowship" Scholar, 6 full-time faculty members, 7 special-term professors, 11 senior research fellows. Among the faculty members, 7 are professors, 2 are associate professors, and 4 are assistant professors.

The Center's graduate programs are internationally oriented. The curriculum and instruction are rigorously designed, patterned after those in research universities in North America. All the courses are taught in English. Through 2014, 1 post-doctoral student, 3 doctoral students and 43 Master graduates have graduated. Currently, there are 45 internal students: 39 Master's students and 6 doctoral students.

The Impact of China's Human Capital Project

The research project, "China's Human Capital: Measurement and Index Construction," is conducted by the China Center for Human Capital and Labor Research Center (CHLR), and funded by the National Natural Science Foundation of China and the Central University of Finance and Economics. The project aims to establish China's first scientific and systematic human capital index, quantitatively describe China's human capital distribution, trend and dynamics. It constructs important measurements for further evaluating human capital and its contribution to economic development, and provides policy-makers with important information on the nation's human capital development.

The project is part of the international effort to establish comparable national human capital measurement across nations and to eventually incorporating human capital into the system of national income and product accounts.

The project is led by the Director of the CHLR, Professor Haizheng Li. The research team includes Professor Barbara Fraumeni (a pioneer scholar in developing the Jorgenson-Fraumeni method of human capital calculation), other full-time and special-term professors, graduate students, and administrative staff at the CHLR. Since the inaugural issue of the China Human Capital Report in 2009, the project has generated great social impact, and drawn the attention of academia and governments both at home and abroad.

I. Papers/Books/Book Chapters published based on China Human Capital Report:

- "Human Capital Estimates in China: New Panel Data 1985-2010", *China Economic Review*, accepted.
- "China's Human Capital Measurement: Method, Results and Application", *Journal of Central University of Finance and Economics*, in Chinese, Volume 1(5), pp. 69-78, 2014.
- "Regional Distribution and Development of Human Capital in China", *Economic Research Journal*, in Chinese, Issue 7, pp. 49-62, 2013.
- "Human Capital in China, 1985-2008", *Review of Income and Wealth*, Volume 59(2), pp. 212-234, 2013.
- "The Rural-Urban Disparity of Human Capital in China," Chinese Economists Society Presidential Forum, in: Economic Reform and Future Development Directions, Nankai University Press, pp.209-227, 2012.
- "Human Capital In Beijing-A Measurement Based on the Jorgenson-Fraumeni Income Approach" in: Beijing Human Resources Development Report 2010-2011, Beijing Human Recourses Bluebook Series, edited by Zhiwei Zhang, Social Science Literature Press, Beijing, China, in Chinese, pp. 57-79, 2011.
- "Human Capital Index in China," in: The Changing Wealth of Nations, Washington, DC: World Bank, Chapter 6, pp. 105-114, 2010.
- "Human Capital Measurement and Index Construction in China," *Economic Research Journal*, (top Chinese journal), Issue #8, 2010. (Reprinted in *China Social Science Digest*, 2010, No. 12.)
- "Human Capital Index in China," National Bureau of Economic Research, working paper (http://papers.nber.org/papers/w15500).

II. Invited Speeches and Presentations:

- The 26th Annual Meetings of the Chinese Economics Society of Australia, as a Keynote Speaker, "Regional Distribution and Growth of China's Human Capital 1985-2010: Urbanization, Education, and Aging," Monash University, Melbourne, Australia, July 6-9, 2014.
- Fudan University and The Chinese University of Hong Kong, Shanghai-Hong Kong Development Institute conference on "Human Capital Distribution and Trend in China: Where does Shanghai Stand?" Shanghai, China, May 28, 2014.
- The Third World KLEMS Conference: Growth and Stagnation in the World Economy, invited presentation, "Human Capital Estimates in China: New Panel Data 1985-2010," Tokyo, Japan, May 19-20, 2014.
- American Economic Association Annual Meeting, "Human Capital Estimates in China, New Panel Data 1985-2010", Philadelphia, USA, January 3-5, 2014.
- International Symposium on "Labor Aspect of Corporate Social Responsibility and Public Policy," organized by the United Nations ILO Training Centre in Turin and Nanjing University of Finance and Economics, "Human capital per labor of China," Nanjing, China, May10-13, 2013.
- University of Southern California, US-China Institute conference on "The State of the Chinese Economy: Implications for China and the World," Los Angles, "Human Capital in China," February 24-25, 2011.
- The Chinese Economists Society (CES) President Forum, Nankai University, Tianjin, China, December 10, 2010, "Human Capital and Its Contributions".

- High-Level Working Group on Skills and Human Capital hosted by the Lisbon Council, Invited Speaker, Brussels, November 16, 2010, “Measuring Human Capital in China.”
- The 25th Anniversary of the Sino-US Exchange on Economics Education (Ford Class) Renown Scholar Forum, Renmin University of China, invited speaker, Beijing, China, July 23, 2010, “Human Capital in China”.
- The 31st IARIW General Conference of the International Association for Research in Income and Wealth, invited plenary session presentation, St. Gallen, Switzerland, August 23-28, 2010, “Human Capital in China.”
- Plenary Session Chair and co-organizer, Beijing municipal government conference, “World Talent, World City,” Beijing, May 28, 2010.

III. Related Funded Projects:

- The National Natural Science Foundation of China supported the human capital measurement project for the years 2010-2012, and will continue to support it for the four years 2013-2016. The new grant title is, "China Human Capital Index System Improvement and Applications," (project No. 71273288).
- In 2012, the CHLR has been invited to join the European Union project (2012-2015), “Lifelong Learning, Innovation, Growth and Human Capital Tracks in Europe,” to study human capital, skills and outcomes with other eight research teams from various countries/regions.
- State Administration of Foreign Experts Affairs, “A Study of Evaluation Mechanism for International Talents,” invited project, May, 2012.

- State Administration of Foreign Experts Affairs, “A Study of Compensation Mechanism for Recruiting International Talents,” invited project, May, 2011.
- Ministry of Education, “A Study of the Contribution Rate of Human Capital,” invited project, May, 2010.
- OECD Director of Statistics Directorate, Mr. Paul Schreyer, has officially recommended to the Director of China National Bureau of Statistics Mr. Jiantang Ma, that the CHLR human capital research team should participate in the OECD human capital consortium as China’s officially designated representative, 2010.
- State Councilor Yandong Liu visited the CHLR and praised the Center’s achievement in human capital research in October, 2009, and made the remarks that “China is in a transition from a country with huge population to a country with strong human capital, and therefore it is very important to conduct research in China’s human capital.”
- China Human Capital Report 2009 and its summary have been requested by the Ministry of Education as references.
- It has been submitted to the Ministry of Organization for the Second National Meeting on Talents Policy as supplementary materials in 2009.

Acknowledgement

We thank all the participants in a series of international symposiums on human capital hosted by the China Center for Human Capital and Labor Market Research since 2009 for their valuable suggestions. We are grateful for the comments and suggestions from scholars at numerous international and domestic conferences, as well as from anonymous referees.

We are especially grateful to Nobel Laureate Professor Kenneth J. Arrow, and to the founder of the income-based method for measuring human capital, Professor Dale W. Jorgenson at the Harvard University, for their support to this project.

This project and its related conferences have benefited tremendously from the supports of the administration at the Central University of Finance and Economics (CUFE). President Guangqian Wang and other university leaders provided strong support and encouragement for the project. Vice President Junsheng Li, Vice President Lifen Zhao, and Director of Research Office Baowen Sun coordinated with various offices to ensure the success of the project and the conferences.

Many offices in the CUFE, such as the President's Office, Office of Research, Office of Human Resources, Finance/Accounting Office, International Cooperation Office and Assets Management Office provided administrative support that facilitated this research. Office space, conference facilities, and computer labs were generously provided by CUFE. We also acknowledge help from the Virtual Experiment Lab, the School of International Exchange, the Academy of Public Finance and Policy, and the School of Marxism Studies.

The School of Economics at Georgia Institute of Technology, especially the former Chair, Professor Patrick McCarthy, offered strong support to the project. Prof. Shi Li from Beijing Normal University provided us with the CHIP (2007) data. Last but not the least; we are grateful for the help for our conferences from two Chinese academic journals – *Economic Research Journal and Labor Economics and Labor Relations.*

Revisions and Improvements in 2014 Report

The main revisions and improvements based on the 2013 report include:

- Calculating human capital for nine new provinces: Shanxi, Qinghai, Inner Mongolia, Xinjiang, Tibet, Yunnan, Fujian, Hebei, Ningxia, Hong Kong and Taiwan.
- Recalculating human capital for Hainan province.
- Human capital calculation for all provinces, autonomous regions, municipalities and special administrative regions (excluding Macao) has been extended to 1985-2010.
- A new data set, *China Family Panel Studies (CFPS)*, was added to the estimation of Mincer parameters and updating new macro data for provinces.
- Estimating both national and provincial physical capital stock for 1985-2010.
- Estimating cross-province living cost adjustment index (purchasing power parity index) for 1985-2010.

Brief Description

Abbreviations

- Provinces:

BJ=Beijing	TJ=Tianjin	HeB=Hebei
SX=Shanxi	NMG=Inner Mongolia	LN=Liaoning
JL=Jilin	HLJ=Heilongjiang	SH=Shanghai
JS=Jiangsu	ZJ=Zhejiang	AH=Anhui
FJ=Fujian	JX=Jiangxi	SD=Shandong
HeN=Henan	HuB=Hubei	HuN=Hunan
GD=Guangdong	GX=Guangxi	HaN=Hainan
CQ=Chongqing	SC=Sichuan	GZ=Guizhou
YN=Yunnan	XZ=Tibet	SaX=Shaanxi
GS=Gansu	QH=Qinghai	NX=Ningxia
XJ=Xinjiang	HK=Hong Kong	TW=Taiwan

- HC: Human capital
- LFHC: Labor force human capital

Definition and Description

- Total human capital： age 0-55 for female, age 0-60 for male
- Labor force human capital：age >16，unretired labor force excluding students.
- Average growth rate: the mean of growth rate for all years.
- Ratio of human capital to GDP: using current values.
- Ratio of labor force human capital to GDP: using current values.

Contents

Executive Summary

We adopt and modify the widely used Jorgenson-Fraumeni lifetime income approach (hereafter referred to as the J-F approach) to calculate China's human capital stock and estimate its distribution and trend.

Due to lack of data, J-F approach cannot be directly applied to the measurement of human capital in China. According to the human capital theories, we combine micro survey data with macro data and modify J-F approach to fit the Chinese data. In this way, we systematically estimate China's human capital stocks at both national and provincial level, and also build various human capital indexes.

In this report we calculate the human capital stocks of China at the national level from 1985 to 2010, including total human capital and per capita human capital for rural and urban, male and female, and analyze the distribution and trend of them. In addition, human capital stocks are estimated for 33 provinces: Beijing, Tianjin, Liaoning, Jilin, Heilongjiang, Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Shaanxi, Gansu, Shanxi, Qinghai, Inner Mongolia, Xinjiang, Tibet, Yunnan, Fujian, Hebei, Ningxia, Hong Kong and Taiwan.

Our report initially forms China's human capital panel data and provides available data for the intensive research. Additionally, we estimate national level and provincial level physical capital stock for the same period and form physical capital panel data accordingly; and construct living cost adjustment index (i.e., purchasing power parity index) for cross-province comparison of money value.

Since these data are widely used in academic research and policy analysis, our estimated human capital, physical capital, living cost

adjustment index and all raw data and processed data will be released to the public use for free. http://humancapital.cufe.edu.cn/plus/list.php?tid=61

The main findings in the 2014 report are summarized below (real values are calculated based on 1985's currency and growth rates are calculated based on real values).

1. China's human capital reached RMB 812.1 trillion in 2010. Urban and rural human capital was 639.4 and 172.7 trillion, respectively, accounting for 79% and 21% of the total human capital.
2. China's human capital increased at an average annual rate of 6.96% during 1985-2010.
3. Human capital per capita reached RMB 723,400 Yuan in 2010. Urban and rural human capital per capita was 1,113,700 and 314,300 Yuan, respectively. Per capita human capital for male and female is 875,600 and 549,600 Yuan, respectively.
4. Per capita human capital almost quintuplicated during 1985-2010. Total human capital grew at a higher rate than per capita human capital before 1995 (1.15% and 0.04% average annual rate, respectively), but the two grew at more comparable rates after 1995 (10.84% and 10.54%, respectively). Meanwhile, population grew at an average annual rate of 1.38% before 1995 and 0.68% after 1995. Thus, the result suggests that larger effect of education improvement and other factors besides population on human capital growth after 1995.
5. During 1985-2010, rural human capital grew at an average annual rate of 3.31%, but urban human capital grew at 9.21%. Growth rates in both urban and rural areas accelerated since 1997 (14.20% and 5.99%, respectively, for 1997-2010). Urban human capital exceeded rural human capital starting in 1996, and the gap is ever- increasing.
6. Rural human capital per capita grew at an average annual rate of 4.46% during 1985-2010, while it was 5.50% in urban for the same period.

Before 1997, the rural human capital per capita grew slightly faster than the urban area (0.29% and 0.26%, respectively). After that, however, the urban human capital per capita grew much faster than the rural area (10.35% and 8.31%, respectively). Clearly, the urban-rural gap in human capital rises quickly.

7. At the national level, the ratio between human capital and physical capital decreased rapidly before 1995 and then began to rise slowly, indicating a higher growth rate of human capital relative to physical capital in later years.
8. At the national level, the ratio of GDP to human capital shows an upward trend, suggesting the efficiency of human capital increased in production.
9. Human capital at the provincial level generally shows a similar trend to national human capital. However, since provinces differ in their population, education structure and the degree of market mechanism, their dynamics in human capital also show some differences.
10. Among the 31 provinces of Mainland China estimated, the top three provinces ranked by human capital stock in 2010 are Jiangsu, Guangdong and Shandong; and by human capital per capita are Shanghai, Beijing and Tianjin.
11. While China has a large total human capital stock, its human capital per capita is relatively small compared to developed countries.

Chapter 1 Introduction

Since the concept of human capital was introduced to modern economic analysis by Schultz (1961) and Becker (1964), it has been widely used in academic studies and policy analysis. An Organization for Economic Co-operation and Development (OECD) publication defines human capital as "The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" (OECD, 2001, page 18). Human capital has been called probably "the most important and most original development in the economics of education" in the second part of the 20th century (Coleman, 1990, page 304). In most countries, human capital accounts for more than 60% of the nation's wealth (World Bank, 1997).[1]

It is generally believed that human capital is an essential source of economic growth and innovation, and an important factor for sustainable development and reducing poverty and inequality (see, for example, Stroombergen et al., 2002, and Keeley, 2007). Detailed analyses of human capital accounts for Canada, New Zealand, Norway, Sweden, and the United States all show that human capital is a key source of economic growth.[2] The Stiglitz Commission report (Stiglitz,et. al. (2009). noted the importance of human capital as a "beyond Gross Domestic Product" measure of economic and social progress.

In China, since the start of economic reforms, the economy has grown at a

[1] These World Bank wealth estimates include natural resources, physical capital and intangible capital, which is primarily human capital.

[2] These include Jorgenson-Fraumeni (J-F) accounts for Canada (Gu and Ambrose 2008), New Zealand (Li, Gibson, and Oxley 2005), Norway (Greaker and Liu 2008), Sweden (Alroth 1997), and the United States (Jorgenson and Fraumeni 1989, 1992a, 1992b, and Christian 2009).

dramatic rate, and human capital has played a significant role in the Chinese economic miracle (see, for example, Fleisher and Chen, 1997, and Démurger, 2001), with strong impacts t on productivity growth and on reducing regional inequality in China (Fleisher, Li and Zhao, 2009).

Despite the important role of human capital in the Chinese economy prior to the work reported here there has been almost no comprehensive measurement of the total stock of human capital in China. Human capital measures for China are central to any understanding of the global importance of human capital for a number of reasons. First, China has undergone dramatic demographic changes in the past 65 years (including encouragement of large families followed by the one-child policy, massive interregional migration, and urbanization). Second, there has been a massive elimination of illiteracy and, more recently, a rapid expansion of education at higher levels. It follows that measures of human capital will facilitate a deeper understanding of the contribution of human capital to growth, development, and social well-being in empirical and theoretical research, not only in China, but in the world at large.. Currently, only imperfect representations of human capital, such as measures of formal education， have been used in such studies. Developing comprehensive measures of human capital in China provides the necessary early work for constructing China's human capital account so that China can join the international OECD initiative in this area. This initiative will facilitate international comparison of human capital accumulation and growth across nations.

Additional benefits from human capital measures include the provision of useful information for policy makers for the purpose of assessing how aeducation policies of central and local governments affect the accumulation of human capital. This is especially important, given the long-term nature of human capital investment. For example, since the early 1980s, there has been a remarkable increase in the educational attainment of the Chinese population. In

1985 the largest population masses were concentrated in the "no schooling" and "primary school" categories (Figure 4.2.5). By 2010 the largest population mass was concentrated in the "junior middle" school category (Figure 4.2.7).

There is an ongoing international effort in developed countries to measure a nation's total human capital stock and to develop Jorgenson-Fraumeni (J-F) national human capital accounts, and our work is part of this movement. The U.S. Bureau of Economic Analysis has recently supported research on human capital (Abraham 2010 and Christian 2010). Statistics Canada (Gu and Wong 2008), the Australian Bureau of Statistics (Wei 2008), and Statistics Norway (Greaker and Liu 2008) have established similar research programs on the measurement of human capital using agency researchers. In addition, seventeen countries (Australia, Canada, Denmark, France, Italy, Japan, Korea, Mexico, Netherlands, Norway, New Zealand, Poland, Spain, the United Kingdom, the United States, Romania, and Russia), and two international organizations, Eurostat and the International Labour Organization, have joined an OECD consortium to develop human capital accounts. A researcher from Statistics Norway, Gang Liu, has been at the OECD since October 2009 to coordinate this effort.[3] The work of this consortium will facilitate cross-country comparisons.

Another approach to estimating the impact of human capital has been undertaken by the Lisbon Council, located in Brussels. The Lisbon Council European Human Capital Index has been constructed for the 13 European Union (EU) states and 12 Central and Eastern European states (see Ederer 2006 and Edereret al. 2007). Developed countries have obviously realized the importance of monitoring human capital accumulation, while most developing

[3] J-F human capital accounts have been constructed for several other countries independent of the consortium efforts. These countries include Argentina (Coremberg, 2010), New Zealand (Le, Gibson, and Oxley, 2005), and Sweden (Ahlroth and Bjorkland, 1997). O'Mahony and Stevens (2004) applied J-F methodology to evaluate government provided education in the United Kingdom.

and emerging countries, including China, are only beginning to embark on such projects.

Although systematic measures of the total human capital stock in China have not been completed, there are a few studies on human capital measurement published in Chinese journals. For example, Zhang (2000) and Qian and Liu (2004) calculated China's human capital stock based on total investment (the cost side); others, such as Zhu and Xu (2007), Wang and Xiang (2006), estimated human capital from the income side. Zhou (2005) and Yue (2008) used weighted averages of some human capital attributes to construct a measure. Most studies generally measure only parts of human capital based on some education characteristics such as average years of education, for example, Cai (1999), Hu (2002), Zhou (2004), Hou (2000), Hu (2005), etc.

The limitations of past studies have precluded implementation of internationally recognized methods for human capital estimation based on China's data. The methodology used studies preceding the work reported here has been limited by data availability, feasibility of parameter estimation, and some technical treatment difficulties It follows that we have no measures of changes of human capital in rural and urban areas and for males and females. .

We construct a comprehensive measure of human capital in China by applying the methods used in other countries after modifying them to fit China's special cases. We estimate total human capital at the national level and provincial level, for males and females, for urban and rural areas from 1985 to 2010. Our estimates include nominal values, real values, indexes, and quantity measures. We adopt, where possible, the Jorgensen-Fraumeni (J-F) lifetime income based approach, which has been widely used in other countries.

In addition to adapting and implementing the J-F approach to China's data to estimate the human capital series. Part of our work involves combining micro-level survey data in human capital estimation to mitigate the lack of comprehensive earnings data in China. In particular, we apply the well-known

Mincer equation to estimate earnings where comprehensive data are not reported by using various available household surveys. Thus, we are able to integrate the changes of returns to education and experience (on-the-job-training) into our estimates during the course of economic transition.

Moreover, by separating the calculation of human capital for urban and rural areas, we capture the changes caused by rapid urbanization as and by the large scale rural-urban migration since the start of economic reform in China. This framework is not only important for any transitional economy because of its changing economic structure and migration, it can also captures, at least in part, the effects of investments in migration—an important component of human capital often missed in ongoing research.

The rest of this report is arranged as follows. Chapter 2 discusses our methodology for human capital measurement. Chapter 3 describes the J-F method and its application and modifications for China. Chapter 4 reports China's population and education dynamics. The estimated national results of human capital are reported in Chapter 5; Chapter 6 presents the cross-province comparison results, followed by the disaggregated human capital results for Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Hong Kong and Taiwan.

Chapter 2 Methodology

In general, human capital can be produced by education, training, and child bearing and rearing, as well as by job turnover and migration that help to realize the full potential value of human capital. Like physical capital, the human capital stock can be valued using two methods: i) it can be valued as the sum of investment, minus depreciation, added over time to the initial stock; ii) it can be valued as the net present value of the income flow it will be able to produce over an expected lifetime. The first method - the perpetual inventory method--is used in the cost approach; while the second method is used in the income-based approach (this method is also often used to estimate the value of most natural resources). When human capital is measured using the perpetual inventory approach, only costs or expenditures are included in investment. When physical capital is measured in this way, investments are valued at their purchase price which is not generally available for human capital.

These and other measures of human capital have been used by researchers in many studies:

(1) The lifetime income approach of Jorgenson and Fraumeni (1989, 1992a, 1992b);

(2) The cost approach of Kendrick (1976);

(3) The indicator approach as exemplified by The Lisbon Council's estimates (2006);

(4) The attribute approach as exemplified by Laroche and Merette (2000);

(5) The World Bank residual approach (2006).

The approach of Jorgenson-Fraumeni is discussed further in the next section.

2.1 Jorgenson-Fraumeni income-based approach

The Jorgenson-Fraumeni (J-F) method estimates human capital stock as the expected future lifetime income of all individuals. If human capital could be traded in the market like physical capital, the asset price would be the net present value of the individuals' lifetime labor income.[1] The lifetime income approach can reflect the importance of long-term investments, such as education and health, in human capital accumulation.

The J-F income-based approach is the most widely used method in estimating human capital stock, and has been adopted by a number of countries in constructing human capital accounts (see the previous section for examples). The advantages of this approach are that it has a sound theoretical foundation and that the data and parameters are relatively easier to obtain than they are for other approaches.

When estimating lifetime income to calculate human capital, an important issue is that income (or implicit income) can be generated from both market and nonmarket activities. Market activities of individuals produce goods and services, foster innovation and growth through managerial and creative

[1] In China, the labor market may still be at a stage where wage income does not fully reflect the marginal productivity of labor. Therefore, in the studies involving wages, there may be a certain degree of distortion. When estimating human capital using the wages income, one must recognize that this problem may exist. Therefore, our study is clearly limited by the current development level of the labor market mechanism in China. The income approach is the most commonly used method for measuring human capital. Even in the United States and other developed countries, wages do not fully reflect the marginal productivity, because its labor market is not perfectly competitive. Even so, wages are still representative of the human capital gains from an individual perspective, and still a measure of human capital in that sense. With the improvement of market mechanism in China, this limitation will gradually decrease. According to estimates of the current literature, wages are generally lower than the marginal productivity (see Fleisher, Li and Zhao, 2010). Therefore, from this perspective, our calculation can be interpreted as a conservative estimate of human capital.

activities, and generate income that allows for the acquisition of market goods and services. Nonmarket activities of individuals include household production, e.g., cooking, cleaning, and care-giving. Investment is generated from both market and nonmarket activities. Because household production activities are difficult to quantify and value and require time-use estimates, we have opted to exclude them in this first approximation to estimating China's human capital.[2]

2.2 Cost approach

Kendrick is an early pioneer in the construction of human capital accounts. Kendrick (1976) estimates both tangible and intangible human capital. Tangible human capital includes child rearing costs. Intangible human capital includes education, training, medical, health and safety expenditures, and mobility costs. Human capital stocks are created using a perpetual inventory method where investment expenditures are cumulated and existing stocks are depreciated. Implementation of a Kendrick approach for China is difficult as Kendrick's human capital investment is the sum of a long list of human capital related costs, and reliable data on such information is only available for the most recent decades.

Tangible human capital investment is lifetime rearing costs including expenditures on food, shelter, health, schooling, and so on. The cost of parental time is not included in this measure. Intangible human capital investment in formal and informal education includes both private and government costs. Private formal education costs include net rental for private education sector's plant and equipment and students' expenditures on supplies. Estimate for the

[2] Among the most recent human capital estimates, i.e., Mira and Liu (2010), Gu and Ambrose (2008), Greaker and Liu (2008) and Christian (2010), only Christian, for the United States, includes a full set of nonmarket activities and estimates human capital for those too young to go to school or to perform market work.

total cost of rentals of books and equipment and opportunity cost depends on a student's imputed potential compensation. Government formal education costs include all types of expenditure, including those for construction. Personal informal education expenditures include a portion of those for radio, TV, records, books, periodicals, libraries, museums, and so forth. Business and institutional expenditures include a portion of those for media expenditures. Religious education expenditures are imputed from figures on religious class attendance and imputed interest on plant and equipment of religious organizations. Government expenditures include those for library, recreation costs and military education expenditures.

Intangible human capital investment in training values initial nonproductive time and nonwage costs and includes explicit training expenditures. Both specific and general training is captured, as well as military training. A substantial fraction of medical, health and safety expenditures, which are split between investment and preventive expenditures, are by governments. Annual rental costs for plant and equipment are imputed when not available.

Kendrick considers his human capital mobility investment estimates to be tentative. These include unemployment, job-search, hiring, and moving costs, for both residents and immigrants. Depreciation is estimated using the depreciation methodology most widely used at the time of his research: A double declining balance formula with a switch to a straight-line method. Lifetimes in these formulas are assumed to be the reciprocal of the percentage of persons in the group.

Kendrick estimate of nominal human capital is about five times Gross Domestic Product. However, the J-F human capital estimate is substantially larger than Kendrick's.[3] The Kendrick approach covers detailed aspects of human capital formation from the cost side and provides a very complete menu

[3] See table 37 of Jorgenson-Fraumeni (1989).

for summing up all related costs to estimate the value of human capital. Yet, the data requirements are enormous, for example, we may need to get government statistics ninety years back to do the calculation. This is impossible, given the People's Republic of China is only 61 years old in 2010.

Additionally, the Kendrick approach gives no clear rationale for some important assumptions, such as for the split of health expenses between investment and preventative costs. For all these reasons, we do not adopt this approach for our calculation.

2.3 Indicator approach

An example of an indicator approach is the Human Capital Index of The Lisbon Council. It is a human capital input cost, or cost of creation approach. This index has been constructed for the 13 European Union (EU) states and 12 Central and Eastern European states.[4] The Human Capital Endowment measure is an input to two of the other three components of the overall European Human Capital Index. The Human Capital Endowment measure sums up expenditures on formal education and the opportunity cost of parental education, adult education, and learning on the job. Parental education includes teaching their children to speak, be trustful, have empathy, take responsibility, etc. The Human Capital Utilization Index is the endowment measure divided by total population and the Human Capital Productivity Measure is Gross Domestic Product (GDP) divided by the endowment employed in the country.

Finally the Demography and Employment measure estimates the number of people who will be employed in the year 2030 in each country by looking at

[4] See Ederer (2006) and Ederer *et. al.*(2007). The 2006 paper states that the index was developed by the German think tank Deutschland Denken. In addition the paper states that it is part of a research project undertaken by several individuals in the think tank and with the institutional support of Zeppelin University.

economic, demographic, and migratory trends.[5]As it has cost components and index components, it is best viewed as a blend of a cost approach and an indicator approach. Since the technical details for this approach have not been released, we do not apply it here in our calculation.[6]

2.4 Attribute-based approach

The attribute-based approach is usually considered to be a variant of the income-based approach (Le, Gibson and Oxley 2003, 2005). However, it constructs an index value of human capital instead of a monetary value as in other income-based methods. The primary advantage of an index value is that it nets out the effect of aggregate physical capital on labor income, therefore this measure captures the variation in quality and relevance of formal education across time and country.

Based on the pioneer work of Mulligan and Sala-i-Martin (1997), Koman and Marin (1997) applied the attribute-based method to Austria and Germany. However, our method is akin to Laroche and Merette (2000) in that we also incorporate work experience into the model along with formal education. That is, we also emphasize informal channels, such as work experience, in the accumulation of human capital.

Specifically in this method, the logarithm of human capital per capita in a country at any time is computed using the following formula：

$$\ln\left(\frac{H}{L}\right)=\sum_{e}\sum_{a}\omega_{e,a}\ln\left(\rho_{e,a}\right) \qquad (1)$$

[5] Ederer (2006), p. 4 and p. 20.

[6] We have discussed with Dr. Ederer a possible collaboration to apply The Lisbon Council methodology to China in the future.

$$\omega_{e,a} = \frac{e^{\sum_s \left(\beta_s e + \gamma_s Exp + \delta_s Exp^2\right)\varphi_{s,a}} L_{e,a}}{\sum_e \sum_a e^{\sum_s \left(\beta_s e + \gamma_s Exp + \delta_s Exp^2\right)\varphi_{s,a}} L_{e,a}} \quad (2)$$

where e and a denote years of formal schooling and age, respectively. $\rho_{\varepsilon,a}=L_{\varepsilon,a}/L$ is the proportion of working age individuals of age a with e years of schooling. $\omega_{\varepsilon,a}$ is the efficiency parameter defined as proportion of wage income of workers of age a with e years of schooling in the total wage bill of the economy. *Exp* represents work experience, which is defined as a-e-6, s a gender index and $\varphi_{\varepsilon,a}$ is the share of men and women of age a in the population. Parameters β, γ and δ are estimates from a standard Mincer equation. The parameter β is often considered to be the rate of return to one more year of formal education.

In order to implement this method, we need to construct a population data set by age, gender and educational attainment for each year we study. Secondly, we need two sets of estimates from Mincer equations for each year, one for each gender. It is feasible to calculate a human capital measure based on this approach. The major issue is that in this setup, the measurement is actually a Cobb-Douglas formula. In other words, the proportions of different education groups by construction are not "perfect substitutes." When the share of one education group increases, it could cause the total measurement to decline. For example, if we increase the proportion of population with higher education, the measurement should increase as the overall education get higher, but it could decline due to the Cobb-Douglas formulation. This happened in our experimental calculation. Since we believe that an education-based human capital measurement should be a monotonically increasing function of the overall education, we do not report the results of the attribute-based approach. In our future work we plan to modify the structure, using, for example, average

years of schooling.[7]

2.5 Residual approach

The World Bank (2006) uses a residual approach to estimate human capital for 120 countries. Due to data and methodological limitations, total wealth in the year 2000 is measured as the net present value of an assumed future consumption stream. The value of produced capital stocks is estimated with the perpetual inventory method. Produced capital includes both structures and equipment. Natural capital is valued by taking the present value of resource rents. Natural capital includes nonrenewable resources, cropland, pastureland, forested areas, and protected areas. Intangible capital is equal to total wealth minus produced and natural capital. Intangible capital is an aggregate which includes human capital, the infrastructure of the country, social capital, and the returns from net foreign financial assets. Net foreign financial assets are included because debt interest obligations will affect the level of consumption. Intangible capital represents more than 50% of wealth for almost 85% of the countries studied.

Using a net present value approach to estimate total wealth requires assumptions about the time horizon and the discount rate. The World Bank chooses 25 years as the time horizon as it roughly corresponds to one generation. It chooses a social discount rate rather than a private rate as governments would use a social discount rate to allocate resources across generations. The social discount rate is set at 4%, which is at the upper range of estimates it reviewed for industrialized countries. The same rate is used for all countries to facilitate comparisons across countries.

[7] This suggestion was confirmed as a reasonable modification by email communication with Dr. Reinhard Koman.

A Cobb-Douglas specification is employed to estimate the marginal returns and contribution of three types of intangible capital in the model. The model's independent variables include years of schooling per capita of the working population, human capital abroad, and governance/social capital. Human capital abroad is measured by remittances by workers outside the country. Governance/social capital is measured with a rule of law index. Although the marginal return to human capital in the aggregate is the highest of the three included intangible capital components, the contribution decomposition demonstrates that the relative contributions can differ significantly across countries (World Bank, 2006, chapter 7).

2.6 Approach Conclusion

To sum up, taking into account the data availability in China, we believe that the J-F income approach is most suitable for measuring China's human capital. Moreover, this method is widely used internationally, so using it facilitates comparisons of China's human capital level with other countries'. At the same time, it is easier to calculate and implement scientifically and accurately in China. For all these reasons we will use the method of J-F to measure human capital in China.

Chapter 3 J-F Method and its application for China

The J-F approach imputes expected future lifetime incomes based on the probabilities of survival, educational enrollment, and employment. Expected future wages and incomes are estimated from the currently observed wages and incomes of cross-sectional individuals who are older than a given cohort at the time of the observation. Future incomes are augmented with a projected labor income growth rate and discounted to the present with a constant interest rate. Estimation is conducted in a backward recursive fashion, from those aged 60, 59, 58, and so forth to those aged 0.[1] When it's applied to China, we made some modifications and assumptions about the method and parameters used accordingly.

3.1 Estimate lifetime income by backward recursion

To apply the J-F income-based approach we need real data -or their estimates for individual's annual market labor income per capita. Lifetime incomes are calculated by a backward recursion where the life cycle is divided into five stages. The equations used for calculating the lifetime expected incomes are as follows.

The fifth and final stage is retirement or no school or work (older than 60 years old for males and older than 55 years old for females):

[1] The J-F inclusion of nonmarket lifetime income and expected lifetime income for youngsters produces human capital estimates that are notably higher than those in the studies mentioned above who have adopted the J-F methodology.

$$mi_{y,s,a,e} = 0 \quad (3)$$

Where the subscripts *y*, *s*, *a*, and *e* denote respectively year, sex, age and educational attainment, and *mi* stands for lifetime market labor income per capita.

The fourth stage is work but no school (25-59 years old for males and 25-54 years old for females):

$$mi_{y,s,a,e} = ymi_{y,s,a,e} + sr_{y+1,s,a+1} \times mi_{y,s,a+1,e} \times \frac{1+G}{1+R} \quad (4)$$

Where *sr* is the survival rate, defined as the probability of becoming one year older, *ymi* denotes annual market income per capita, *G* is the real income growth rate, and *R* is the discount rate.

The third stage is school and work (16-24 years old):

$$mi_{y,s,a,e} = ymi_{y,s,a,e} + \left[senr_{y+1,s,a+1,e+1} \times mi_{y,s,a+1,e+1} + (1 - senr_{y+1,s,a+1,e+1}) \times mi_{y,s,a+1,e} \right] \times \frac{1+G}{1+R} \quad (5)$$

Where *senr* is school enrollment rate--the probability of an individual with educational attainment *e* enrolled in education level *e+1*.

The second stage is school but no work (6-15 years old):

$$mi_{y,s,a,e} = \left[senr_{y+1,s,a+1,e+1} \times mi_{y,s,a+1,e+1} + (1 - senr_{y+1,s,a+1,e+1}) \times mi_{y,s,a+1,e} \right] \times \frac{1+G}{1+R} \quad (6)$$

The first stage is no school and no work (0-5 years old):

$$mi_{y,s,a,e} = sr_{y+1,s,a+1} \times mi_{y,s,a+1,e} \times \frac{1+G}{1+R} \quad (7)$$

Let $L_{y,s,a,e}$ stand for the population in the respective categories, the expected lifetime income in a country, i.e., the total human capital stock, can be written as:

$$MI(y) = \sum_{s} \sum_{a} \sum_{e} mi_{y,s,a,e} L_{y,s,a,e} \quad (8)$$

Similar equations can be applied to estimate lifetime nonmarket labor

income[2], which can be added to lifetime market labor income to obtain total lifetime labor income:

$$LIFE(y) = \sum_{s}\sum_{a}\sum_{e}(mi_{y,s,a,e} + nmi_{y,s,a,e}) \cdot L_{y,s,a,e} \qquad (9)$$

3.2 Estimate current income using Mincer models

One important component of the income approach is the estimation of future potential earnings for all individuals in the population. To apply the J-F income-based approach, we first need real data or their estimates for individual's annual market labor income per capita. We conduct estimation and make projection based on the basic Mincer (1974) equation. It has been shown that there are significant differences in the structure of the earning equation across genders and between the rural and urban populations. To ensure our income estimates as accurate as possible, we estimate the parameters for the rural and urban populations by gender and year using survey data in selected years and derive their imputed values for missing years over the period of 1985 to 2010.

The data used for estimating the parameters of the earning equation come from five well-known household surveys in China. The first is the annual Urban Household Survey (UHS) conducted by the National Statistical Bureau of China over the period of 1987 to 1997. The second data set we use is the China Health and Nutrition Survey (CHNS) for the years of 1989, 1991, 1993, 1997, 2000, 2004, 2006, 2009. The third data set we use is the Chinese

[2] Nonmarket activities include household production, e.g., cooking, cleaning, and childrearing and other nonmarket activities such as education and health-related activities. In our calculation we exclude the nonmarket lifetime income because it is difficult to quantify.

Household Income Project (CHIP) for the years of 1988, 1995, 1999, 2002, 2007. The fourth data set we use is the China Household Finance Survey (CHFS) for the year of 2010. The fifth data set we use is the Chinese Family Panel Studies (CFPS) for the year of 2009. CHIP (except 2009), CHNS, CHFS and CFPS cover both urban and rural population, but UHS covers only urban population.

UHS is a representative sample of the urban population. The sample size varies from year to year, ranging from low respondents of 4,934 in 1986 to high respondents of 31,266 in 1992. Individual earnings are annual wage incomes, which include basic wages, bonuses, subsidies and other work-related incomes. Years of schooling are calculated using the information on the level of education completed: primary school equals 6 years of schooling, junior middle school equals 9 years of schooling, senior middle school equals 12 years of schooling, vocational school equals 11 years of schooling, community college equals 15 years of schooling, and college and above equals 16 years of schooling. Assuming schooling begins at age 6, we approximate work experience by age minus years of schooling minus 6. As the minimum legal working age is 16 and the retirement ages are 60 and 55 for males and females respectively, we restrict our sample to individuals who are currently employed and are between 16 and 60 years old for male workers and between 16 and 55 for female workers. Self-employed and temporary job holders are excluded, so are those who did not report wage income or educational attainment. Appendix B.3.1 provides a complete description of the income and education definitions and sampling standards. Table B.1.1 of Appendix B lists the descriptions of all the statistics.

Chinese Household Income Project (CHIP) survey, reports income, consumption, job, production and other related information for urban and rural populations. Appendix B.3.2 provides a complete description of the income and education definitions and sampling standards. Table B.1.2 of

Appendix B includes the descriptions of all the statistics.

CHNS is an international project that aims to learn more about the impacts of China's transitional economy and society on social economy, population and health behaviors in urban and rural areas. Appendix B.3.3 provides a complete description of the income and education definitions and sampling standards. Table B.1.3 of Appendix B lists the descriptions of all the statistics.

CHFS is a nationwide survey conducted by the Survey and Research Center for China Household Finance in Southwestern University of Finance and Economics. The main purpose of the survey is to collect information on household financial information at the micro level, which includes housing assets and financial wealth liabilities and credit constraints income consumption social security and insurance coverage intergenerational transfer payments demographic characteristics and employment payment habits and other relevant information. The rural sample of this database includes 22 provinces. The urban sample in this database also includes 22 provinces. The survey was conducted in 2011. Information of the statistics on household income starts from the year of 2010. The urban sample includes only personal income data, comprising wage income and social security income. Rural income includes personal income and household income. Personal income primarily consists of wage income and social security income. Household income mainly is the net income of agriculture. As the family income is calculated as the unit of households, we need to allocate the income to individual household members to obtain personal income. Family net income of agricultural production is divided by labor force engaged in agricultural household production. Years of education is determined by the level of education according to the survey. Work experience is calculated by age minus years of education and then minus 6. We restrict the sample to males of 16-60 years old and females of 16-55 years old, who reported information on

education and income status. AppendixB.3.4 gives the complete definitions of income, education, other variables and also the sample selection criteria of CHFS. Table B.1.4 of Appendix B lists the descriptive statistical indicators of CHFS.

CFPS is a nationwide longitudinal survey conducted by the Institute of Social Science Survey (ISSS) in Peking University. The survey focuses on economic, as well as non-economic wellbeing of Chinese children and adults. A wide range of domains are covered including economic activities, education outcomes, family dynamics and relationships, migration, and health. In the 2010 survey, CFPS interviewed around 15,000 families and over 40,000 individuals within these families. Information on household income starts from 2009. Urban income includes wage income and social security income. Rural income includes agriculture production income and social security income. We restrict the sample to males of 16-60 years old and females of 16-55 years old. AppendixB.1.5 gives the complete definitions of income, education, other variables and also the sample selection criteria of CFPS. Table B.1.5 of Appendix B lists the descriptive statistical indicators of CFPS.

We use Taiwan Family Income and Expenditure Survey covering both urban and rural population for the analysis of Taiwan. The survey is completed by the research center. We restrict our sample to individuals who are currently employed and are between 16 and 60 years old for male workers and between 16 and 60 for female workers. Individual income includes main job income, minor job income and other income, and current transfers from enterprise.

The data sources for the analysis of Hong Kong are Hong Kong 1% Sample Population Census 1981, Hong Kong 1% Sample Population By-Census 1986, Hong Kong 5% Sample Population Census 1991, 2001 and 2011, and Hong Kong 5% Sample Population By-Census 1996 and 2006

collected by Hong Kong Census and Statistics Department. The main purpose of the survey is to collect information on population, society and economic characteristics in Hong Kong. We approximate work experience by age minus years of schooling minus 6. We restrict our sample to individuals who are currently employed and are between 15 and 65 years old for male workers and between 15and 60 for female workers. Individual income includes main job income and minor job income.

3.2.1Estimate current income using Mincer models at the national level

We first estimate the basic Mincer equation:

$$\ln(inc) = \alpha + \beta \cdot e + \gamma \cdot Exp + \delta \cdot Exp^2 + u \qquad (10)$$

Where ln(inc) is the logarithm of earnings, e is years of schooling, Exp and Exp^2 are, respectively, years of work experience and experience squared, and u is a random error. The coefficient α is an estimate of the average log earnings of individuals with zero years of schooling and work experience, β is an estimate of the return to an extra year of schooling, and γ and δ measure the return to investment in on-the-job training.

Equation (10) has been widely adopted in empirical research on determination of earnings. It has been estimated on a large number of data sets for numerous countries and time periods. Many studies have applied the model to Chinese data and found evidence consistent with the human capital theory. Notable studies include Liu (1998), Maurer-Fazio (1999), Li (2003), Fleisher and Wang (2004), Yang (2005), and Zhang *et al.* (2005). Following the convention of a large body of empirical literature, we estimate equation (10) by ordinary least squares[3].

[3]Griliches (1977) finds that accounting for the endogeneity of schooling and ability bias does not alter the estimates of earnings equation. Ashenfelter and Krueger (1994) also conclude that omitted ability variables do not cause an upward bias in the estimated parameters of equation (1).

We use UHS, CHIP, CHNS，CHFS and CFPS to estimate parameters of the basic Mincer equation, and obtain the fitted values for the intercept, return to education, and coefficients on experience.

The intercept, which measures the base wage for the population without schooling or working experience, clearly shows a male advantage. Figure 3.2.1 shows the intercept gap between urban and rural populations during 1985-2010. Meanwhile, the intercept for males in urban is higher than for females in urban, while the opposite is true for rural population. Returns to schooling are positive and in general increasing over the sample years. When the Soviet-type wage grid was replaced by market wages (Fleisher, Sabirianova, Wang 2005), Wang et al. (2009) also find that female rates of return dominate male returns, and they argued that rising returns to education have been a ubiquitous phenomenon in transitional economies. Figure 3.2.2 shows the trend of the return to education for males and females in rural and urban areas. Figures 3.2.3-3.2.4 show that earnings also increase with work experience but at a decreasing rate—a pattern found in most existing studies. The male profile is much higher than the female profile, indicating uniformly higher return to experience for males than for females, *ceteris paribus*.

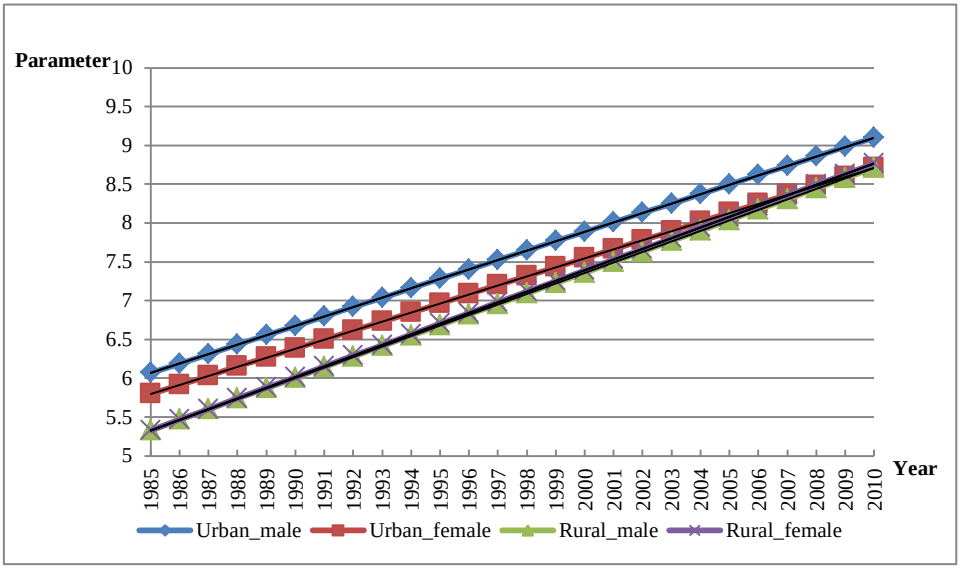


Figure 3.2.1 Regression Intercepts by Gender and Urban/Rural

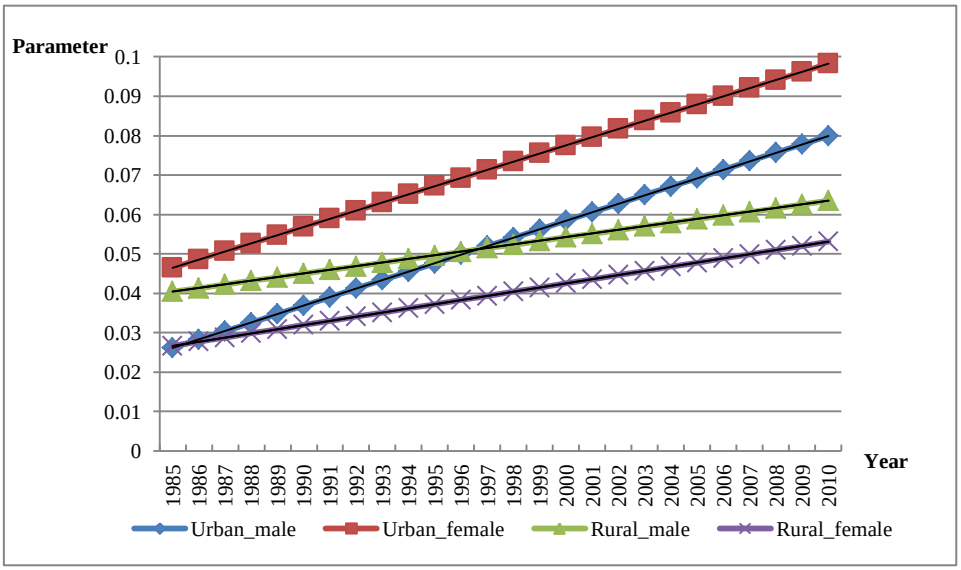


Figure 3.2.2 Rates of Return to Education by Gender and Urban/Rural

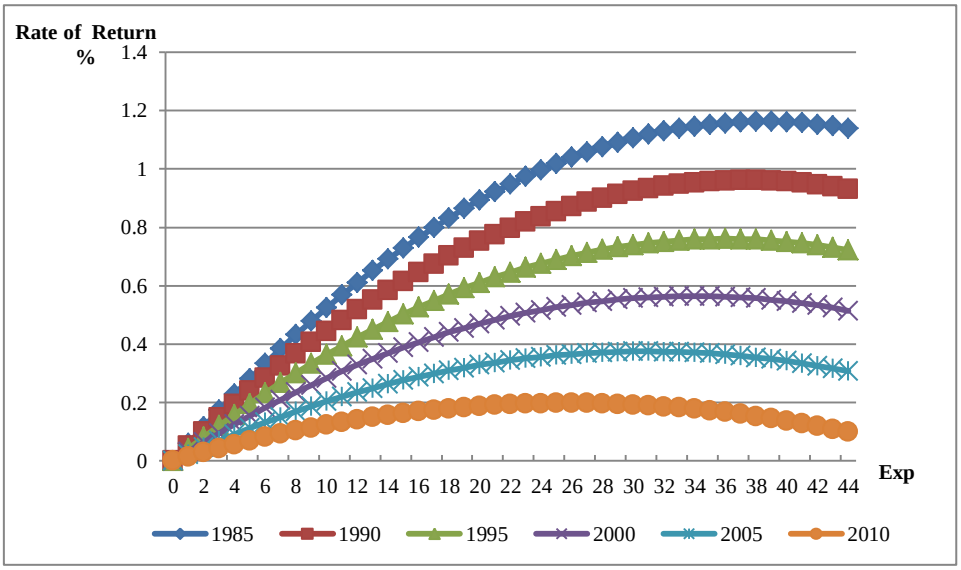


Figure 3.2.3 Return to Experience for Males

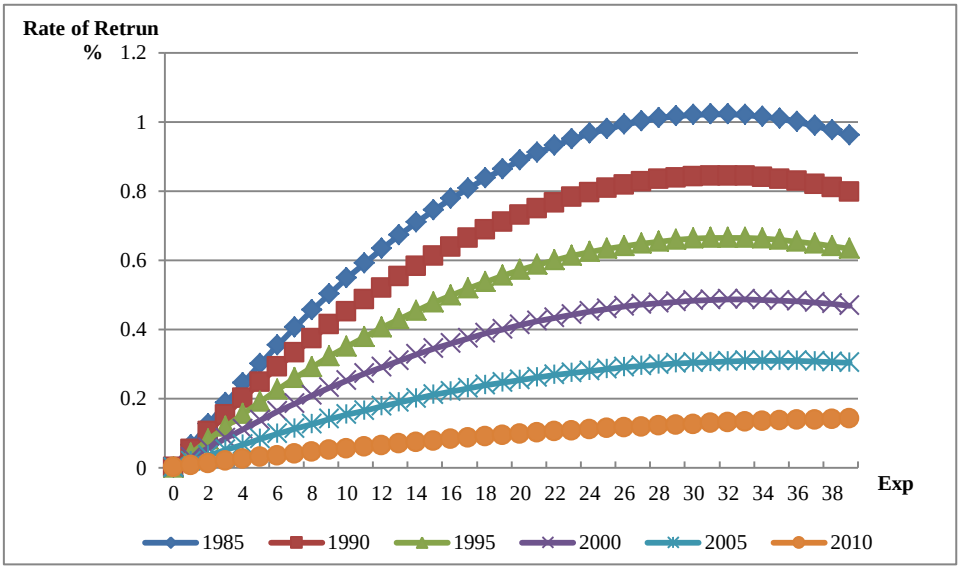


Figure 3.2.4 Return to Experience for Females

3.2.2 Estimate current income using Mincer models at the provincial level

As for the estimation at the province level, based on the Mincer equation, we use macro data for adjustment. We estimate the following Mincer equation:

$$\ln(inc) = \beta_0 + \beta_1 \cdot \ln(Avwage) + \beta_2 \cdot Sch + \beta_3 \cdot Sch \cdot \mathrm{A}vgdp + \beta_4 \cdot Sch \cdot Ratio + \beta_5 \cdot Exp + \beta_6 \cdot Exp^2 + \mu \quad (11)$$

Where ln*inc* is the logarithm of earnings, *Sch* is years of schooling, *Exp* and Exp^2 are, respectively, years of work experience and experience squared, and *u* is a random error. *Avwage* represents the average employee nominal salary for the rural and urban populations. It could reflect earning gap between different provinces. *Avgdp* stands for nominal GDP per capita. *Ratio* means the primary industry employment ratio of the total working population. The parameters of *Sch Avgdp* and *Sch Ratio* could reflect the job market situation of the educated population. We add *Avwage* into the intercept term, an interaction term of *Avgdp* and *Sch*as, and an interaction term of the first industry employment ratio of the total working population and *Sch*as into the equation. Adding these additional variables into the conventional Mincer equation not only makes better use of the existing data and helps solve the missing data problem in parameter estimations, but also makes the estimation results more realistic.

In the model, $\beta_0 + \beta_1 \cdot \ln(Avwage)$ is the logarithm of the base wage for the population without schooling or working experience. $\beta_2 + \beta_3 \cdot Avgdp + \beta_4 \cdot Ratio$ represents the return to education, β_5 and β_6 measure the return to experience. For Shanghai, it only has urban parameter estimates. Moreover, we assume males have different returns to experience in urban and rural areas, but they share the same parameter for *Exp* and Exp^2

across all provinces; we use the same practice for estimations for females.

As national Mincer parameter estimation, provincial data used for estimation also come from UHS, CHIP, CHNS， CHFS and CFPS. We use ordinary least squares (OLS) to estimate equation (11). When all data sets are available for a sample year, we drop CHNS and use UHS, CHIP, CHFS and CFPS due to the relatively low quality of CHNS income measures. The estimates are weighted for obtaining a larger and representative sample making estimates closer to the real value. We adopt the same sampling standards as in the national estimation. We use the fitted trend lines to generate imputed values of the parameters for each gender by year over the period 1985 to 2010. Graphs show that when we plot each of the parameter estimates against time, they are generally trended. We adopt the linear trend model to obtain the fitted values of parameters, that is $Y = \alpha_0 + \alpha_1 \times time + \mu$. Under the assumption that the effect of *Avwage*, *Sch*, *Exp*, Exp^2 on income growth grows at a fixed rate, we use the linear trend fitting method for all the parameters.

3.3 Other data and Parameters used

Besides annual population data by age, sex and educational attainment, which are adjusted by the age distribution of education and survival rate, the J-F method requires additional information on lifetime income, enrollment rate, employment rate, growth rate of real wage, and discount rate. We will briefly discuss how we construct these supplemental data sets in this section. Some parameters have to be set at values appropriate for China. Detailed information can be found in the appendixes.

3.3.1 Age distribution

We use data from the China Educational Statistical Yearbook: 2003-2010 to estimate the age distribution (1982-2010) of new enrollments. We have the data of new enrollment in primary school by age, region, and sex, and the data of new enrollment in junior middle school by age, grade, sex and region from 2003 to 2010. Detailed information can be found in the appendixes.

As for Hong Kong, we have data of total number of students in school by age, sex, and education level from 1980 to 2011. First, we compute numbers of students of every grade in school. Then, we compute age distribution by using the number of students of first grade in school.

As for Taiwan, we have data of the number of first grade students in school by age, sex, and education level from 2005 to 2012 and the total number of students in school by age, sex, and education level from 1991 to 2004. First, we compute numbers of students of every grade in school. Then, we compute age distribution by using the number of students of first grade in school.

3.3.2 Survival rate

We get survival rate (1-death rate) by age and sex. With population and death rate, both by age and gender, from the population sampling data for each year, the number of deaths of those aged 65 and over for each year can be calculated. Dividing the number by the corresponding total population gives the death rate of those aged 65 and over. Since there is no population sampling data for 1983-1986, 1988 and 1991-1993, the death rate of the closest year with available data is used for these missing years.

As for Hong Kong, the data sources of growth rate are Hong Kong Life Tables. We get survival rate (1-death rate) by age and sex. With population

and death rate, both by age and gender, from the population sampling data for each year, the number of deaths of those aged 65 and over for each year can be calculated. Dividing the number by the corresponding total population gives the death rate of those aged 65 and over.

As for Taiwan, the data sources of growth rate are Taiwan Life Tables. We get survival rate (1-death rate) by age and sex. With population and death rate, both by age and gender, from the population sampling data for each year, the number of deaths of those aged 65 and over for each year can be calculated. Dividing the number by the corresponding total population gives the death rate of those aged 65 and over.

3.3.3 Enrollment rate

Following J-F as previously described, an individual may be assumed one of the following six statuses at any time: no school or work (age 0-5), school only (age 6-15), work and school (age 16-24), work only (25 to retirement), and retirement (age 60+ for male and 55+ for female). Each status implies a different pattern of age-income profile, and therefore the method of computing lifetime income will be different.

We first estimate a standard Mincer equation (i.e., a regression of annual income on years of schooling, working experience, and working experience squared) with microeconomic data sets (the China Household Income Project, the China Health and Nutrition Survey, and the Urban Household Survey). We use annual employment rates by age, sex, and educational attainment (from the China Population Statistical Yearbook and the China Population Census) to convert annual income into annual market income. Then the lifetime income for each age/sex/educational category can be calculated using the methodology described in the previous section.

For the in-school population, we carefully derive the number of individuals in each educational level with data on new enrollment, mortality

rate and attrition rate. We consider the following five categories of schooling: no schooling, primary school, junior middle school, senior middle school and college and above, or for six categories of schooling where we break down college and above into college (less than 4 years) and university (at least 4 years) and above. We compute lifetime income for each grade at each educational level, taking into account how likely the individual will continue into the next grade and the next educational level. For the five categories of schooling estimation, college and above is the highest educational level. And for the six categories of schooling estimation, college or university and above are the highest educational levels. We do not allow for the possibility that one can go to college and then to university.

Because data are not available for some age groups and some educational levels, additional imputations and assumptions are needed. Imputations of data sets for certain age groups and initial age of enrollment are described in Appendix A, while enrollment and grade advancement imputations and assumptions are described in this section.

The imputation of two components of the J-F human capital estimates is described in this section: 1) the number of years until an educational category is completed, and 2) the probability of advancing to the next higher educational category. We assume that all students complete an educational level (if they continue) in the same number of years: 6 for primary, 3 for junior middle, and 3 for senior middle school. It is also assumed that no drop-outs return to school, no grades are skipped, and that education continues without a break. These assumptions are also made by J-F. The probability of advancing to the next higher educational level is estimated as the average ratio of the sum of all students of any age in a year who are initially enrolled to the sum of all students of any age initially enrolled in the next higher educational level 'X' years later. "X" depends on the number of years it takes to complete an educational level. These imputations and assumptions allow for the appropriate discounting of a

future higher income level.

In each case, continuing students are tracked from their age of initial enrollment, through individual grade levels, until they advance to the next higher level. The number of years discounted until they realize higher level of lifetime income depends on the number of years it takes to advance given the current grade of enrollment.

Then, we treat the terminal educational level as a probabilistic event, and therefore lifetime income is a forecast based on the contemporary information set, except that the probability of advancing depends on initial enrollments at a higher educational level in subsequent years. For instance, the lifetime income of a student who is in the first year of junior middle school, assuming that the student will live to finish junior middle school and go onto senior middle school, depends upon an adjusted lifetime income of someone who is currently three years older and whose educational attainment is senior middle school. The adjustments include those for three years of labor income (wage) growth and three years of discounting.

3.3.4 Employment rate

To calculate employment rate, $empr(y, s, a, e)$ by age, sex and educational level for individuals older than 16, we use the average of the employment rates in 1995 and 2000. We assume that the employment rate of college graduates is the same as that of university graduates.

The formula used to calculate the employment rate is:

$$empr(y, s, a, e) = [employed(y, s, a, e)]/pop(y, s, a, e)$$

The data sources of employment rate are listed in the table below:

Data	Sources
The employed by age, sex and educational level in 1987	"China Population Census 1987"
Population by age, sex and educational level in 1987	"China Population Census 1987"
The employed by age, sex and educational level in 1995	"China Population Census 1995"
Population by age, sex and educational level in 1995	"China Population Census 1995"
The employed by age, sex and educational level in 2000	"China Population Census 2000"
Population by age, sex and educational level in 2000	"China Population Census 2000"

Note: The 1% sample population in 1995 is converted into the whole population by the actual sampling percentage of 1.04%.

The employed in "China Population Census 2000" for each province, autonomous region and municipality directly under the central government are aggregated to the whole population employed by the actual sampling percentage of 10%.

As for Taiwan, employment rate $empr(y,s,a,e)$ includes data by age, sex and educational level for individuals older than 15 from 1985 to 2010. The data we use are the employed by sex and education level from 1985 to 2010 and the employed by age from 1985 to 2010. The formula used to calculate the employment rate is:

$$empr(y,s,a,e) = [employed(y,s,a,e)]/pop(y,s,a,e)$$

As for Hong Kong, employment rate $empr(\mathrm{y,s,a,e})$ includes data by age, sex and educational level for individuals older than 15 from 1985 to 2011. The data sources of employment rate are Hong Kong Population Census 1991, 2001, 2011 and Hong Kong Population By-Census 1996, 2006.

The formula used to calculate the employment rate is:

$$\mathrm{empr(y,s,a,e)} = [\mathrm{employed(y,s,a,e)}]/\mathrm{pop(y,s,a,e)}$$

For these missing years, employment rate of 1991 is used for

employment rate of 1985 to 1990. We calculate employment rate of 1992, 1993, 1994 and 1995 by linear fitting employment rate of 1991 and 1996, et cetera.

3.3.5 Growth rates of real income

To measure lifetime earnings for all individuals in the population, we need to project incomes for future years and discount these incomes back to the present. We use the following method to estimate the real income growth rates for urban and rural areas respectively.[4]

Assuming that the technology is labor-augmenting, we specify the aggregate production function as:

$$Y = (AL)^a K^b \qquad (12)$$

where Y is output, A denotes a technology factor, L denotes labor input, and K is physical capital input. The average product of labor or labor productivity is proportional to the marginal product of labor.[5] Because the marginal product of labor equals the real wage when the labor market is in equilibrium, labor productivity and the real wage are expected to grow at the same rate. This suggests that the growth rate of the real output per employed worker can serve as a reasonable estimate for the growth rate of real wage.

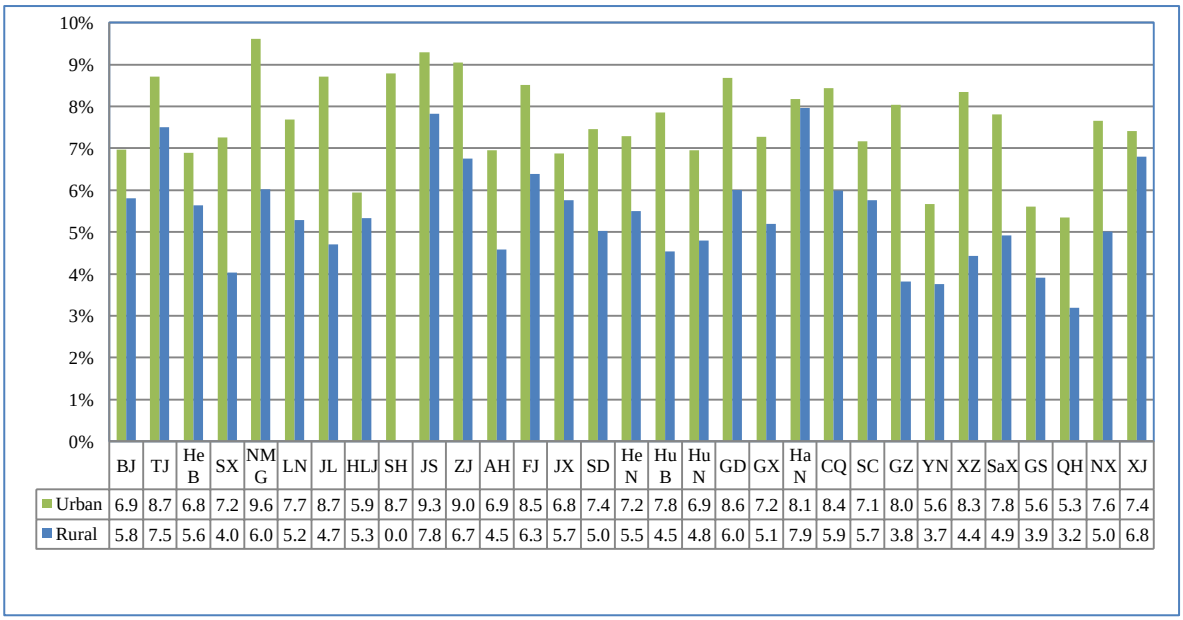
The labor productivity for the rural sector is calculated using the real GDP of the primary industry divided by the number of workers in that industry; and for the urban sector we use the real GDP of the secondary and tertiary

[4] In China, there are also growth rates of real annual income in urban areas reported in the series of the *China Statistical Yearbook*, but this income only includes labor wage for those who work in or get paid from the state-owned, urban collective, joint venture, joint-stock, foreign and Hong Kong, Macao and Taiwan invested companies and their subsidiaries. Thus, this cannot reflect the overall income level in China, as Chinese enterprises have other ownership forms.

[5] The marginal product of labor is given by $\beta Q/L$, where Q/L is the average product of labor.

industries divided by the number of workers in these industries. The result shows that, for the 32-year period, 1978-2010, labor productivity grew on average by 4.72% and 6.60% annually in the rural and urban sectors, respectively. Those growth rates will be used in the J-F calculation.[6]

We use the same method to calculate the provincial income growth rates for Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang; their growth rates for urban and rural areas are shown in Figure 3.3.1. We assume that labor productivity in each province (real income) grows at a fixed annual rate.



	BJ	TJ	HeB	SX	NMG	LN	JL	HLJ	SH	JS	ZJ	AH	FJ	JX	SD	HeN	HuB	HuN	GD	GX	HaN	CQ	SC	GZ	YN	XZ	SaX	GS	QH	NX	XJ
Urban	6.9	8.7	6.8	7.2	9.6	7.7	8.7	5.9	8.7	9.3	9.0	6.9	8.5	6.8	7.4	7.2	7.8	6.9	8.6	7.2	8.1	8.4	7.1	8.0	5.6	8.3	7.8	5.6	5.3	7.6	7.4
Rural	5.8	7.5	5.6	4.0	6.0	5.2	4.7	5.3	0.0	7.8	6.7	4.5	6.3	5.7	5.0	5.5	4.5	4.8	6.0	5.1	7.9	5.9	5.7	3.8	3.7	4.4	4.9	3.9	3.2	5.0	6.8

Figure 3.3.1 Provincial Income Growth Rate

[6] Those rates are considerably higher than the growth rate of 1.32% (Jorgenson and Yun, 1990) used in the OECD human capital calculation because the Chinese economy has grown much faster. Although the rate is based on 32-year moving average, it is still unclear whether it can represent long-run growth rate in China.

As for Hong Kong, the data sources of growth rate are listed in the table below:

Data	Sources
GDP at current market prices (1981-2001)	Hong Kong Census and Statistics Department
Implicit price deflator of GDP (1981-2011, 2011=100)	Hong Kong Census and Statistics Department
Employed population (1982-2001)	Hong Kong Census and Statistics Department

The formula used to calculate the growth rate is:

$$real\ GDP = \frac{GDP\ at\ current\ market\ prices}{Implicit\ price\ deflator\ of\ GDP}$$

$$labor\ productivity\ at\ year\ T = \frac{real\ GDP\ at\ year\ T}{employed\ population\ at\ year\ T}$$

$$growth\ rate\ of\ labor\ productivity\ at\ year\ T = \frac{labor\ productivity\ at\ year\ T - labor\ productivity\ at\ year\ T-1}{labor\ productivity\ at\ year\ T-1}$$

The result shows that, for the 30-year period, 1981-2011, labor productivity grew on average by 3.37% annually in Hong Kong.

As for Taiwan, the data sources of growth rate are listed in the table below:

Data	Sources
Consumer Price Index (1960-2013, 2011=100)	Taiwan Directorate General of Budget, Accounting and Statistics
Regular salary (1980-2013)	Taiwan Directorate General of Budget, Accounting and Statistics

The formula used to calculate the growth rate is:

$$real\ regular\ salary\ = \frac{regular\ salary}{Consumer\ Price\ Index(rebase\ 1978 = 100)}$$

$$= \frac{growth\ rate\ of\ real\ regular\ salary\ at\ year\ T}{real\ regular\ salary\ at\ year\ T - real\ regular\ salary\ at\ year\ T-1}{real\ regular\ salary\ at\ year\ T-1}$$

The result shows that, for the 32-year period, 1981-2013, labor productivity grew on average by 2.77% annually in Taiwan.

3.3.6 The discount rate

The discount rate that is used to value future incomes into present terms should reflect the rate of return that one expects from investments over a long time horizon. We adopt the discount rate of 4.58% which is also used by Jorgenson and Fraumeni (1992a). This discount rate was derived by Jorgenson and Yun (1990) based on the long-run rate of return for the private sector of the U.S. economy. As in the case of other calculations using discount rate, the result will be sensitive to the choice of the discount rate. We also use alternative discount rates for the purpose of comparison, including the average interest rate on the 10-year government bonds issued to individual investors in China over the period 1996 to 2007, net of the average rate of inflation over the same period, 3.14%[7], the average benchmark lending rate over 5 years in China from 1996 to 2009, 5.51%[8], and the social discount rate based on the method from the World Bank, 8.14%.[9]

[7] The details could be found in the *China Human Capital Index Analysis Report* 2009 Version. However, although the ideal discount rate should include market risk, someone may question that coupon rate does not reflect it. We used the yield to maturity of the 10-year book-entry bonds issued to individual investors that are circulated in the stock exchange market and commercial banks as a comparison and found that the difference of the results is minor.

[8] The People's Bank of China sets and adjusts the benchmark lending rate, which plays a key role in the money market. We excluded the serious inflation period of 1993-1995, starting from 1996 to avoid negative discount rates.

[9] We calculated the average growth rate of individual consumption over the period

Discount rate reflects the time value of currency and is derived based on the return on long-term investments. The discount rate of 4.58%, used in Jorgenson and Yun (1990) and Jorgenson and Fraumeni (1992a), is based on the rate of return on long-term investments in the private sector of the U.S. economy. This is also the rate adopted by the OECD consortium (OECD 2010). We adopt it as well.

1985 to 2008 based on World Bank's method. More details are available in "*Where is the wealth of nations? Human capital and economic growth in China*", and from the World Bank, "A Social Discount Rate for the United Kingdom" in *Environmental Economics: Essays in Ecological Economics and Sustainable Development*, ed. D. W. Pearce, 268–285. Cheltenham: Edward Elgar Publishing.

Chapter 4 China population and education dynamics

4.1 Population imputation

In order to implement the various methods of estimating human capital, we need annual population data by age, sex, and educational attainment. We construct the data sets according to the following procedure.

Data sets are available for the years 1987, 1995, and 2005 from the 1% Population Sampling Survey and for the years 1982, 1990, 2000 and 2010 from the Population Census. The data sets also contain disaggregated numbers for urban and rural populations categorized by age and gender.

For all other years, based on the population data of existing years, we combine birth rate, mortality rate by age and sex, and enrollment at different levels of education to impute yearly population by age, sex and educational attainment for urban and rural areas. We define the following levels of educational attainment: illiterate (no schooling), primary school (Grade 1-6), junior middle school (Grade 7-9), senior middle school (Grade 10-12), and college and above. From year 2000, availability of additional statistical information makes it possible to separate the population at the level of college and above into two: college, and the university and above.

Specifically, we use the following perpetual inventory formula to impute population by age, sex and educational attainment in missing years:

$$L(y,e,a,s) = L(y-1,e,a,s)\cdot\left(1-\delta(y,a,s)\right) + IF(y,e,a,s) - OF(y,e,a,s) + EX(e,a,s) \quad (13)$$

$L(y,e,a,s)$ is the population in year y at education level e, with age a and

sex *s*. $\delta(y,a,s)$ is the mortality rate in year *y*, with age *a* and sex *s*. $IF(y,e,a,s)$ and $OF(y,e,a,s)$ are inflow and outflow of this particular group. For example, inflow would include individuals who achieved this level of education in that given year, while outflow would include those who achieved the next level of education in that given year. $EX(e,a,s)$ is a discrepancy term.[1] Moreover,

$$IF(y,e,a,s) = \lambda(y,e,a,s) \cdot ERS(y,e,s) \tag{14}$$

$$OF(y,e,a,s) = \lambda(y,e+1,a,s) \cdot ERS(y,e+1,s) \tag{15}$$

$$\sum_{a} \lambda(y,e,a,s) = 1 \tag{16}$$

ERS is the matriculation at education level *e*, λ is the age distribution at education level *e*. In order to obtain an accurate estimate for λ, we use both microeconomic data sets CHNS (China Health and Nutrition Survey, 1989, 1991, 1993, 1997, 2000) and CHIP (Chinese Household Income Project, 1995), as well as macroeconomic data sets (China Education Statistical Yearbook, 2003-2007). Details can be found in Appendix A.

4.2 Trend of population and education distribution

Here we present several features of China's population growth, based on the population by educational attainment, age, sex, and location (i.e. urban and rural). First of all, during our sample period, China's total population increased from 1.02 billion in 1982 to 1.341 billion in 2010. The urban population increased by 455 million, while the rural population decreased by 131 million (Figure 4.2.1).

[1] For example, the discrepancy can be caused by migration, but we do not have the data.

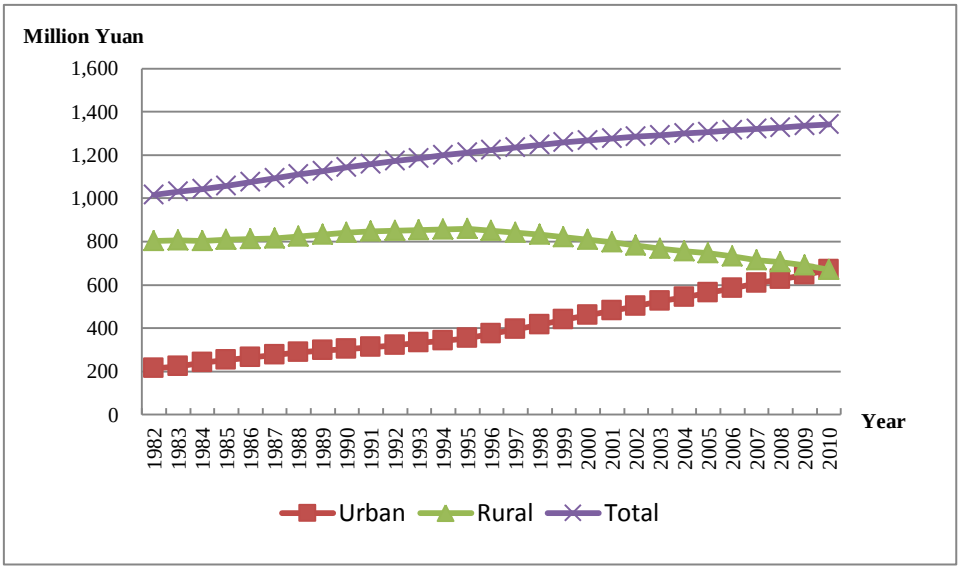


Figure 4.2.1 Population in China by Region 1982-2010

Figure 4.2.2-4.2.4 shows the trend of national, urban and rural population classified by educational attainment. The illiterate population fell by half from 402 million in 1982 to 201 million in 2000, but was relatively stable from 2000 to 2010. The number of primary school graduates increased from 359 million in 1982 to the peak of 466 million in 1997, then declined gradually to 357 million in 2010. This decline is expected as more primary school graduates continue to receive higher education, which is reflected by the rapid growth of junior middle school graduates.

Number of junior middle school students showed the largest growth among all education levels: the number increased from 181 million in 1982 to 518 million in 2010. This may be related to the implementation of 9-Year Compulsory Schooling Law since 1994 (9-year schooling is equivalent to completing junior middle school). However, growth slowed down after 2001. As for senior middle school and college and above, both started with very low numbers and grew significantly. Senior middle school graduates increased from 68 million in 1982 to 187 million in 2010, while college and above having increased from only 6 million in 1982 to 118 million in 2010.

For the senior middle school and college and above levels, the growth in rural areas is much slower than that in the urban areas.

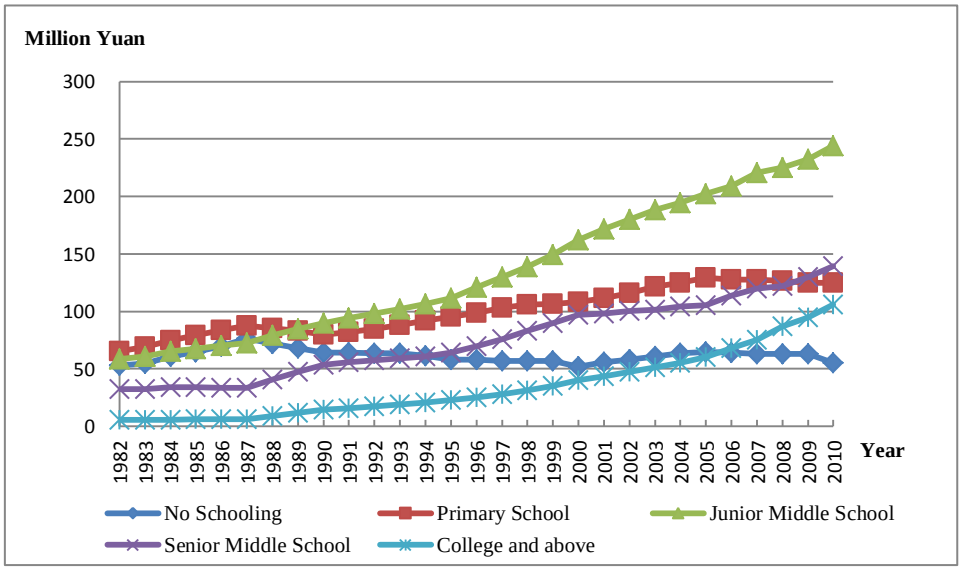


Figure 4.2.2 Population by Education Attainment in China 1982-2010

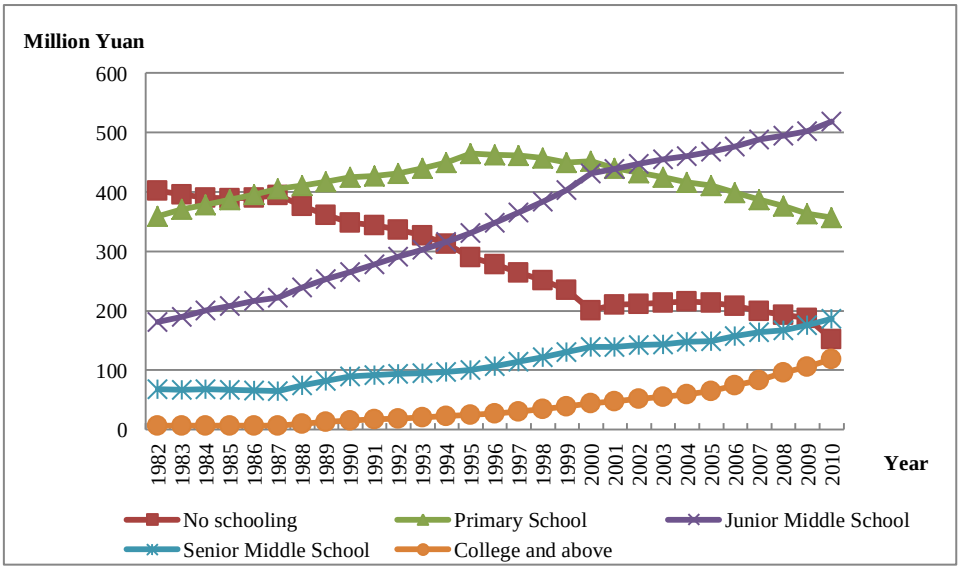


Figure 4.2.3 Urban Population by Educational Attainment 1982-2010

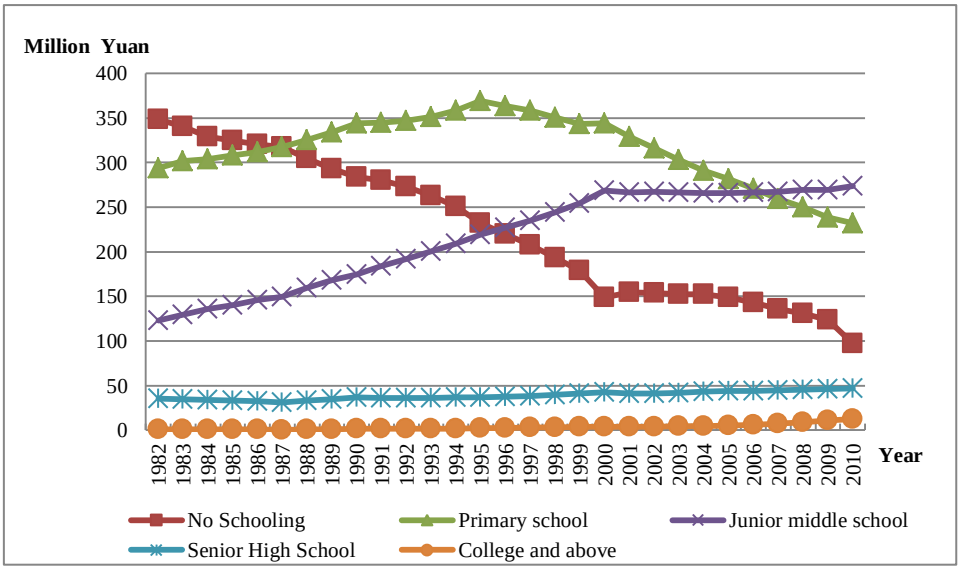


Figure 4.2.4 Rural Population by Educational Attainment 1982-2010

We now take a closer look at the changes in the distribution of educational attainment in the population at different time points. Figures 4.2.5 to 4.2.7 show the rightward shift of the educational attainment distribution in the population over time. In 1985, among the five education levels, the proportion of population being illiterate or just receiving primary education dominated the distribution. The 1995 distribution is dominated by people with primary and junior middle education, i.e. the distribution remains heavily skewed to the left. By 2010, junior middle has become the dominant education level. The distribution is still skewed to the left, but it is much less so compared with the pattern in 1985. Moreover, female educational attainment has improved more relative to that of males; the number of illiterate females decreased faster than that of illiterate males, and the gender gap at higher education levels shrank considerably. Started with a very large difference in 1985 the female educational attainment distribution becomes similar to that of the male.

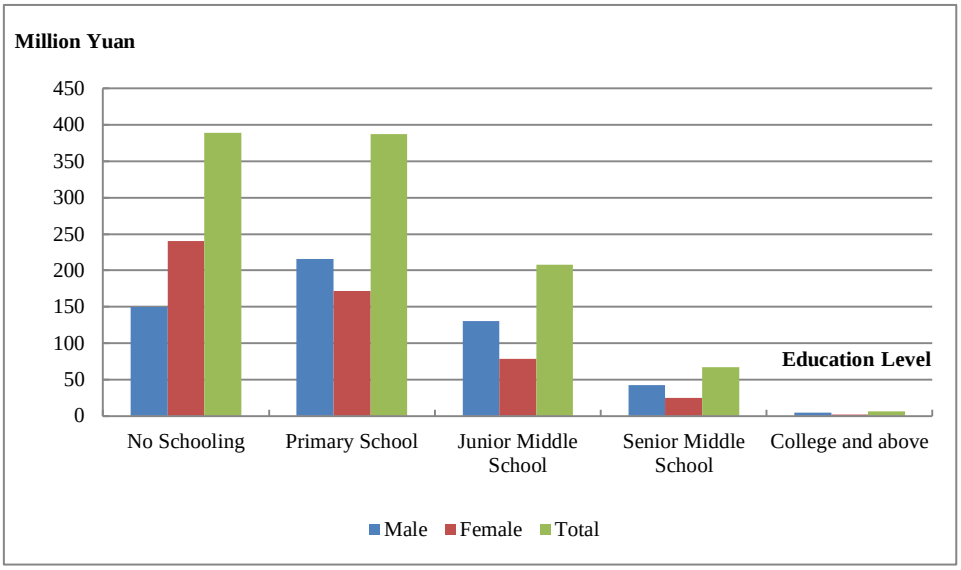


Figure 4.2.5 Population of Different Educational Levels by Gender, 1985

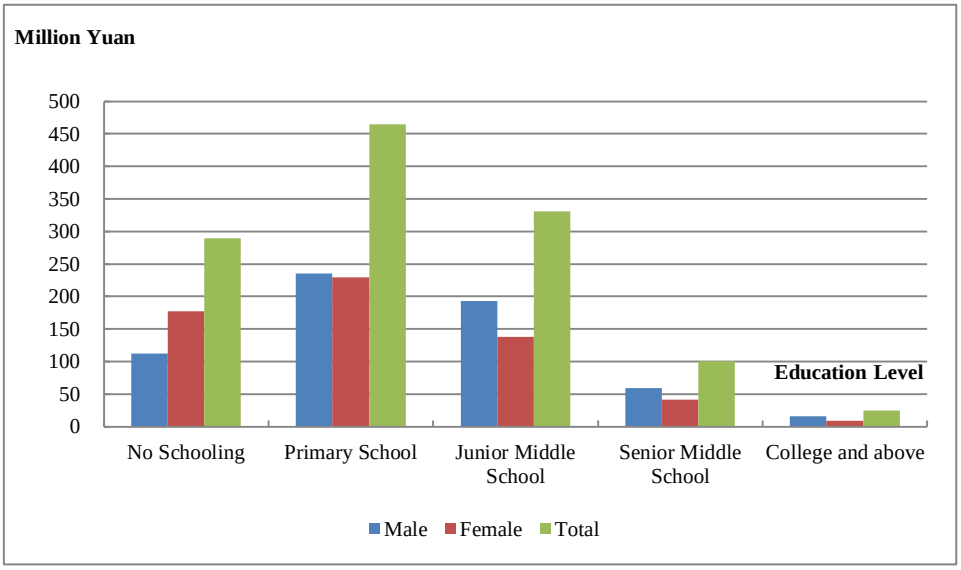


Figure 4.2.6 Population of Different Educational Levels by Gender, 1995

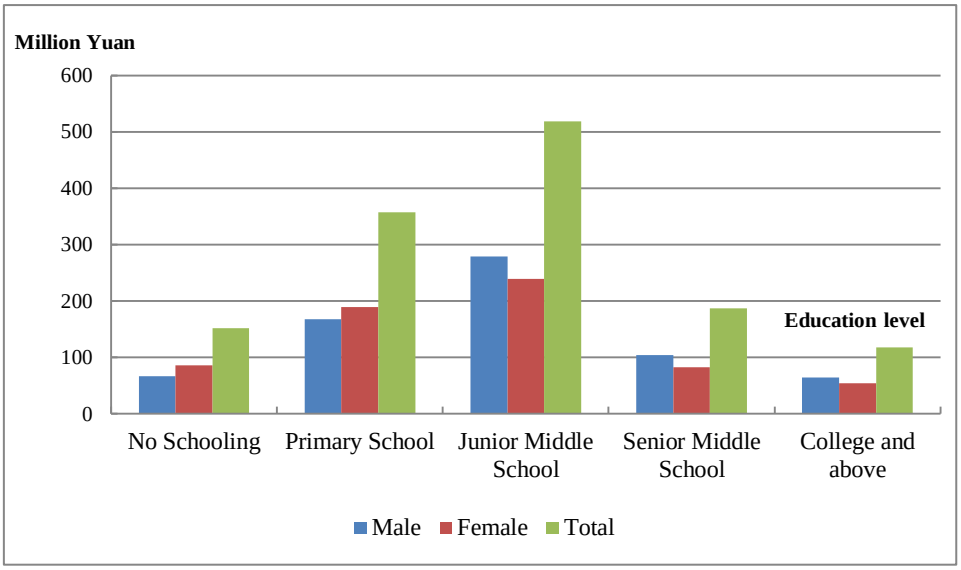


Figure 4.2.7 Population of Different Educational Levels by Gender, 2010

Figures 4.2.8 to 4.2.10 disaggregate the data into rural and urban subsamples. As expected, most of the illiterate population resided in the rural area. However, the rural illiterate population fell from 325 million in 1985 to 97 million in 2010. Although the urban illiterate population changed slightly in absolute terms, its share in the urban population fell from 25.70% in 1985 to 9.20% in 2010. In the meantime, for the highest three levels of education (junior middle, senior middle, and college and over), urban growth outpaced rural growth. For example, the urban junior middle school population increased from 67.67 million to 244 million, while the rural junior middle school population nearly doubled, from 140 million to 274 million. The comparison is more startling for the two highest education levels. The urban senior middle school population increased from 33 million to 140 million, while the rural senior middle school population only increased from 33 million to 47 million. The urban college and above population increased from 6 million to 106 million, while in rural areas, it grew from 0.63 million to 125.5 million.

Note that during most of the sample period, the rural population far

exceeded the urban population. Both the urban and the rural distributions have improved, i.e. less skewed to the left, but the improvement has certainly been more rapid and significant in the urban area. One caveat, however, is that the result might be caused by better educated people migrating from rural to urban areas. We take special measures to control for that effect (See Appendix A).[2]

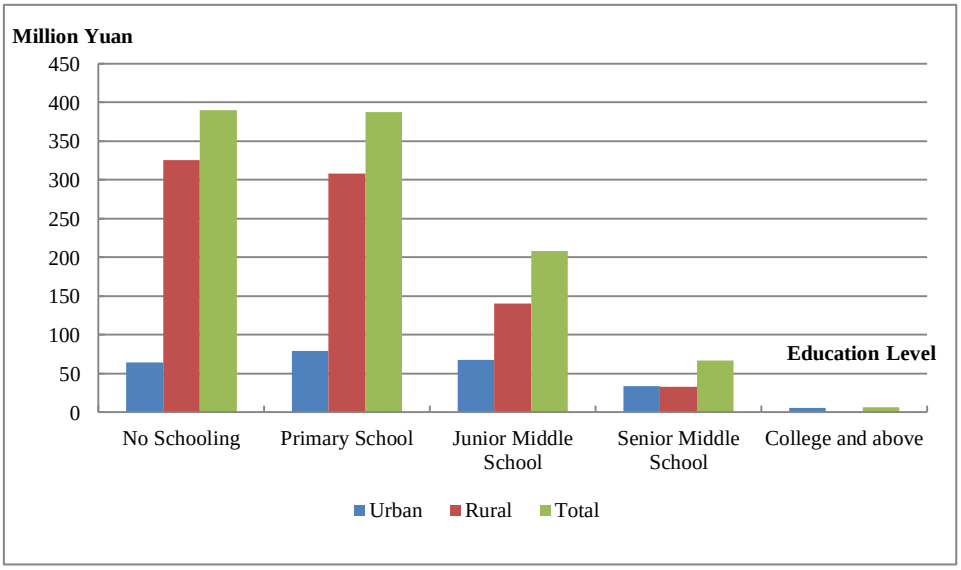


Figure 4.2.8 Population of Different Educational Levels by Region, 1985

[2] To take migration into the account, we make the following adjustments in the population imputation part: under the assumption that the number of immigrants in each year is the same, we incorporate the average difference between imputed population data and the census data back in the estimated population data according to the structure of the population by age, gender and education level.

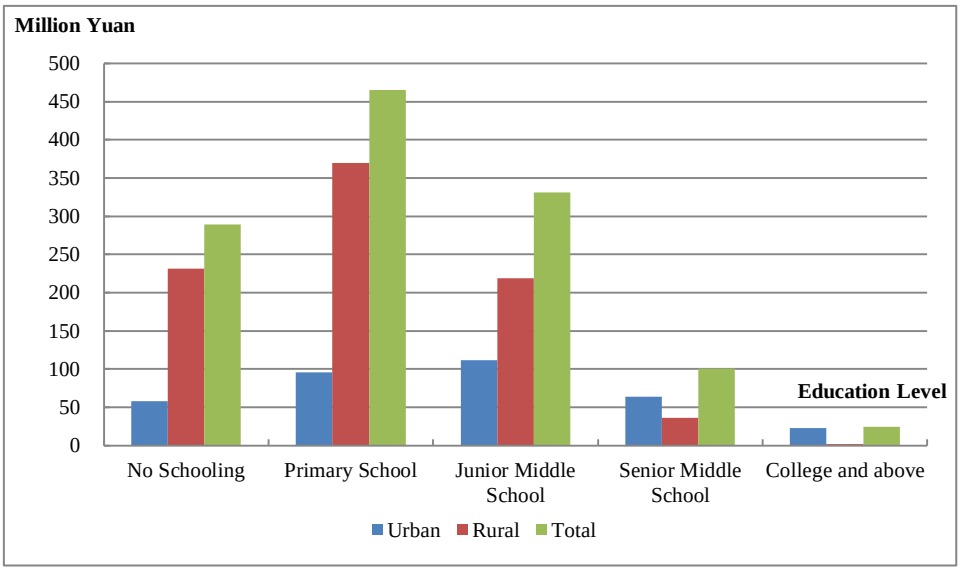


Figure 4.2.9 Population of Different Educational Levels by Region, 1995

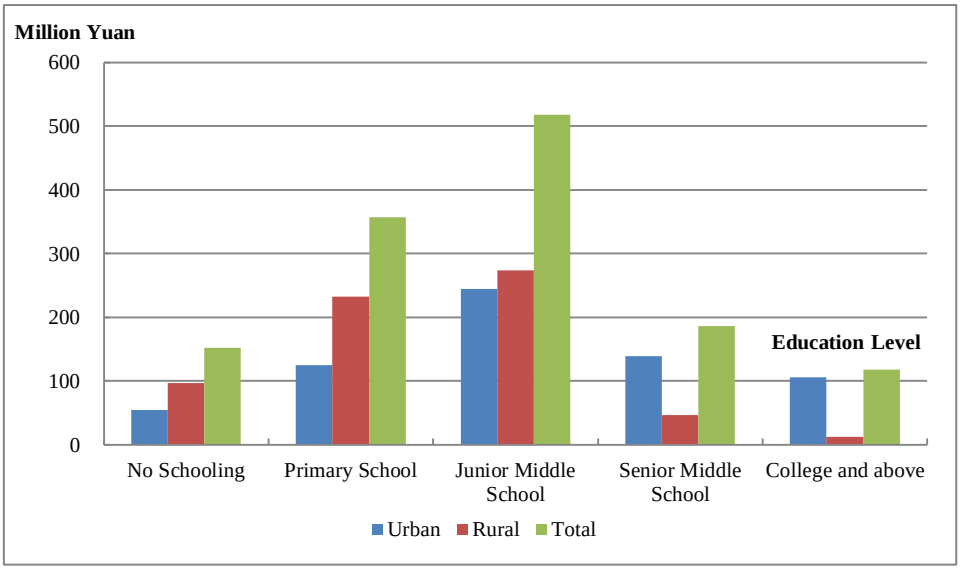


Figure 4.2.10 Population of Different Educational Levels by Region, 2010

Chapter 5 National human capital

5.1 Trends in human capital

It is more meaningful to discuss the trends of the real value of the human capital stock than the nominal value. We use CPI as deflator to calculate the real values. Other published deflators are not available for later years. Moreover, as can be seen in preceding chapters, results based on CPI provide more conservative estimates than those based on capital deflators reported in the studies by Zhang(2004) and Holz(2006).

Table 5.1.1 shows real human capital for the country as a whole based on 5-education categories, by gender, and by region. From 1985 to 2010, human capital increased from 34 trillion to 192 trillion Yuan, an average annual growth rate of 7.0%1, lower than the growth rate of the economy. Based on the 6-education categories, the human capital increased from 64 trillion Yuan in 2000 to 195 trillion Yuan in 2010, an average annual growth rate of 11.2%. This measure reflects the exit of the ageing low-educated population from the labor market and the entrance of younger individuals with higher expected education and higher income.

Rural real human capital increased from 19 trillion to 43trillion Yuan; urban real human capital grew from 15 trillion to 149 trillion Yuan. The corresponding annual growth rates are 3.3% for rural areas and 9.2% for urban areas. Until 1996, urban real human capital is smaller than rural real human capital, while after 1996 urban human capital exceeds that in rural areas. The regional gap increased from almost 4 trillion in 1997 to almost 106 trillion in 2010, growing at an annual rate of 25.5%. By 2010, the urban

[1] The average annual growth rate is the average of the annual log growth rate.

real human capital stock is 3.48 times as large as the rural one. The After 1997, the urban real human capital growth was 14.20% compared areas.

Table 5.1.1 National Real Human Capital by Gender and Region[2]

Billions of 1985 Yuan

Year	National	Male	Female	Urban	Rural
1985	33589	20659	12930	14877	18712
1986	35822	22110	13712	16156	19666
1987	37917	23500	14417	17243	20674
1988	36414	22590	13824	16624	19790
1989	34952	21710	13242	16345	18607
1990	38885	24200	14685	18862	20023
1991	42148	26250	15898	20434	21714
1992	44455	27710	16745	21543	22912
1993	43682	27300	16382	21251	22431
1994	39405	24720	14685	19307	20098
1995	37673	23630	14043	18779	18894
1996	39241	24700	14541	20446	18795
1997	43129	27270	15859	23482	19647
1998	48913	31080	17833	27740	21173
1999	56050	35680	20370	33200	22850
2000	63568	40620	22948	38770	24798
2001	70836	45130	25706	44450	26386
2002	80820	51660	29160	52380	28440
2003	90700	57780	32920	60780	29920
2004	98410	62480	35930	67740	30670
2005	111810	70490	41320	79290	32520
2006	122420	78560	43860	87530	34890
2007	136710	87710	49000	100810	35900
2008	148550	95280	53270	111830	36720
2009	171220	110230	60990	130920	40300
2010	191550	123670	67880	148750	42800

[2] Some discrepancy may exist when summing up male and female, urban and rural to get the national amount. This is mainly caused by rounding errors.

There are several reasons for the more rapid growth of the urban than of the rural human-capital stock. Although the rural population was more than three times the size of the urban population and thus had larger amount of human capital in the earlier years, by 2010, the population in rural China had fallen to 671 million, almost equal to the urban population of 670 million. This change was, to a large extent, a result of the rapid urbanization during the course of economic transition as well as large scale rural-urban migration. These changes are magnified by the education gap between the urban and rural population. Urban areas usually have a larger proportion of educated population than rural areas.

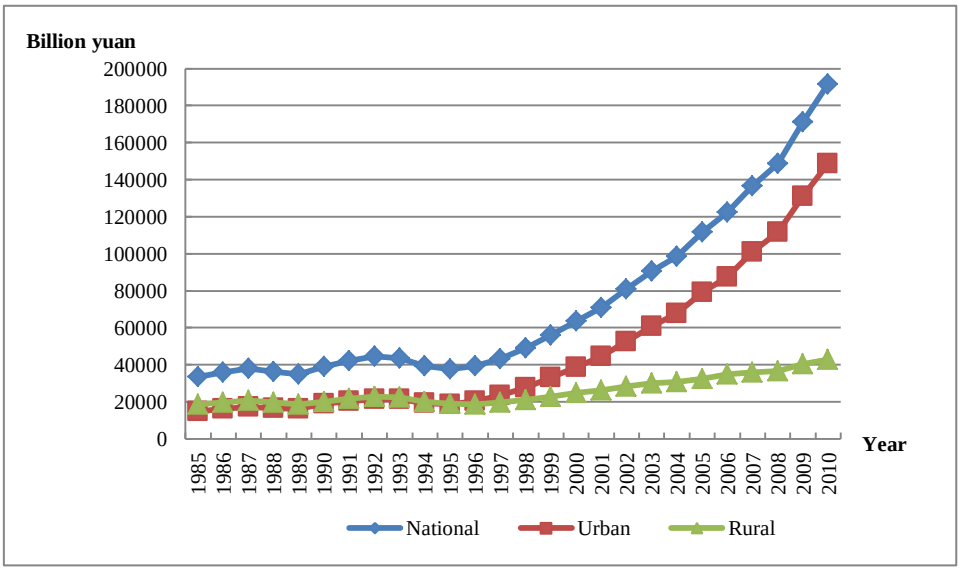


Figure 5.1.1 National Real Human Capital by Region

We report human capital indices (1985 = 100) in table 5.1.2.

Table 5.1.2 National Real Human Capital Index (1985=100)

Year	National	Male	Female	Urban	Rural
1985	100	100	100	100	100

1986	107	107	106	109	105
1987	113	114	112	116	110
1988	108	109	107	112	106
1989	104	105	102	110	99
1990	116	117	114	127	107
1991	125	127	123	137	116
1992	132	134	130	145	122
1993	130	132	127	143	120
1994	117	120	114	130	107
1995	112	114	109	126	101
1996	117	120	112	137	100
1997	128	132	123	158	105
1998	146	150	138	186	113
1999	167	173	158	223	122
2000	189	197	177	261	133
2001	211	218	199	299	141
2002	241	250	226	352	152
2003	270	280	255	409	160
2004	293	302	278	455	164
2005	333	341	320	533	174
2006	364	380	339	588	186
2007	407	425	379	678	192
2008	442	461	412	752	196
2009	510	534	472	880	215
2010	570	599	525	1000	229

5.2 Human capital per capita

An increase in real human capital can be caused by a number of factors, such as population growth, demographic changes (e.g., the size of retirement group), region migration or urbanization (e.g., an individual can achieve higher

value of human capital by moving from rural to urban area), higher educational attainment, higher rates of return to education, and higher rates of return to on-the-job training.

To understand the underlying factors contributing to human-capital dynamics in greater detail, we first calculate real human capital per capita, i.e., the ratio of real human capital to the non-retired population. Table 5.2.1 shows the real human capital for the nation, and by gender and region based on 5-education group categories. The national real human capital per capita grew nearly four-fold, from 35 thousand Yuan in 1985 to 171 thousand Yuan in 2010, with an average annual growth rate of 6.3%. Based on the 5-education group categories, real human capital per capita for the urban population increases from 65 thousand Yuan to 259 thousand Yuan, while that for the rural population increased from 26 thousand Yuan to 78 thousand Yuan, a significantly smaller growth rate than for urban residents.

Table 5.2.1 National Real Human Capital Per Capita by Gender and Region

Thousands of 1985 Yuan

Year	National	Male	Female	Urban	Rural
1985	34.96	40.80	28.44	65.43	25.52
1986	36.82	43.17	29.76	67.91	26.74
1987	38.40	45.24	30.82	69.37	27.99
1988	36.35	42.78	29.18	64.50	26.57
1989	34.42	40.42	27.68	61.67	24.77
1990	37.67	44.19	30.31	69.24	26.36
1991	40.44	47.58	32.40	72.91	28.48
1992	42.27	49.89	33.74	74.95	29.98
1993	41.26	48.96	32.70	72.23	29.30
1994	36.97	44.07	29.08	64.19	26.25
1995	35.11	41.99	27.52	61.17	24.70
1996	36.23	43.38	28.31	62.43	24.87
1997	39.49	47.45	30.65	67.47	26.42

1998	44.47	53.67	34.25	75.43	28.97
1999	50.77	61.19	39.11	85.89	31.88
2000	56.85	68.67	43.58	95.25	34.86
2001	63.19	76.24	48.59	104.65	37.91
2002	72.08	87.60	54.86	118.55	41.85
2003	81.06	98.43	61.90	132.84	45.23
2004	88.29	107.19	67.57	144.24	47.54
2005	100.65	121.15	78.10	164.94	51.63
2006	109.96	134.29	83.02	175.27	56.90
2007	122.88	149.30	93.33	193.91	60.54
2008	133.73	161.92	101.97	209.53	63.56
2009	154.42	187.02	117.43	238.47	71.94
2010	170.62	206.62	129.51	259.09	77.86

Based on Fleisher, Li and Zhao (2009), human capital is a significant contributing factor to economic growth, and the higher growth rate of per-capita human capital in urban areas is closely related to rural-urban and to regional growth in income gaps.. It is worth noting that, although after 1997 rural human capital became less than the urban stock, the rural per capita stock has been accelerating, and although between 1997 and 2010, the annual average growth rate in rural areas was 8.3%, s lower than the 10.4% rate for the urban population, we project that the rapid growth of rural human capital per capita will contribute to narrowing the rural-urban gap over time.

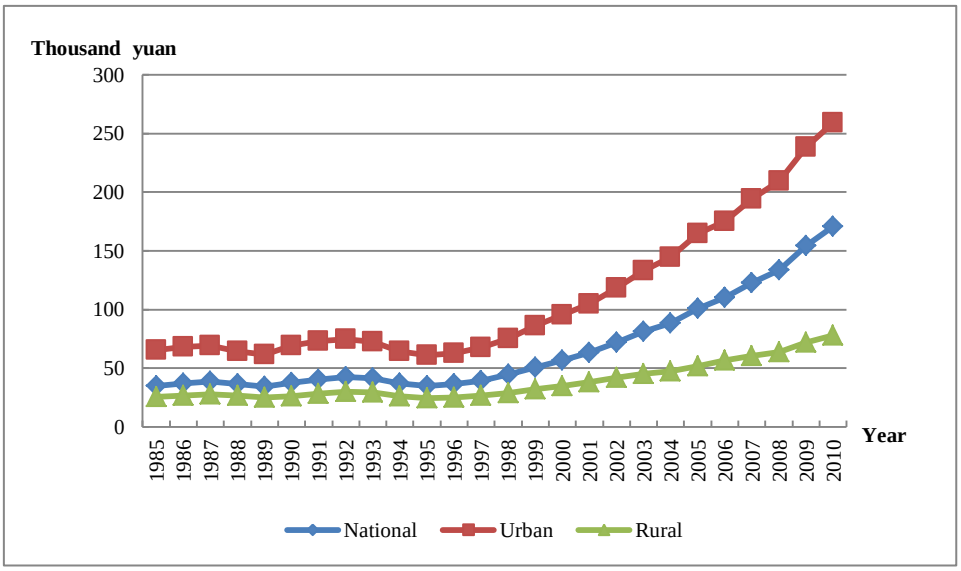


Figure 5.2.1 National Real Human Capital Per Capita by Region

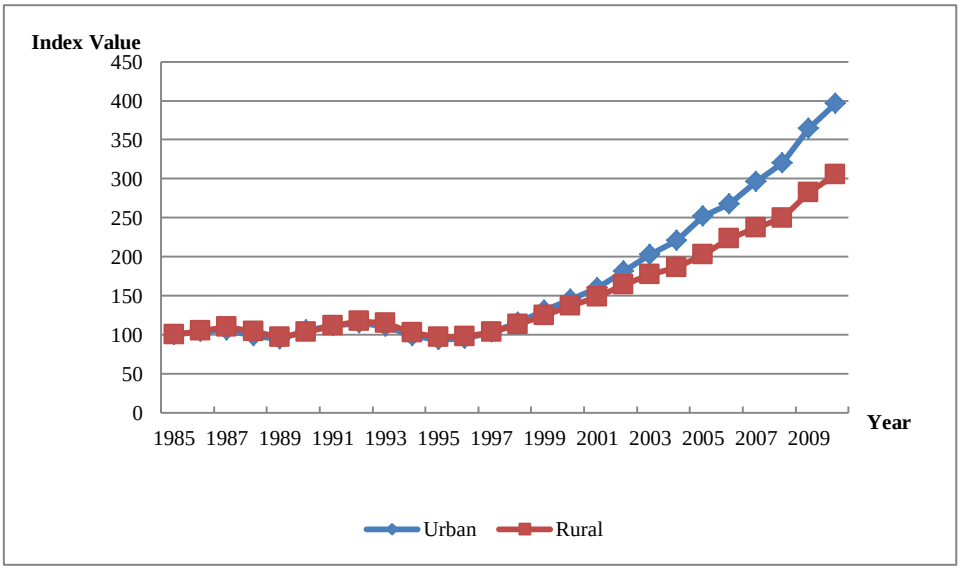


Figure 5.2.2 National Real Human Capital Per Capita Index by Region

5.3 Labor force human capital

5.3.1 National labor force human capital

Labor force human capital represents the human capital of the population

that is over 15 years old, non-retired and out-of-school. Labor force human capital is estimated in the same way as national human capital. The national labor force human capital is reported in table 5.3.1. It applies the national income parameters, national population and the 4.58% discount rate discussed in preceding chapters. The first two columns show the nominal labor force human capital based on 5-education and 6-education categories. The third and the forth columns show the real values. The real values in this table are calculated by deflating the nominal values with the CPI. From 1985-2010, nominal human capital grows from 15 trillion to 366 trillion Yuan. The real values grow about 4.6-fold, from 15 trillion to 87 trillion Yuan.

Table 5.3.1 National Nominal and Real Labor Force Human Capital and Nominal GDP

Year	Nominal labor force human capital (Billions of Yuan)		Real labor force human capital (Billions of 1985 Yuan)		Nominal GDP (Billions of Yuan)	Ratio of labor force human capital to GDP
	By five education categories	By six education categories	By five education categories	By six education categories		
1985	15329		15329		904	16.96
1986	17641		16562		1027	17.18
1987	20409		17849		1205	16.94
1988	24010		17664		1504	15.96
1989	27830		17354		1700	16.37
1990	32040		19389		1872	17.12
1991	36190		21137		2183	16.58
1992	40370		22151		2694	14.99
1993	44940		21485		3526	12.75
1994	49790		19167		4811	10.35
1995	55460		18209		5981	9.27
1996	61980		18751		7014	8.84
1997	69690		20470		7806	8.93
1998	79210		23380		8302	9.54

Year	Nominal labor force human capital (Billions of Yuan)		Real labor force human capital (Billions of 1985 Yuan)		Nominal GDP (Billions of Yuan)	Ratio of labor force human capital to GDP
	By five education categories	By six education categories	By five education categories	By six education categories		
1999	89730		26790		8848	10.14
2000	103600	101820	30710	30200	9800	10.57
2001	113170	111700	33260	32840	10807	10.47
2002	124100	123000	36710	36390	11910	10.42
2003	137100	136590	40050	39890	13498	10.16
2004	151740	152150	42600	42700	15945	9.52
2005	170370	170940	46910	47030	18362	9.28
2006	195160	195970	52890	53100	21590	9.04
2007	224530	225820	58020	58310	26642	8.43
2008	256030	257850	62400	62810	31603	8.10
2009	303930	306570	74450	75080	34032	8.93
2010	365590	369660	86540	87470	39976	9.15

The ratio of nominal labor force human capital to nominal GDP is reported in the last column of table 5.3.1. and in figure 5.3.1 The decline in the ratio over time can reflect growing productivity of human capital, but the decrease of the ratio may foretell that the future growth of the GDP will diminish. Figure 5.3.2 shows the trend for the ratio. The pattern of the ratio for national labor force human capital is almost the same as that for national human capital. The level of nominal labor force human capital is much higher than that of nominal GDP, but it shows a decreasing trend. The ratio remains between 8 and 11, while during 2003-2008 the ratio keeps decreasing. It indicates that although national human capital level still remains much lower than physical capital, the efficiency of human capital has improving, however, the decreasing trend may also indicate possible constraints on the future GDP growth in China.

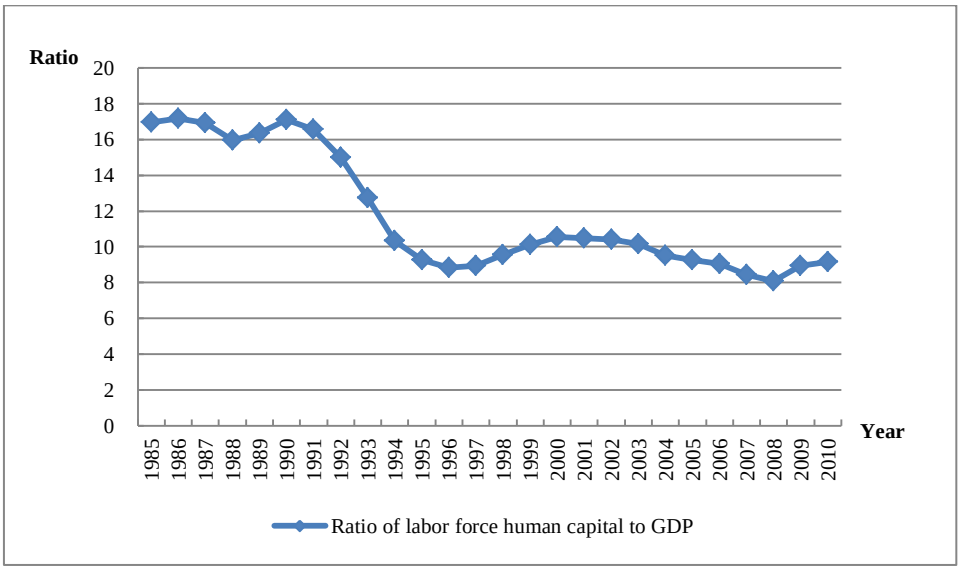


Figure 5.3.1 National Ratio of Labor Force Human Capital to GDP,1985-2010

Tables 5.3.2 and 5.3.3 show the labor force human capital by gender and region based on the 5-education categories, respectively. The first 3 columns are the nominal values and the last three columns are the real values.

Table 5.3.2 National Nominal and Real Labor Force Human Capital by Gender[3]

Year	Nominal labor force human capital (Billions of Yuan)			Real labor force human capital (Billions of 1985 Yuan)		
	National	Male	Female	National	Male	Female
1985	15329	9526	5802	15329	9526	5802
1986	17641	10991	6645	16562	10321	6241
1987	20409	12756	7648	17849	11157	6695
1988	24010	15045	8968	17664	11060	6604

[3] Some discrepancy may exist when summing up male and female, urban and rural to get the national amount. This is mainly caused by rounding errors.

Year	Nominal labor force human capital (Billions of Yuan)			Real labor force human capital (Billions of 1985 Yuan)		
	National	Male	Female	National	Male	Female
1989	27830	17464	10374	17354	10883	6471
1991	36190	22760	13430	21137	13288	7848
1992	40370	25370	15002	22151	13914	8239
1993	44940	28290	16649	21485	13512	7968
1994	49790	31400	18392	19167	12076	7089
1995	55460	34990	20468	18209	11482	6727
1996	61980	39420	22560	18751	11916	6835
1997	69690	44610	25080	20470	13094	7374
1998	79210	51080	28130	23380	15074	8313
1999	89730	58280	31450	26790	17391	9398
2000	103600	67890	35700	30710	20121	10596
2001	113170	74020	39150	33260	21744	11515
2002	124100	81170	42930	36710	24009	12706
2003	137100	89440	47660	40050	26120	13922
2004	151740	99080	52650	42600	27820	14786
2005	170370	111180	59200	46910	30610	16297
2006	195160	128470	66640	52890	34830	18065
2007	224530	148400	76170	58020	38340	19680
2008	256030	169600	86390	62400	41340	21052
2009	303930	202310	101590	74450	49580	24879
2010	365590	244060	121560	86540	57770	28765

Table 5.3.3 shows the nominal and real labor force human capital for urban and rural regions respectively. The patterns of national nominal and real labor force human capital are almost the same as those of national real human capital stock. The real labor force human capital stock increases from 9 trillion Yuan to 24 trillion Yuan, while that for the urban component increases from 6 trillion Yuan to 62 trillion Yuan. Although the national real labor force

human capital for urban and rural areas both exhibit positive trends, the urban real labor force human capital surpassed its rural counterpart for the first time in 1999. The regional gap increased from 0.66 trillion Yuan in 1999 to 37.74 trillion Yuan in 2010. In 2010, the national real labor force human capital was 1.5 times that that of the rural stock.

Table 5.3.3 National Nominal and Real Labor Force Human Capital by Region

Year	Nominal labor force human capital			Real labor force human capital (Billions of 1985 Yuan)		
	National	Urban	Rural	National	Urban	Rural
1985	15329	6447	8882	15329	6447	8882
1986	17641	7611	10030	16562	7113	9449
1987	20409	9009	11400	17849	7739	10110
1988	24010	10840	13170	17664	7718	9946
1989	27830	12770	15060	17354	7816	9538
1990	32040	14910	17130	19389	9009	10380
1991	36190	16890	19300	21137	9707	11430
1992	40370	18820	21550	22151	9961	12190
1993	44940	21010	23930	21485	9575	11910
1994	49790	23550	26240	19167	8587	10580
1995	55460	26520	28940	18209	8279	9930
1996	61980	30850	31130	18751	8852	9899
1997	69690	36140	33550	20470	10060	10410
1998	79210	42940	36270	23380	12020	11360
1999	89730	51050	38680	26790	14480	12310
2000	103600	61510	42090	30710	17310	13400
2001	113170	68400	44770	33260	19120	14140
2002	124100	76060	48040	36710	21470	15240
2003	137100	85290	51810	40050	23870	16180
2004	151740	96430	55310	42600	26120	16480
2005	170370	111000	59370	46910	29600	17310
2006	195160	128300	66860	52890	33690	19200
2007	224530	150300	74230	58020	37790	20230
2008	256030	174000	82030	62400	41410	20990

Year	Nominal labor force human capital			Real labor force human capital (Billions of 1985 Yuan)		
	National	Urban	Rural	National	Urban	Rural
2009	303930	214100	89830	74450	51400	23050
2010	365590	267100	98490	86540	62140	24400

Figure 5.3.3 shows the trends of real labor force human capital for urban and rural areas, respectively. Before 1999, the real labor force human capital for the rural regions was higher than that for urban areas. After 1999, the real labor force human capital for urban areas increased more rapidly than that for rural areas, resulting in an increasing rural-urban gap. The reasons, as discussed previously include urbanization, migration and the education gap between the urban and rural populations.

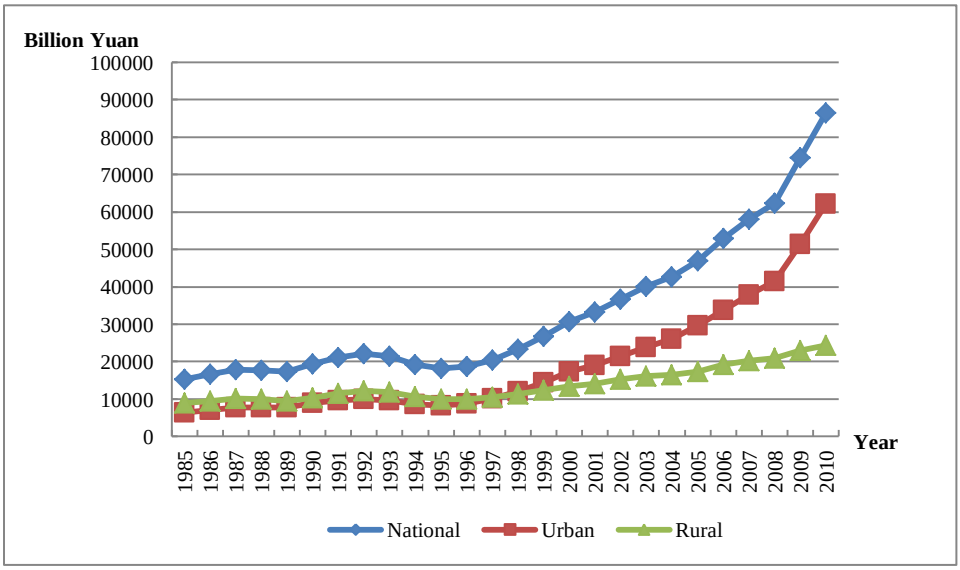


Figure 5.3.3 National Real Labor Force Human Capital by Region

Figure 5.3.4 shows the national ratio of labor force human capital to total human capital by five education categories. The ratios reflect age structures as human capital for the young and often highly-educated population will be

higher than that for the older and less-educated population. As is seen from the graph, before 1991, the ratio grew steadily, but it dropped dramatically after that, rebounding somewhat in 2005. The decreasing trend may indicate that the proportion of young generation in total population is getting smaller, and the aging population phenomenon is becoming dominant. This may foretell constraints on future productivity growth in China.

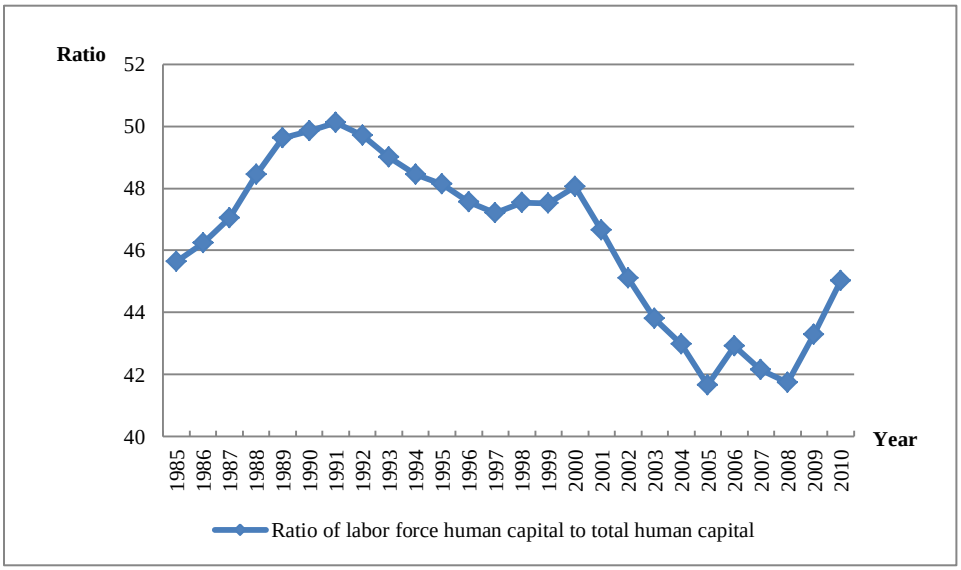


Figure 5.3.6 National Ratio of Labor Force Human Capital to Total Human Capital

5.3.2 Average labor force human capital

To analyze the dynamic trends of the national labor force human capital more precisely, we calculate the real average labor force human capital, where the average labor force human capital is national labor force human capital divided by the number of the population that are over 15 years old, non-retired and out of school.

Table 5.3.4 shows that the average labor force human capital in

nominal and real terms. The first two columns show the nominal terms based on 5-education and 6-education categories, while the last two columns show the real values. The real values in this table are calculated by deflating the nominal values with the CPI using 1985 as the base year. The results based on the two education categories are similar.

Table 5.3.4 National Nominal and Real Average Labor Force Human Capital

Year	Nominal average labor force human capital (Thousands of Yuan)		Nominal average labor force human capital (Thousands of 1985 Yuan)	
	By five education categories	By six education categories	By five education category	By six education categories
1985	27.14		27.14	
1986	30.54		28.67	
1987	34.36		30.05	
1988	38.91		28.62	
1989	43.70		27.25	
1990	49.10		29.71	
1991	54.16		31.63	
1992	59.25		32.51	
1993	65.33		31.23	
1994	71.74		27.62	
1995	78.67		25.83	
1996	87.30		26.41	
1997	96.93		28.47	
1998	108.21		31.94	
1999	120.60		36.01	
2000	135.07	133.80	40.04	39.68
2001	148.13	147.36	43.53	43.32
2002	162.22	162.06	47.99	47.94

2003	178.75	179.02	52.22	52.28
2004	197.84	199.41	55.54	55.96
2005	220.69	222.58	60.76	61.24
2006	252.47	255.17	68.42	69.14
2007	290.47	294.04	75.06	75.92
2008	331.65	336.18	80.83	81.89
2009	390.15	396.60	95.57	97.13
2010	458.13	465.57	108.45	110.16

Tables 5.3.5 and 5.3.6 report the average labor force human capital by gender and by region separately. The first three columns show the nominal average labor force human capital, while the last three columns show the real terms. From 1985-2010, the nominal and real average labor force human capital exhibit increasing trends. The national nominal value grows from 27 thousand Yuan to 458 thousand Yuan, increasing about 17-fold, while the real value grows from 27 thousand Yuan to 108 thousand Yuan, increasing about 3-fold.

Table 5.3.5 National Nominal and Real Average Labor Force Human Capital by Gender

Year	Nominal average labor force human capital (Thousands of Yuan)			Real average labor force human capital (Thousands of 1985 Yuan)		
	National	**Male**	**Female**	**National**	**Male**	**Female**
1985	27.14	31.88	21.81	27.14	31.88	21.81
1986	30.54	36.10	24.32	28.67	33.89	22.84
1987	34.36	40.85	27.16	30.05	35.73	23.77
1988	38.91	46.24	30.74	28.62	33.99	22.64
1989	43.70	51.78	34.64	27.25	32.27	21.61
1990	49.10	58.10	38.87	29.71	35.16	23.52
1991	54.16	64.29	42.74	31.63	37.54	24.98
1992	59.25	70.67	46.55	32.51	38.76	25.56
1993	65.33	78.37	50.93	31.23	37.43	24.37

Year	Nominal average labor force human capital (Thousands of Yuan)			Real average labor force human capital (Thousands of 1985 Yuan)		
	National	Male	Female	National	Male	Female
1994	71.74	86.50	55.56	27.62	33.27	21.42
1995	78.67	95.34	60.56	25.83	31.29	19.90
1996	87.30	106.25	66.55	26.41	32.12	20.16
1997	96.93	118.33	73.33	28.47	34.73	21.56
1998	108.21	133.02	80.83	31.94	39.26	23.89
1999	120.60	148.67	89.35	36.01	44.36	26.70
2000	135.07	167.63	98.62	40.04	49.68	29.27
2001	148.13	184.13	108.15	43.53	54.09	31.81
2002	162.22	202.93	117.62	47.99	60.02	34.81
2003	178.75	223.60	129.86	52.22	65.30	37.93
2004	197.84	248.32	143.07	55.54	69.72	40.18
2005	220.69	277.95	159.14	60.76	76.53	43.81
2006	252.47	318.78	180.11	68.42	86.43	48.82
2007	290.47	365.52	207.55	75.06	94.43	53.62
2008	331.65	415.69	237.34	80.83	101.32	57.84
2009	390.15	488.67	278.33	95.57	119.76	68.16
2010	458.13	572.91	326.77	108.45	135.61	77.33

Table 5.3.6 reports the real average labor force human capital by region. The growth for urban region is much higher than that for rural and the urban-rural gap widens significantly. The real average labor force human capital stock is much smaller in the rural area than in the urban area. Based on 5-education categories, the nominal average labor force human capital for urban residents increases from 45 thousand Yuan to 665 thousand Yuan, while that for rural residents increases from 21 thousand Yuan to 225 thousand Yuan. The real average labor force human capital for urban residents increase from 45 thousand Yuan to 155 thousand Yuan and that for rural residents increases from 21 thousand Yuan to 61 thousand Yuan

Table 5.3.6 National Nominal and Real Average Labor Force Human Capital by Region

Year	Nominal average labor force human capital (Thousands of Yuan)			Real average labor force human capital (Thousands of 1985 Yuan)		
	National	Urban	Rural	National	Urban	Rural
1985	27.14	45.16	21.05	27.14	45.16	21.05
1986	30.54	50.50	23.46	28.67	47.20	22.11
1987	34.36	56.70	26.21	30.05	48.70	23.26
1988	38.91	64.11	29.36	28.62	45.63	22.17
1989	43.70	72.25	32.72	27.25	44.21	20.72
1990	49.10	81.72	36.44	29.71	49.36	22.08
1991	54.16	89.36	40.23	31.63	51.36	23.82
1992	59.25	97.17	44.20	32.51	51.43	25.00
1993	65.33	106.44	48.67	31.23	48.52	24.21
1994	71.74	116.47	53.28	27.62	42.47	21.48
1995	78.67	127.27	58.39	25.83	39.74	20.03
1996	87.30	140.45	63.43	26.41	40.30	20.17
1997	96.93	155.69	69.00	28.47	43.33	21.41
1998	108.21	173.57	74.98	31.94	48.60	23.50
1999	120.60	192.54	80.88	36.01	54.63	25.73
2000	135.07	214.63	87.53	40.04	60.41	27.87
2001	148.13	232.27	95.36	43.53	64.92	30.13
2002	162.22	251.32	103.84	47.99	70.96	32.94
2003	178.75	274.78	113.39	52.22	76.89	35.40
2004	197.84	302.31	123.43	55.54	81.89	36.77
2005	220.69	335.01	134.89	60.76	89.32	39.32
2006	252.47	378.91	154.14	68.42	99.53	44.27
2007	290.47	431.48	174.69	75.06	108.46	47.60
2008	331.65	489.61	196.53	80.83	116.54	50.28
2009	390.15	572.98	221.39	95.57	137.56	56.82
2010	458.13	665.35	247.71	108.45	154.78	61.36

5.4 International comparison

The Jorgenson-Fraumeni lifetime earnings approach has used to estimate

human capital for many countries, for example for Canada (Gu and Ambrose, 2008), New Zealand (Le, Gibson and Oxley, 2005), Norway (Greaker and Liu, 2008), Sweden (Alroth, 1997), the United States (Jorgenson and Fraumeni, 1989, 1992a, 1992b and Christian, 2009) and for 16 countries (Liu, 2011 and unpublished estimates for Japan).. A summary of human capital estimates for 18 countries in 2006 is reported in table 5.4.1.[4]. The working age population is defined as males aged 16-59 and females age 16-54 in China, population aged 15-59 in India and population aged 15-64 in other countries. Figure 5.4.1 shows the ratio of human capital to GDP for the 16 Liu result countries plus China and India (Gundimeda, 2007) in 2006.

China's human capital is quite large, second only to that of the United States. In 2006, the human capital in China was around 51.5 times of that in New Zealand, 35.2 times of that in Norway, 9.8 times of that in Australia, 5.2 times of that in Canada, and 1.4 times of that in Japan. However, China's human capital per capita is still very small. In 2006, human capital per working age population in China is less than 15% of that for Canada, Japan, Norway, South Korea, the United Kingdom, and the United States

Table 5.4.1 International Comparison of Human Capital Estimates

Currency unit: US Dollars

Countries	Human capital per working age population (10 thousands)	Human capital (Billions)	Human capital to GDP ratio
India	9.44	55.61	3.20
Rumania	12.65	1.90	7.91
Netherlands	45.70	5.04	8.30
Italy	37.45	14.59	8.38
Israel	38.20	1.61	9.24
Norway	53.71	1.65	9.29
China	7.06	58.16	9.35
Canada	49.78	11.29	9.39

[4] The estimates for Australia are for 2001 and for Denmark 2002.

France	45.94	18.38	9.41
US	64.10	128.24	9.62
Denmark	45.75	1.63	9.87
Japan	48.97	41.00	10.08
New Zealand	40.69	1.13	10.39
UK	55.78	21.48	10.40
Australia	45.74	5.94	10.43
Spain	45.62	13.83	10.59
Poland	22.25	5.99	10.68
South Korea	48.99	17.01	14.28

Note: The PPPs for private consumption which are applied to human capital in national currencies are from the WorldBank, International Comparison Program database, accessed December 2013. The website link is http://data.worldbank.org/indicator/PA.NUS.PRVT.PP. The PPPs for GDP applied to GDP in national currencies are from the WorldBank, International Comparison Program database, accessed January 2014. The website link is http://data.worldbank.org/indicator/PA.NUS.PPP.

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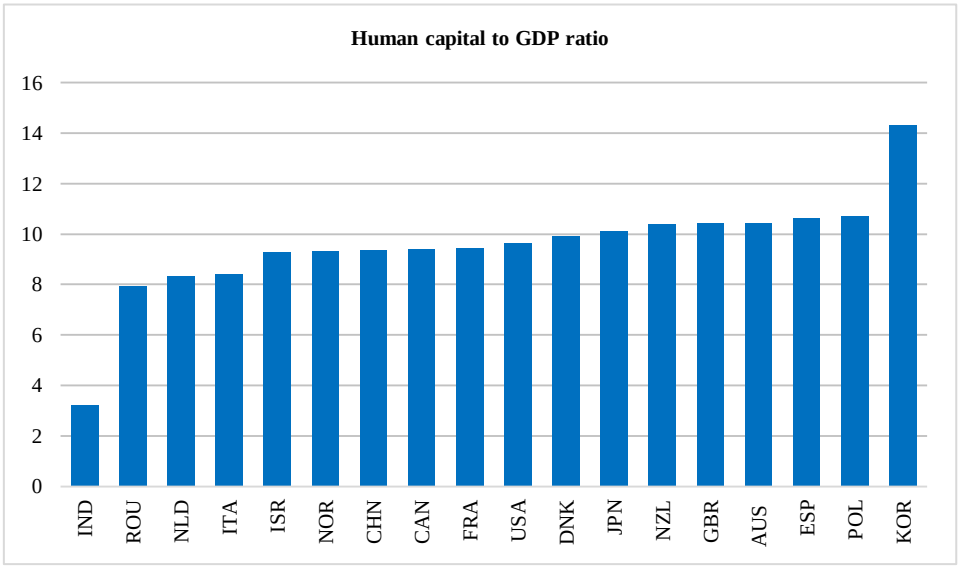

Figure 5.4.1 International Comparison of Human capital to GDP Ratio in 2006

5.5 Human capital, GDP, and physical capital

Human capital estimates are based on the Mincer equation parameter estimates and the population imputation data, with 4.58% as the discount rate using J-F method, as described in preceding chapters.. Before 2000, five education categories were reported by the National Bureau of Statistics of China. They are: no school, elementary school, junior middle school, senior middle school, and college and above. Starting from 2000, college and above was further divided into two categories: three-year college, and four-year university and above.[5]With this more detailed information on educational attainment, we create a separate human capital series starting from 2000.

As can be seen in Figure 5.6.1 and Figure 5.6.2, China's human capital stock is much larger than its physical capital stock, about 7 to 26 times the amount of physical capital. This is not surprising, given that in most countries intangible capital, which is predominantly human capital, accounts for over 60% of national wealth.[6] The ratio of the human capital to the physical capital as measured by Holz, the ratio keeps decreasing, but the rate of decrease slows down after 1996. Whether the more rapid growth of the physical capital stock than of the human capital indicates "overinvestment" in physical capital is beyond the scope of our study.[7]

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[5] When we estimate the Mincer equation to generate annual earnings, we assign 15 years of schooling for the category three-year college; and assign 16 years of schooling for the category four-year university and above. Because we use the lower bound of schooling for this education category, the amount of human capital is underestimated.

[6] World Bank (1997). The World Bank wealth estimates include physical capital, natural resources, and other forms of intangible capital besides human capital.

[7] Hechman（2005）and Liu（2007）also find that China invested too much on physical capital relative to human capital during the economy reform period.

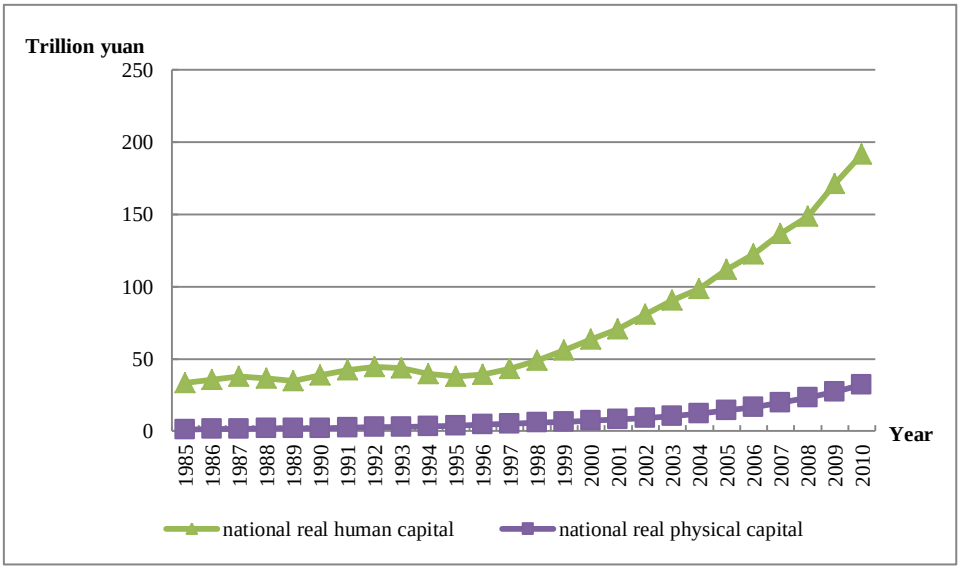


Figure 5.6.1 Human Capital and Physical Capital , 1985-2010

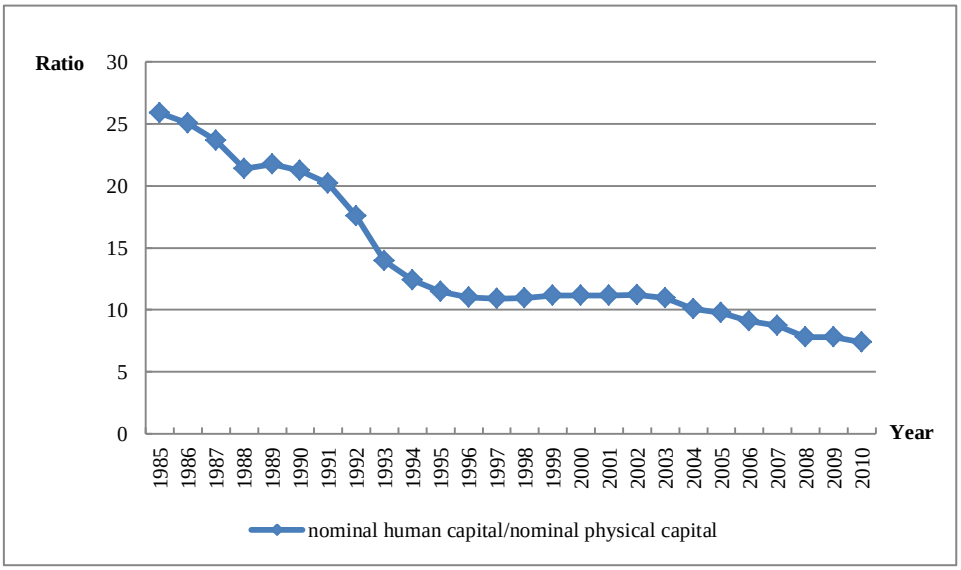


Figure 5.6.2 Human Capital and Physical Capital Ratio, 1985-2010

Chapter 6 Cross-province comparison

Making a longitudinal calculation of provincial human capital by analyzing trends in human capital changes over time, we reveal the development of human capital. A horizontal comparison of provincial human capital can help us understand the distribution and development of human capital between provinces. We chose these three indicators to compare the situation of human capital for the provinces, so that we will be able to understand the differences in human capital development between different provinces systematically.

We calculate provincial human capital, human capital per capita and labor force human capital by using J-F method (see Appendix results C). We calculate the corresponding ratios to compare the systematic differences between provincial human capital.

In addition to these ratios above, another two indicators are provincial real human capital per capita adjusted by cost of living index and provincial real labor force human capital per capita adjusted by cost of living index. Specific formulas are:

Real human capital per capita=real human capital (adjusted by cost of living index) / population

Real labor force human capital per capita= real labor force human capital (adjusted by cost of living index) / labor force population

This section only selected 1985, 1995, 2005 and 2010 as the basic years. Here we describe the comparison of provincial human capital though graph.

6.1 Cross-province human capital comparison

Figure 6.1.1 shows the provincial comparison of nominal human capital. [1]Guangdong ranks the highest, followed by Jiangsu, and Tibet ranks the lowest. The notable features of the differences across provinces are: (1) Population plays a dominant role in influencing total human capital, in spite of other provincial differences in educational attainment, age structure, and income level. Provinces with larger populations such as Jiangsu, Henan, Shandong, Guangdong, and Hunan rank relatively higher. (2) The growth of human capital of provinces accelerates after 2000. The relative ranking of provinces basically remains the same, although the gap keeps growing. As shown in the figure, the ranking of human capital in 2010 is quite similar to that in 1985, 1995 and 2005.

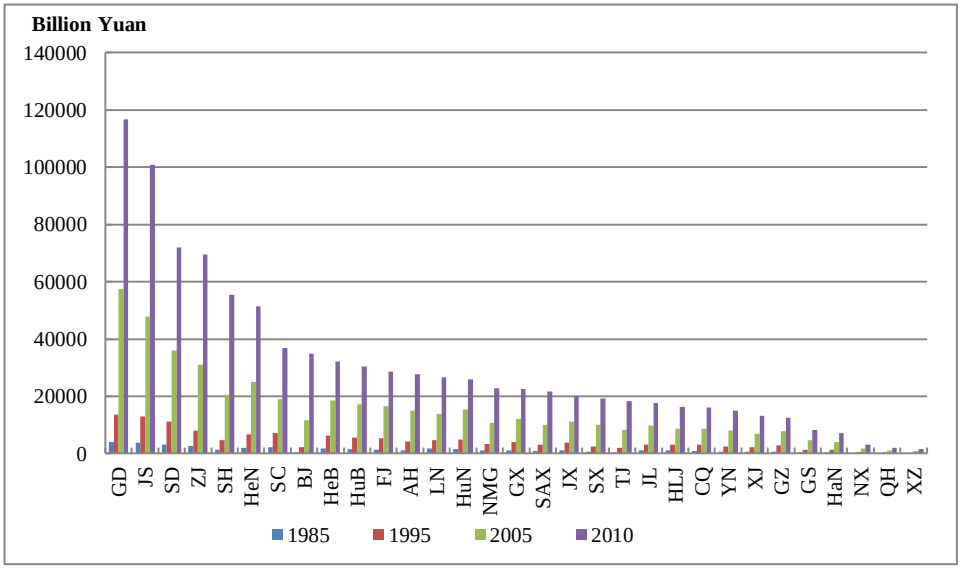


Figure 6.1.1 Provincial Nominal Human Capital

Figure 6.1.2 presents the provincial comparison of real human capital.

[1] We order provinces by the size of 2010 human capital indicators in all the cross-province comparison figures below.

Real human capital is created by deflating nominal human capital by a living cost index based on Brandt and Holz (2006).[2,3]We use their living cost index and update it over time using provincial CPI to construct a deflator that is comparable across provinces and over time. Accordingly, the real values of provincial human capital using the above deflator are comparable. The ranking of real human capital is similar to the nominal ranking: Jiangsu has the largest real human capital, followed by Guangdong, and Tibet ranks the lowest. As the living cost index is positively correlated with the stage of development, adjustments by a living cost index to some extent narrow the gap between developed and developing provinces. For example, Shanghai and Beijing's rankings clearly drop compared with their nominal human capital rankings. And Jiangsu ranks in the first place, exceeding Guangdong.

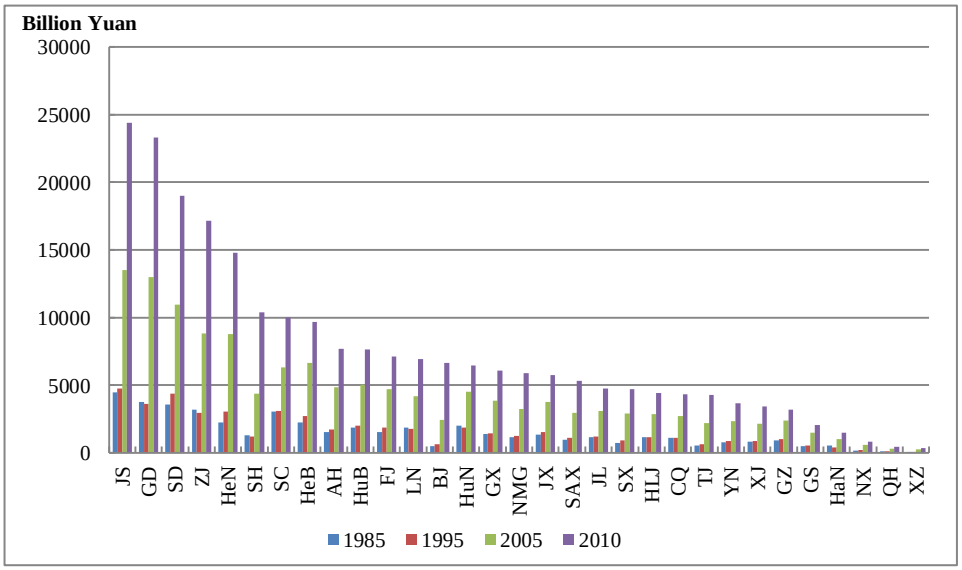


Figure 6.1.2 Provincial Real Human Capital

[2] Brandt, Loren, Holz, Carsten, 2006. Spatial price differences in China: estimates and implications. Economic Development and Cultural Change 55, 43–86.

[3] Specifically, the living cost index we use here is based on a package of commodities of 1985 in Beijing, other provinces and years are adjusted correspondingly.

Figure 6.1.3 shows the provincial comparison of real human capital per capita. The provincial ranking of real human capital per capita is obviously different from that of provincial real human capital. Shanghai, Beijing and Tianjin rank the top three, Yunnan ranks the last. We conclude that the ranking is closely related to the development stage of the provinces. Real human capital per capita is directly influenced by income level and income growth rates. The ranking is also influenced by education level and population structure.

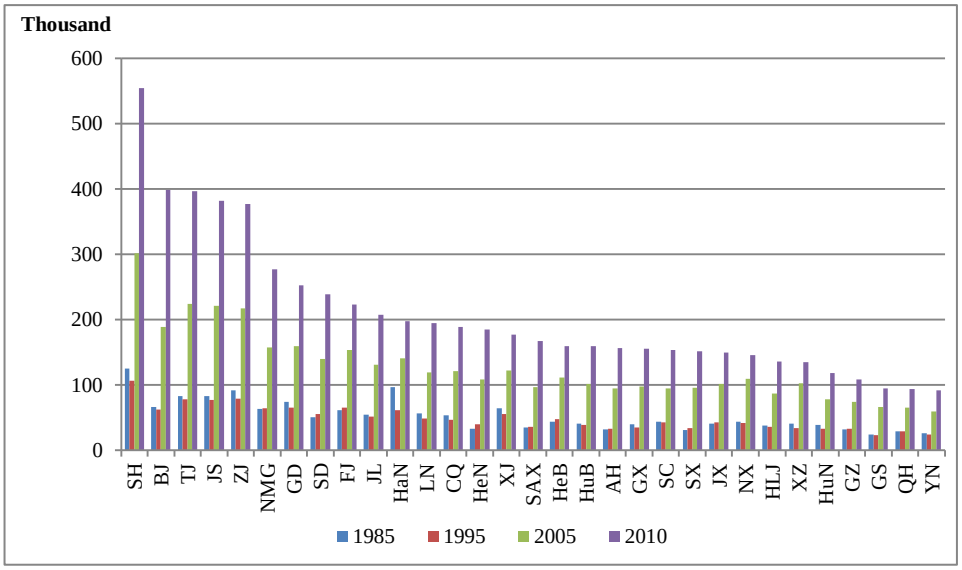


Figure 6.1.3 Provincial Real Human Capital Per Capita

6.2 Cross-province labor force human capital comparison

Figure 6.2.1 displays provincial real labor force human capital. Overall, Guangdong has the largest real labor force human capital, followed by Jiangsu and Zhejiang; Tibet has the least. Real labor force human capital ranking could change because of the different sizes of the provincial labor force population and the human capital population. This might explain why Zhejiang ranks higher than Shandong in this category.

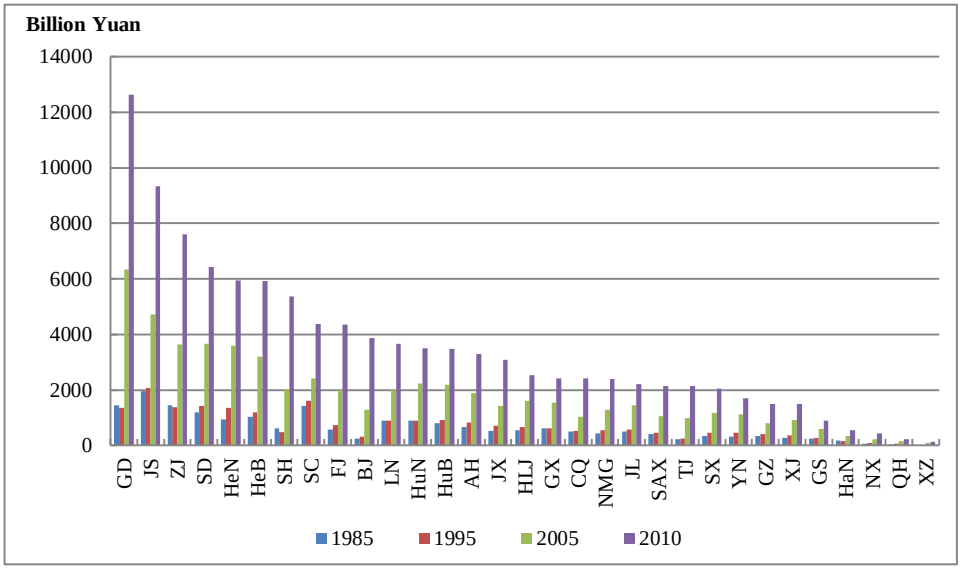


Figure 6.2.1 Provincial Real Labor Force Human Capital

Figure 6.2.2 shows the provincial comparison for real average labor force human capital. Average labor force human capital rankings are almost the same as those for real human capital per capita: Shanghai remains first, Beijing and Tianjin follows, Gansu stays in the last place.

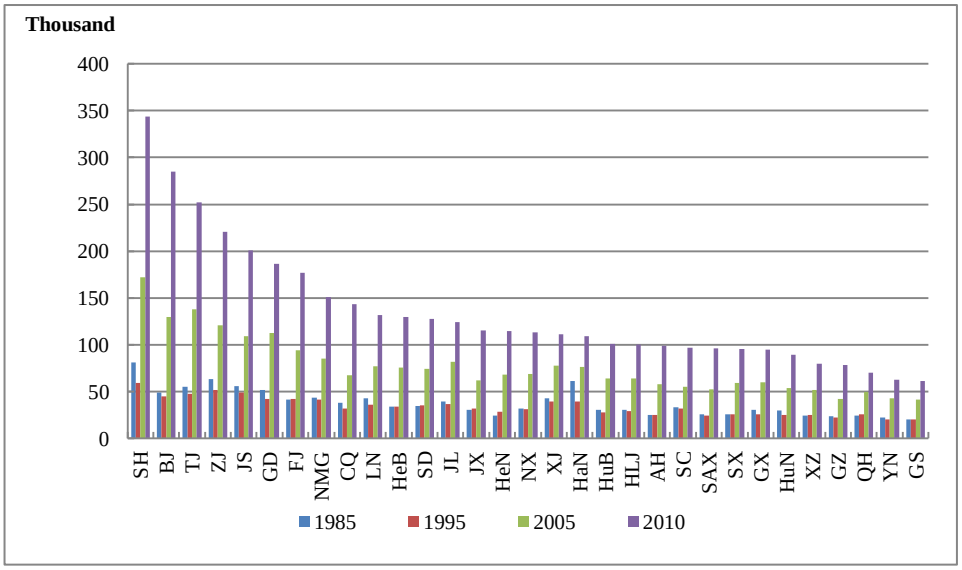


Figure 6.2.2 Provincial Real Average Labor Force Human Capital

6.3 Relative trend of human capital

Figure 6.3.1 shows the ratios of nominal labor force human capital to total nominal human capital by province. The ratios reflect age structures, as human capital of the young and more-educated population will be higher than that of the old and less-educated population. In general, for provinces with low ratios and relatively small young populations, the development of the province might rely to a greater extent on inflows from other provinces. On the other hand, labor forces in more developed provinces tend to be more educated, and therefore the ratio is usually larger. In 2010 Fujian ranks the first, followed by Hebei and Beijing.

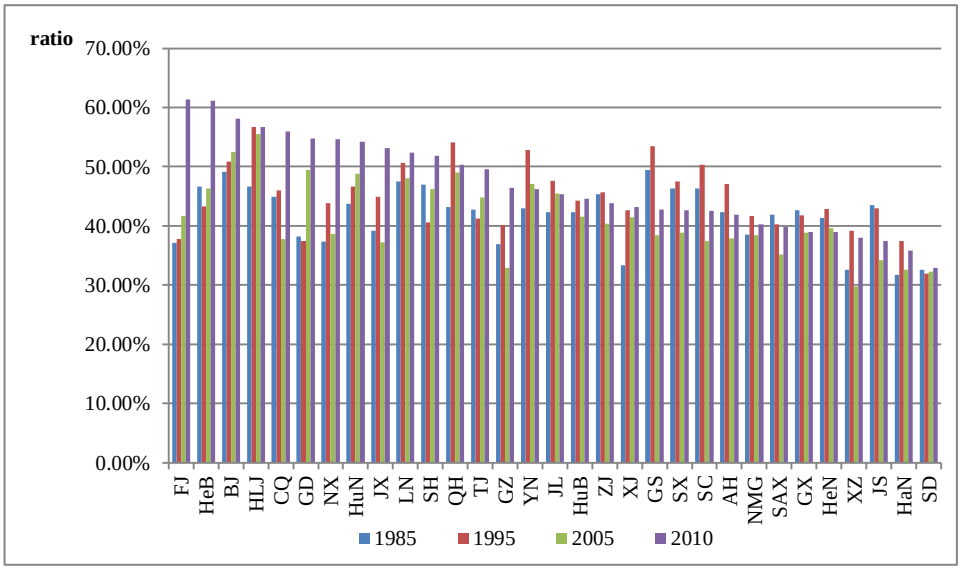


Figure 6.3.1 Ratio of Nominal Labor Force Human Capital to Total Nominal Human Capital

Figure 6.3.2 shows ratios of provincial nominal GDP to nominal labor force human capital. Shandong ranks the first in 2010, Qinghai, followed by Liaoning and Inner Mongolia, Fujian ranks the last. This indicates that more developed provinces have increased human capital productivity earlier than

other provinces. The ratios for most provinces are rising, reflecting catching up in other provinces.

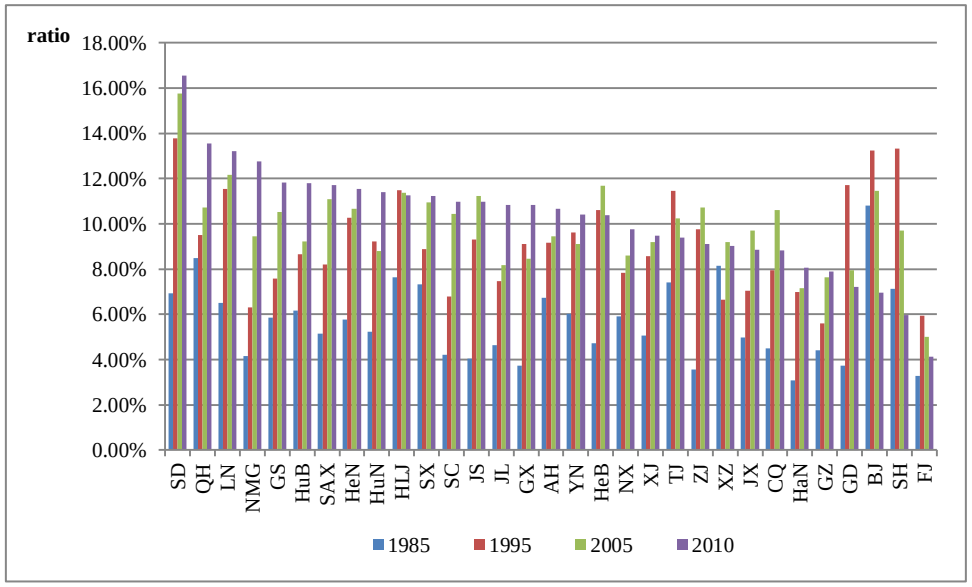


Figure 6.3.2 Ratio of Nominal GDP to Nominal Labor Force Human Capital

6.4 Human capital comparison for Taiwan, Hong Kong, Shanghai, Beijing and Guangdong

In this chapter, we compare human capital per capita and average labor force human capital (ALFHC) in 2010 for Taiwan with those for Hong Kong, Beijing, Shanghai and Guangdong. While Hong Kong is a special administrative region, Beijing, Shanghai and Guangdong are most developed cities and province in Mainland China comparable to Taiwan. We used the annual exchange rate of Renminbi yuan to US dollar from National Bureau of Statistics of China and the annual exchange rate of New Taiwan Dollar to US dollar from Accounting and Statistics of the island's

Directorate General of Budget to convert human capital for Taiwan into RMB yuan.

Table 6.1 Human capital per capita and average labor force human capital

Provinces	Human Capital Per Capita (Thousands of Yuan)			Average Labor Force Human Capital (Thousands of Yuan)		
	Total	Male	Female	Total	Male	Female
Taiwan	1940	2437	1430	2046	2604	1490
Hong Kong	6886	9944	3974	7044	10268	4073
Shanghai	2970	3693	2102	1840	2299	1284
Beijing	2084	2477	1628	1489	1788	1137
Guangdong	1263	1597	879	944	1200	650

Table 6.1 shows human capital per capita and ALFHC of these five provinces in 2010. Human capital per capita for Taiwan in total is 1,940 thousand Yuan, lower than 6,886 thousand Yuan for Hong Kong, 2,970 thousand Yuan for Shanghai and 2,084 thousand Yuan for Beijing, but higher than 1,263 thousand Yuan for Guangdong. For males, human capital per capita is 2,437 thousand Yuan for Taiwan, lower than 9,944 thousand Yuan for Hong Kong, 3,693 thousand Yuan for Shanghai and 2,477 thousand Yuan for Beijing, but higher than 1,597 thousand Yuan for Guangdong. For females, human capital per capita is 1,430 thousand Yuan for Taiwan, lower than 3,974 thousand Yuan for Hong Kong, 2,102 thousand Yuan for Shanghai and 1,628 thousand Yuan for Beijing, but higher than 879 thousand Yuan for Guangdong.

ALFHC per capita for Taiwan in total is 2,046 thousand Yuan, lower than 7,044 thousand Yuan for Hong Kong, but higher than 1,840 thousand Yuan for Shanghai, 1,489 thousand Yuan for Beijing and 944 thousand Yuan for Guangdong. For males, ALFHC is 2,604 thousand Yuan for Taiwan, lower than 10,268 thousand Yuan for Hong Kong, 2,299 thousand

Yuan for Shanghai, 1,788 thousand Yuan for Beijing and 1,200 thousand Yuan for Guangdong. For females, ALFHC is 1,490 thousand Yuan for Taiwan, lower than 4,073 thousand Yuan for Hong Kong, but higher than 1,284 thousand Yuan for Shanghai, 1,137 thousand Yuan for Beijing and than 650 thousand Yuan for Guangdong.

Table 6.2 Ratios of human capital per capita and average labor force human capital

Provinces	Human Capital Per Capita (Taiwan=1)			Average Labor Force Human Capital (Taiwan=1)		
	Total	Male	Female	Total	Male	Female
Hong Kong	3.5493	4.0810	2.7794	3.4427	3.9439	2.7341
Shanghai	1.5307	1.5154	1.4698	0.8995	0.8830	0.8619
Beijing	1.0742	1.0164	1.1384	0.7275	0.6869	0.7632
Guangdong	0.6512	0.6552	0.6151	0.4614	0.4608	0.4365

Table 6.2 shows the ratios between Taiwan and the other four provinces setting Taiwan as 1. Human capital per capita of Hong Kong is 3.55 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 1.53, 1.07, and 0.65, respectively. For males, human capital per capita of Hong Kong is 4.08 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 1.52, 1.01, and 0.66, respectively. For females, human capital per capita of Hong Kong is 2.78 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 1.47, 1.14, and 0.62, respectively.

Similarly, ALFHC of Hong Kong is 3.44 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 0.9, 0.73, and 0.46, respectively. For males ALFHC of Hong Kong is 3.94 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 0.88, 0.69, and 0.46, respectively. For females, ALFHC of Hong Kong is 2.73 times that of Taiwan. The ratio for Shanghai, Beijing and Guangdong is 0.86, 0.76, and 0.44, respectively.

Chapter 7 Human Capital for Beijing

7.1 Total human capital

Table BJ-1.1 gives the results of nominal and real total human capital and real physical capital for Beijing.

Table BJ-1.1 Real physical capital, Nominal and Real Human Capital for Beijing

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	485		485		37
1986	568		532		48
1987	664		573		62
1988	801		574		77
1989	957		585		92
1990	1144		663		108
1991	1303		675		124
1992	1489		702		144
1993	1712		678		170
1994	1943		616		206
1995	2239		606		245
1996	2632		638		281
1997	3079		708		318
1998	3648		820		364
1999	4242		947		406
2000	5069	5472	1094	1180	453
2001	5942	6387	1243	1336	507
2002	7083	7604	1509	1621	576
2003	8472	9054	1802	1926	662

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	10078	10781	2123	2271	759
2005	11603	12535	2408	2601	869
2006	15147	16247	3115	3341	988
2007	19134	20632	3843	4144	1125
2008	23816	25762	4550	4923	1233
2009	29428	31930	5709	6194	1369
2010	34840	39322	6600	7449	1545

7.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table BJ-2.1 presents human capital per capita for Beijing by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 31.97 times from 63,200 Yuan to 2,083,850 Yuan. Real human capital per capita increases 5.25 times from 63,200 Yuan to 394,750 Yuan.

Figure BJ-2.1 reports the results of human capital per capita by gender for Beijing.[1] The real human capital per capita of male is similar to that of female for Beijing from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

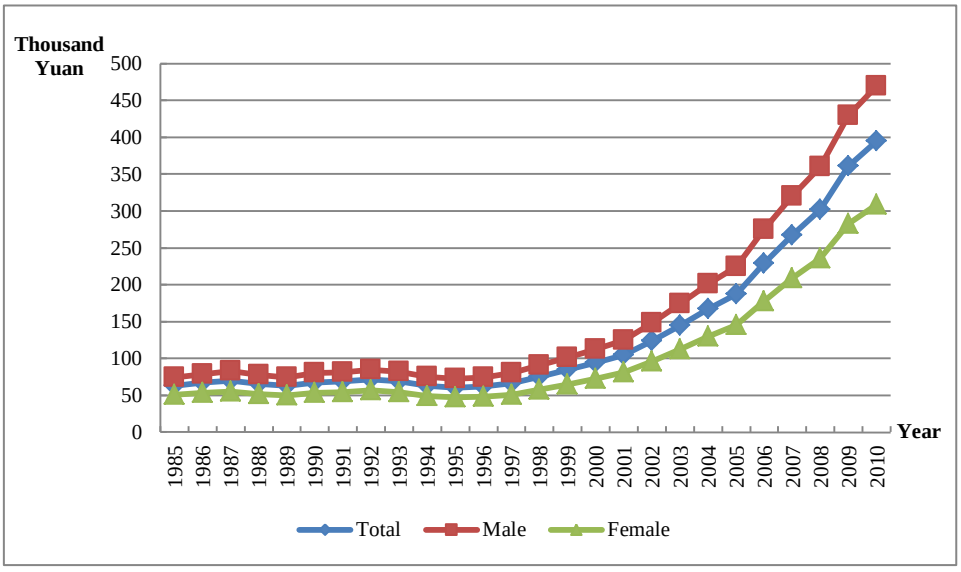


Figure BJ-2.1 Human Capital Per Capita by Gender for Beijing

Table BJ-2.1 reports the results of human capital per capita by region for Beijing. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 65,160 Yuan to 2,293,650 Yuan, the per capita rural human capital increases from 58,620 Yuan to 754,280 Yuan. The real human capital per capita for urban increases from 65,160 Yuan to 434,520 Yuan, the per capita rural human capital increases from 58,620 Yuan to 142,890 Yuan.

Table BJ-2.1 Nominal and Real Human Capital Per Capita by Region for Beijing

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	63.20	65.16	58.62	63.20	65.16	58.62
1986	71.70	74.46	65.07	67.14	69.72	60.92
1987	81.38	84.80	72.86	70.17	73.11	62.82
1988	91.74	95.97	80.65	65.71	68.72	57.76
1989	103.24	108.66	88.29	63.08	66.39	53.95

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1990	116.71	123.87	96.36	67.65	71.81	55.86
1991	132.51	141.87	106.32	68.67	73.50	55.08
1992	151.33	164.00	116.19	71.35	77.31	54.77
1993	174.28	191.10	127.70	69.03	75.70	50.59
1994	198.01	219.29	139.41	62.80	69.55	44.22
1995	223.62	249.63	152.30	60.47	67.49	41.18
1996	254.59	285.84	164.60	61.68	69.25	39.88
1997	289.39	326.11	179.26	66.59	75.03	41.24
1998	334.19	378.77	194.65	75.09	85.10	43.74
1999	378.34	429.52	211.14	84.50	95.93	47.16
2000	435.84	496.01	230.69	94.04	107.04	49.78
2001	498.63	564.67	252.55	104.34	118.19	52.86
2002	581.04	655.51	279.01	123.83	139.72	59.47
2003	681.13	765.47	308.62	144.86	162.83	65.65
2004	795.36	888.78	347.14	167.54	187.19	73.11
2005	899.58	999.29	387.20	186.67	207.35	80.34
2006	1111.80	1231.04	440.48	228.61	253.16	90.58
2007	1330.36	1470.97	503.96	267.18	295.41	101.21
2008	1576.79	1738.46	577.72	301.26	332.19	110.39
2009	1858.95	2047.57	662.88	360.63	397.21	128.59
2010	2083.85	2293.65	754.28	394.75	434.52	142.89

Figure BJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

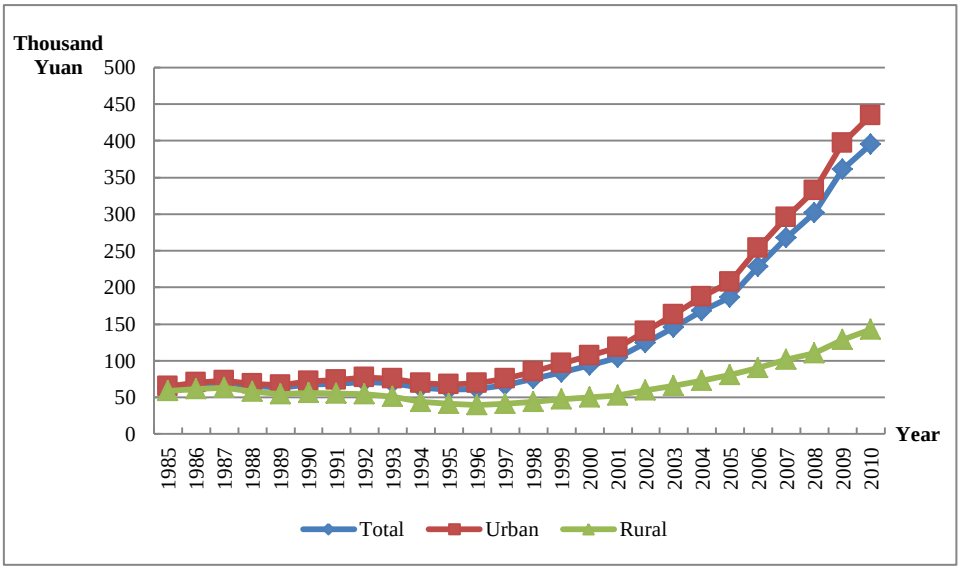


Figure BJ-2.2 Real Human Capital Per Capita by Region for Beijing

7.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

7.3.1 Total labor force human capital

The total labor force human capital for Beijing is reported in Table BJ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Beijing show differential increases. Nominal labor force human capital increases 84.13 times, from 238 billion Yuan to 20,262 billion Yuan. Real labor force human capital increases almost 15.13 times, from 238 billion Yuan to 3,840 billion Yuan.

Table BJ-3.1 Nominal and Real Labor Force Human Capital for Beijing

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	238		238	
1986	277		260	
1987	327		282	
1988	406		291	
1989	500		306	
1990	623		361	
1991	702		364	
1992	784		369	
1993	880		349	
1994	987		313	
1995	1138		308	
1996	1328		322	
1997	1603		369	
1998	1965		442	
1999	2345		524	
2000	2854	2767	616	597
2001	3260	3219	682	674
2002	3894	3857	830	822
2003	4678	4652	995	990
2004	5471	5466	1152	1151
2005	6086	6312	1262	1309
2006	8427	8419	1733	1732
2007	10873	10864	2184	2182
2008	13856	13846	2648	2646
2009	17423	17409	3380	3378
2010	20262	21559	3840	4085

7.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables BJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Beijing show differential increases. Nominal average labor force human capital increases more than 30.54 times, from 47,200 Yuan to 1,488,630 Yuan. Real average labor force human capital increases more than 4.98 times, from 47,200 Yuan to 282,090 Yuan.

Table BJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 48,320 Yuan to 1,628,330 Yuan in urban, and increases from 44,030 Yuan to 665,460 Yuan in rural. The real human capital increases from 48,320 Yuan to 308,480 Yuan in urban, and increases from 44,030 Yuan to 126,070 Yuan in rural.

Table BJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Beijing

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	47.20	48.32	44.03	47.20	48.32	44.03
1986	53.05	54.43	49.09	49.68	50.97	45.96
1987	60.13	61.89	54.95	51.85	53.36	47.37
1988	68.32	70.74	60.74	48.93	50.66	43.50
1989	77.74	81.02	66.99	47.49	49.50	40.93
1990	89.27	93.66	74.50	51.74	54.29	43.19
1991	100.21	105.82	81.93	51.91	54.82	42.44
1992	112.05	119.27	89.40	52.82	56.22	42.14
1993	126.40	135.79	98.08	50.07	53.79	38.85

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1994	142.01	153.99	106.99	45.04	48.84	33.93
1995	159.61	174.62	116.88	43.16	47.21	31.60
1996	180.97	199.22	127.46	43.86	48.27	30.88
1997	208.81	230.97	140.44	48.02	53.14	32.31
1998	241.74	268.40	155.38	54.32	60.31	34.91
1999	274.80	305.65	170.53	61.38	68.27	38.09
2000	316.31	352.70	186.98	68.25	76.11	40.35
2001	357.42	397.77	206.34	74.82	83.25	43.19
2002	417.00	464.06	229.08	88.87	98.91	48.83
2003	488.89	543.77	255.56	104.00	115.67	54.36
2004	562.66	624.19	284.13	118.51	131.46	59.84
2005	614.53	676.83	316.54	127.47	140.44	65.68
2006	796.28	878.48	369.99	163.77	180.66	76.09
2007	965.03	1064.09	429.07	193.86	213.70	86.17
2008	1152.37	1266.50	497.36	220.25	242.01	95.04
2009	1363.99	1496.70	577.20	264.62	290.35	111.97
2010	1488.63	1628.33	665.46	282.09	308.48	126.07

Chapter 8 Human Capital for Tianjin

8.1 Total human capital

Table TJ-1.1 gives the results of nominal and real total human capital and real physical capital for Tianjin.

Table TJ-1.1 Real physical capital, Nominal and Real Human Capital for Tianjin

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	513		513		31
1986	585		548		36
1987	674		591		41
1988	771		578		46
1989	879		574		50
1990	1008		640		54
1991	1124		648		61
1992	1275		659		68
1993	1453		639		75
1994	1643		583		85
1995	1871		575		97
1996	2116		597		110
1997	2399		657		125
1998	2689		740		142
1999	3023		841		159
2000	3562	3659	995	1022	177
2001	4182	4323	1154	1193	198
2002	4911	5087	1361	1409	223
2003	5780	5961	1586	1635	251

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	6801	7025	1824	1884	286
2005	8014	8324	2117	2199	329
2006	9534	10052	2482	2616	382
2007	11265	12037	2814	3006	449
2008	13210	14176	3129	3359	540
2009	15646	16887	3745	4042	672
2010	18422	19941	4259	4611	832

8.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table TJ-2.1 presents human capital per capita for Tianjin by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 22.37 times from 72,670 Yuan to 1,698,660 Yuan. Real human capital per capita increases 4.4 times from 72,670 Yuan to 392,730 Yuan.

Figure TJ-2.1 reports the results of human capital per capita by gender for Tianjin. [2] The real human capital per capita of male is similar to that of female for Tianjin from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[2] All the discussion below is based on five-education category.

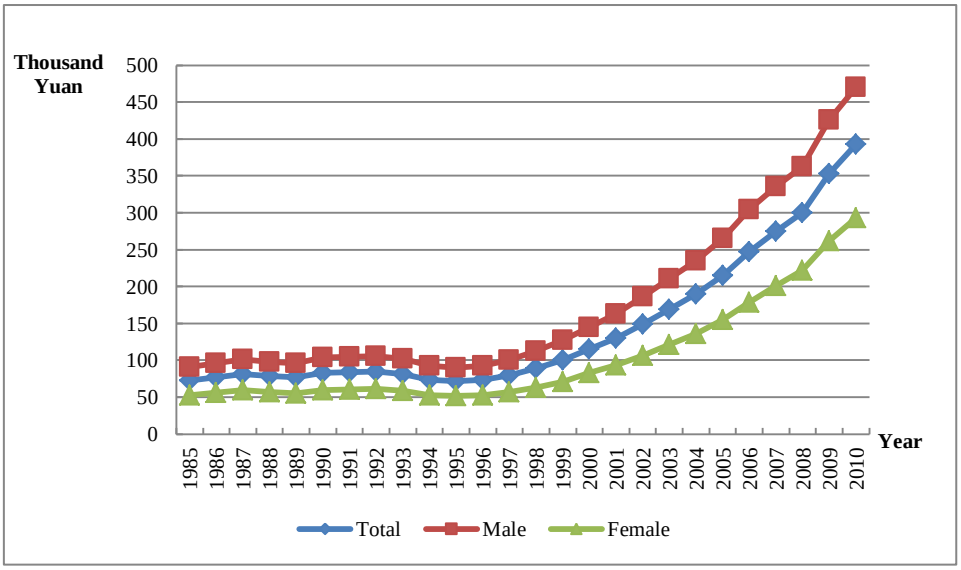


Figure TJ-2.1 Human Capital Per Capita by Gender for Tianjin

Table TJ-2.1 reports the results of human capital per capita by region for Tianjin. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 78,540 Yuan to 1,923,290Yuan, the per capita rural human capital increases from 57,000 Yuan to 822,230 Yuan. The real human capital per capita for urban increases from 78,540 Yuan to 444,780 Yuan, the per capita rural human capital increases from 57,000 Yuan to 190,150 Yuan.

Table TJ-2.1 Nominal and Real Human Capital Per Capita by Region for Tianjin

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	72.67	78.54	57.00	72.67	78.54	57.00
1986	82.19	88.85	64.14	76.95	83.19	60.06
1987	93.03	100.60	72.26	81.56	88.20	63.36
1988	104.60	112.47	82.27	78.44	84.35	61.70
1989	117.28	125.63	92.83	76.68	82.15	60.70

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1990	130.61	140.32	102.97	82.91	89.07	65.36
1991	145.99	155.54	117.17	84.09	89.60	67.50
1992	163.57	174.09	131.88	84.56	90.02	68.19
1993	184.89	197.52	146.85	81.29	86.85	64.57
1994	207.73	222.77	162.15	73.66	79.00	57.50
1995	232.44	251.68	176.27	71.48	77.41	54.21
1996	259.47	281.01	196.06	73.20	79.29	55.32
1997	290.58	316.06	215.14	79.53	86.50	58.88
1998	322.69	352.18	234.22	88.75	96.87	64.42
1999	360.32	395.32	254.13	100.19	109.94	70.68
2000	413.19	457.99	273.81	115.38	127.88	76.45
2001	471.11	522.79	306.38	129.97	144.25	84.53
2002	538.14	598.88	339.99	149.09	165.90	94.19
2003	616.67	687.83	379.14	169.17	188.66	103.99
2004	707.41	789.51	426.61	189.71	211.68	114.38
2005	814.75	911.44	478.69	215.20	240.76	126.45
2006	950.68	1066.00	539.05	247.46	277.42	140.29
2007	1101.32	1239.29	598.75	275.07	309.52	149.54
2008	1267.27	1429.09	664.59	300.20	338.64	157.48
2009	1476.53	1670.26	745.55	353.45	399.78	178.45
2010	1698.66	1923.29	822.23	392.73	444.78	190.15

Figure TJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

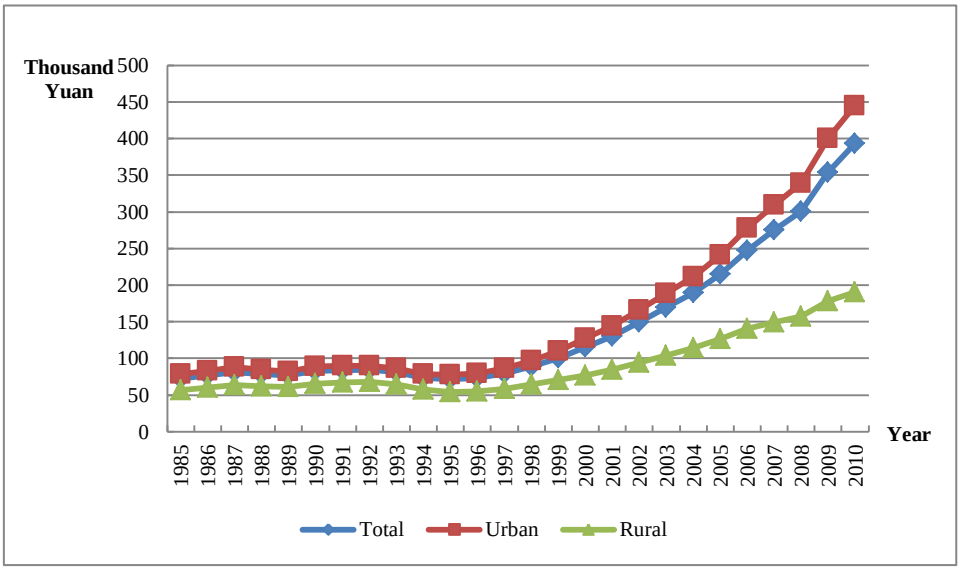


Figure TJ-2.2 Real Human Capital Per Capita by Region for Tianjin

8.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

8.3.1 Total labor force human capital

The total labor force human capital for Tianjin is reported in Table TJ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Tianjin show differential increases. Nominal labor force human capital increases 40.45 times, from 237 billion Yuan to 9,823 billion Yuan. Real labor force human capital increases almost 8.59 times, from 237 billion Yuan to 2,272 billion Yuan.

Table TJ-3.1 Nominal and Real Labor Force Human Capital for Tianjin

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	237		237	
1986	274		256	
1987	322		283	
1988	363		272	
1989	410		268	
1990	471		299	
1991	522		301	
1992	578		299	
1993	644		283	
1994	721		256	
1995	814		251	
1996	892		252	
1997	1002		274	
1998	1149		316	
1999	1289		358	
2000	1659	1648	463	460
2001	1931	1935	533	534
2002	2266	2293	628	635
2003	2660	2721	729	746
2004	3166	3213	849	862
2005	3818	3881	1008	1025
2006	4692	4783	1221	1245
2007	5711	5837	1426	1458
2008	6873	7041	1629	1669
2009	8203	8423	1963	2016
2010	9823	10119	2272	2340

8.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables TJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Tianjin show differential increases. Nominal average labor force human capital increases more than 21.34 times, from 51,240 Yuan to 1,144,920 Yuan. Real average labor force human capital increases more than 4.17 times, from 51,240 Yuan to 264,820 Yuan.

Table TJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 62,320 Yuan to 1,404,950 Yuan in urban, and increases from 39,300 Yuan to 794,870 Yuan in rural. The real human capital increases from 62,320 Yuan to 324,940 Yuan in urban, and increases from 39,300 Yuan to 183,800 Yuan in rural.

Table TJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Tianjin

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	51.24	62.32	39.30	51.24	62.32	39.30
1986	58.37	71.11	44.62	54.66	66.59	41.78
1987	66.81	81.57	50.86	58.58	71.51	44.59
1988	74.45	91.41	56.05	55.85	68.55	42.04
1989	82.87	102.06	61.89	54.19	66.72	40.48
1990	92.10	114.06	67.83	58.47	72.40	43.06
1991	102.24	127.03	75.03	58.89	73.18	43.23
1992	112.24	139.89	82.17	58.05	72.35	42.50
1993	124.17	155.84	90.08	54.61	68.54	39.60

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1994	137.12	173.04	98.71	48.62	61.37	35.00
1995	150.69	191.18	107.86	46.35	58.80	33.17
1996	164.78	210.08	116.76	46.49	59.27	32.95
1997	182.59	234.02	127.93	49.97	64.05	35.01
1998	204.15	263.23	141.14	56.16	72.39	38.82
1999	223.20	288.93	152.61	62.06	80.35	42.45
2000	268.21	345.28	182.32	74.89	96.42	50.89
2001	303.98	389.87	206.96	83.86	107.56	57.10
2002	346.62	444.02	234.73	96.02	122.97	65.02
2003	395.03	505.25	265.52	108.33	138.57	72.83
2004	456.20	581.43	305.49	122.30	155.89	81.90
2005	530.97	673.06	356.80	140.26	177.80	94.23
2006	626.87	791.43	421.25	163.12	205.98	109.64
2007	736.22	921.43	500.36	183.81	230.13	124.95
2008	855.52	1062.96	585.94	202.76	252.00	138.87
2009	992.98	1228.03	681.12	237.62	293.96	163.04
2010	1144.92	1404.95	794.87	264.82	324.94	183.80

Chapter 9 Human Capital for Hebei

9.1 Total human capital

Table HeB-1.1 gives the results of nominal and real total human capital and real physical capital for Hebei.

Table HeB-1.1 Real physical capital, Nominal and Real Human Capital for Hebei

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1804		1804		75
1986	2052		1944		82
1987	2329		2049		90
1988	2646		1974		99
1989	2996		1860		107
1990	3407		2109		116
1991	3855		2311		126
1992	4347		2469		139
1993	4915		2464		154
1994	5541		2278		172
1995	6194		2205		197
1996	6852		2274		229
1997	7567		2421		266
1998	8363		2714		308
1999	9346		3083		353
2000	10570	10611	3488	3498	395
2001	11952	12004	3902	3915	439
2002	13469	13539	4419	4437	483
2003	14723	14800	4719	4739	537

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	16495	16611	5056	5086	608
2005	18499	18611	5565	5592	705
2006	20377	20420	6019	6027	820
2007	23222	23286	6533	6543	956
2008	25508	25596	6723	6742	1134
2009	28120	28220	7447	7468	1329
2010	32110	32240	8234	8262	1534

9.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HeB-2.1 presents human capital per capita for Hebei by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 13.86 times from 35,670 Yuan to 530,130 Yuan. Real human capital per capita increases 2.81 times from 35,670 Yuan to 135,940 Yuan.

Figure HeB-2.1 reports the results of human capital per capita by gender for Hebei.[3] The real human capital per capita of male is similar to that of female for Hebei from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[3] All the discussion below is based on five-education category.

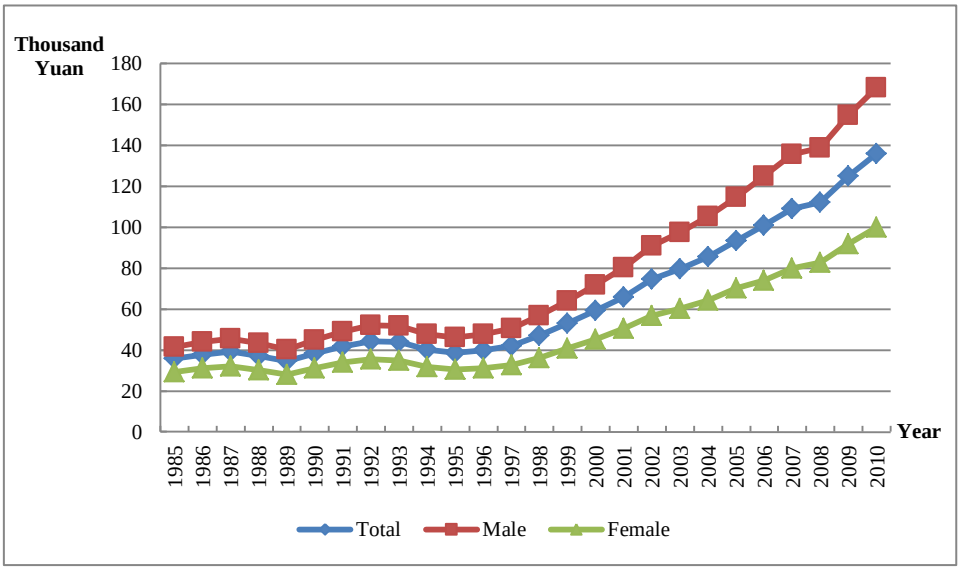


Figure HeB-2.1 Human Capital Per Capita by Gender for Hebei

Table HeB-2.1 reports the results of human capital per capita by region for Hebei. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 59,150 Yuan to 749,410 Yuan, the per capita rural human capital increases from 29,930 Yuan to 354,670 Yuan. The real human capital per capita for urban increases from 59,150 Yuan to 184,220 Yuan, the per capita rural human capital increases from 29,930 Yuan to 97,300 Yuan.

Table HeB-2.1 Nominal and Real Human Capital Per Capita by Region for Hebei

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	35.67	59.15	29.93	35.67	59.15	29.93
1986	39.92	68.17	33.35	37.81	64.31	31.64
1987	44.50	77.65	36.98	39.15	67.70	32.67
1988	49.63	86.22	41.23	37.02	63.55	30.92
1989	55.41	95.13	46.00	34.41	60.49	28.23
1990	62.02	105.58	51.50	38.40	66.34	31.63

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1991	69.58	118.74	57.08	41.71	70.00	34.51
1992	77.73	133.52	62.90	44.15	72.54	36.60
1993	87.33	151.12	69.41	43.77	71.09	36.10
1994	97.71	168.98	76.79	40.17	63.64	33.28
1995	108.66	188.23	84.55	38.69	61.06	31.92
1996	119.66	207.93	91.70	39.70	62.68	32.41
1997	131.28	228.46	99.53	42.00	66.42	34.02
1998	144.56	252.31	107.67	46.91	74.31	37.52
1999	160.50	285.22	116.54	52.95	85.11	41.61
2000	179.10	321.73	127.34	59.10	95.53	45.88
2001	201.88	357.98	139.42	65.91	105.87	49.93
2002	227.20	395.28	153.30	74.54	118.56	55.18
2003	248.31	415.35	168.60	79.59	121.78	59.49
2004	279.24	456.95	186.83	85.59	129.20	62.91
2005	309.83	497.20	207.91	93.21	138.64	68.49
2006	340.69	524.05	231.67	100.63	143.69	75.05
2007	387.56	584.53	260.19	109.03	153.60	80.21
2008	425.61	629.46	282.72	112.17	157.24	80.63
2009	471.84	677.02	316.23	124.96	171.13	89.88
2010	530.13	749.41	354.67	135.94	184.22	97.30

Figure HeB-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

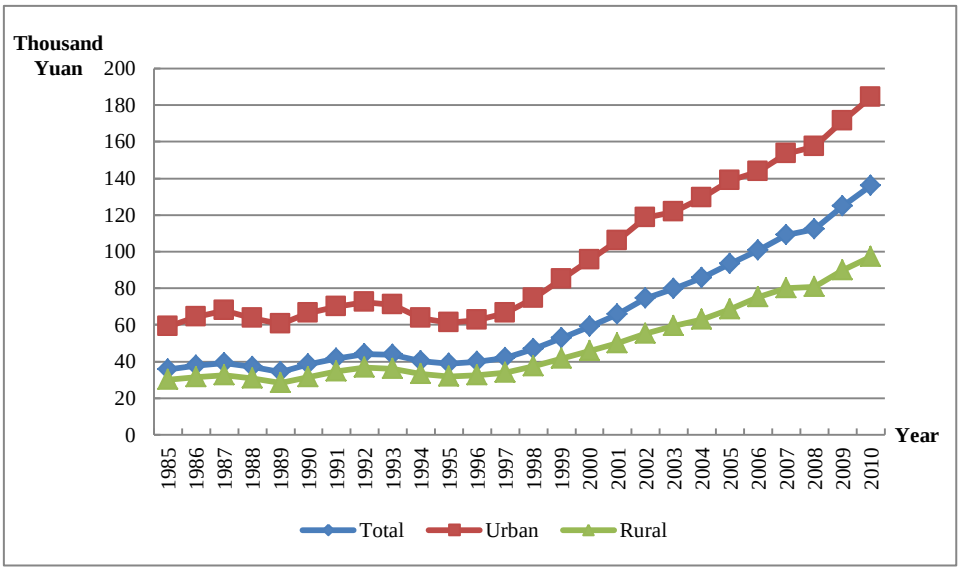


Figure HeB-2.2 Real Human Capital Per Capita by Region for Hebei

9.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

9.3.1 Total labor force human capital

The total labor force human capital for Hebei is reported in Table HeB-3.1. From 1985 to 2010, the nominal and real labor force human capital for Hebei show differential increases. Nominal labor force human capital increases 22.31 times, from 842 billion Yuan to 19,628 billion Yuan. Real labor force human capital increases almost 4.98 times, from 842 billion Yuan to 5,036 billion Yuan.

Table HeB-3.1 Nominal and Real Labor Force Human Capital for Hebei

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	842		842	
1986	962		912	
1987	1115		981	
1988	1264		943	
1989	1406		872	
1990	1580		977	
1991	1757		1054	
1992	1948		1111	
1993	2176		1098	
1994	2416		1004	
1995	2683		967	
1996	2954		993	
1997	3290		1068	
1998	3683		1215	
1999	4070		1368	
2000	4602	4573	1551	1541
2001	5142	5125	1718	1712
2002	5789	5796	1944	1944
2003	6531	6536	2143	2142
2004	7385	7383	2313	2311
2005	8564	8553	2624	2618
2006	9757	9751	2934	2929
2007	11133	11136	3185	3183
2008	12704	12717	3392	3392
2009	15450	15483	4117	4122
2010	19628	19712	5036	5055

9.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables HeB-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Hebei show differential increases. Nominal average labor force human capital increases more than 14.31 times, from 24,460 Yuan to 374,590 Yuan. Real average labor force human capital increases more than 2.93 times, from 24,460 Yuan to 96,110 Yuan.

Table HeB-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 42,240 Yuan to 607,260 Yuan in urban, and increases from 23,420 Yuan to 290,020 Yuan in rural. The real human capital increases from 42,240 Yuan to 149,280 Yuan in urban, and increases from 23,420 Yuan to 79,560 Yuan in rural.

Table HeB-3.2 Nominal and Real Average Labor Force Human Capital by Region for Hebei

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	24.46	42.24	23.42	24.46	42.24	23.42
1986	27.25	47.81	26.06	25.81	45.11	24.73
1987	30.59	54.38	29.06	26.91	47.42	25.67
1988	33.87	59.31	32.52	25.27	43.71	24.39
1989	37.34	64.30	36.09	23.16	40.89	22.15
1990	41.35	70.45	40.12	25.58	44.27	24.64
1991	45.24	77.23	44.30	27.14	45.53	26.78
1992	49.36	85.20	48.78	28.14	46.29	28.39
1993	54.27	94.72	53.78	27.38	44.55	27.97

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1994	59.33	104.25	59.05	24.64	39.26	25.59
1995	64.86	115.25	64.87	23.38	37.38	24.49
1996	70.39	126.23	70.15	23.67	38.05	24.80
1997	76.80	138.79	76.24	24.92	40.35	26.06
1998	84.25	151.57	82.99	27.79	44.64	28.92
1999	91.46	166.27	89.61	30.74	49.62	31.99
2000	100.93	181.63	97.31	34.01	53.93	35.06
2001	110.77	198.15	107.31	37.00	58.60	38.43
2002	122.11	216.97	118.37	41.01	65.08	42.60
2003	134.96	236.72	131.20	44.28	69.41	46.30
2004	151.03	262.19	145.44	47.31	74.13	48.97
2005	171.34	292.24	161.71	52.50	81.49	53.28
2006	192.73	327.58	183.65	57.95	89.82	59.49
2007	217.51	372.12	206.64	62.23	97.79	63.70
2008	247.10	422.05	231.12	65.98	105.42	65.91
2009	300.25	495.81	259.53	80.01	125.32	73.77
2010	374.59	607.26	290.02	96.11	149.28	79.56

Chapter 10 Human Capital for Shanxi

10.1 Total human capital

Table SX-1.1 gives the results of nominal and real total human capital and real physical capital for Shanxi.

Table SX-1.1 Real physical capital, Nominal and Real Human Capital for Shanxi

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	645		645		43
1986	736		697		48
1987	845		743		54
1988	978		710		58
1989	1133		690		60
1990	1323		790		63
1991	1506		858		67
1992	1724		915		71
1993	1976		914		76
1994	2249		829		81
1995	2552		804		86
1996	2877		840		91
1997	3213		909		99
1998	3579		1027		110
1999	4004		1151		121
2000	4519	4558	1247	1256	134
2001	5509	5570	1517	1533	148
2002	6470	6547	1809	1829	165
2003	7686	7803	2104	2134	187

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	8858	9006	2326	2364	216
2005	9972	10118	2560	2596	254
2006	11536	11717	2902	2946	300
2007	13172	13404	3166	3220	355
2008	14819	15079	3322	3381	414
2009	16858	17171	3799	3870	499
2010	19182	19562	4196	4278	598

10.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table SX-2.1 presents human capital per capita for Shanxi by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 22.08 times from 26,950 Yuan to 621,940 Yuan. Real human capital per capita increases 4.05 times from 26,950 Yuan to 136,050 Yuan.

Figure SX-2.1 reports the results of human capital per capita by gender for Shanxi.[4] The real human capital per capita of male is similar to that of female for Shanxi from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[4] All the discussion below is based on five-education category.

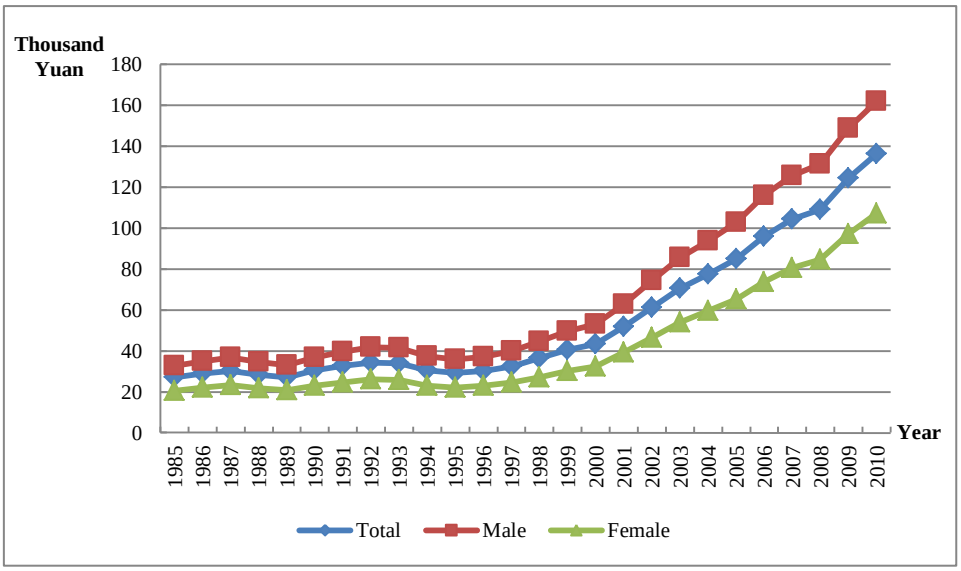


Figure SX-2.1 Human Capital Per Capita by Gender for Shanxi

Table SX-2.1 reports the results of human capital per capita by region for Shanxi. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 59,670 Yuan to 1,002,950 Yuan, the per capita rural human capital increases from 16,420 Yuan to 256,760 Yuan. The real human capital per capita for urban increases from 59,670 Yuan to 218,050 Yuan, the per capita rural human capital increases from 16,420 Yuan to 57,440 Yuan.

Table SX-2.1 Nominal and Real Human Capital Per Capita by Region for Shanxi

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	26.95	59.67	16.42	26.95	59.67	16.42
1986	30.45	65.57	18.49	28.81	61.63	17.64
1987	34.48	72.38	20.84	30.31	62.70	18.66
1988	39.12	80.89	23.32	28.40	57.39	17.44
1989	44.47	90.55	26.15	27.10	55.23	15.91

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1990	50.86	102.37	29.46	30.35	61.52	17.40
1991	57.12	113.59	32.89	32.52	64.28	18.88
1992	64.64	127.57	36.76	34.30	66.17	20.17
1993	73.30	143.40	41.19	33.88	64.06	20.06
1994	82.56	159.94	46.01	30.45	56.76	18.01
1995	92.79	178.21	51.28	29.25	54.19	17.13
1996	103.70	198.39	56.32	30.27	55.70	17.53
1997	114.78	217.46	61.91	32.48	59.22	18.71
1998	126.67	238.07	67.77	36.32	65.69	20.79
1999	140.43	262.13	74.34	40.36	72.04	23.16
2000	156.37	292.51	81.68	43.15	76.78	24.70
2001	187.46	350.80	91.58	51.62	92.54	27.59
2002	218.42	402.40	102.84	61.04	108.54	31.20
2003	257.66	470.35	115.05	70.51	124.87	34.05
2004	295.17	528.09	129.12	77.49	135.33	36.26
2005	330.85	579.07	144.02	84.92	145.92	39.00
2006	380.66	655.97	162.07	95.73	162.37	42.81
2007	433.14	732.33	182.48	104.11	173.96	45.61
2008	486.23	805.89	203.61	109.00	178.91	47.25
2009	551.82	900.40	228.50	124.35	201.82	52.55
2010	621.94	1002.95	256.76	136.05	218.05	57.44

Figure SX-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

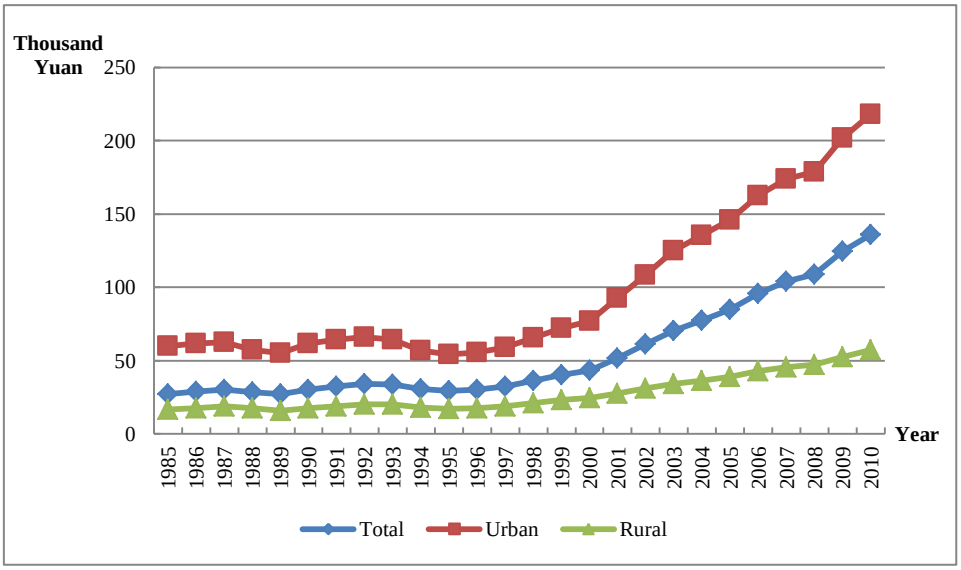


Figure SX-2.2 Real Human Capital Per Capita by Region for Shanxi

10.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

10.3.1 Total labor force human capital

The total labor force human capital for Shanxi is reported in Table SX-3.1. From 1985 to 2010, the nominal and real labor force human capital for Shanxi show differential increases. Nominal labor force human capital increases 26.37 times, from 299 billion Yuan to 8,185 billion Yuan. Real labor force human capital increases almost 5.01 times, from 299 billion Yuan to 1,796 billion Yuan.

Table SX-3.1 Nominal and Real Labor Force Human Capital for Shanxi

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	299		299	
1986	352		333	
1987	415		365	
1988	489		356	
1989	571		348	
1990	672		401	
1991	763		435	
1992	857		456	
1993	961		446	
1994	1077		399	
1995	1211		384	
1996	1345		395	
1997	1496		426	
1998	1672		483	
1999	1869		541	
2000	2105	2091	586	582
2001	2344	2315	653	645
2002	2629	2606	744	737
2003	2996	2983	831	827
2004	3377	3385	897	899
2005	3864	3878	1001	1004
2006	4405	4421	1117	1121
2007	4999	5020	1209	1214
2008	5774	5806	1302	1308
2009	6803	6845	1538	1547
2010	8185	8243	1796	1808

10.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables SX-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Shanxi show differential increases. Nominal average labor force human capital increases more than 16.55 times, from 21,640 Yuan to 379,730 Yuan. Real average labor force human capital increases more than 2.85 times, from 21,640 Yuan to 83,320 Yuan.

Table SX-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 41,910 Yuan to 569,630 Yuan in urban, and increases from 14,380 Yuan to 218,300 Yuan in rural. The real human capital increases from 41,910 Yuan to 123,840 Yuan in urban, and increases from 14,380 Yuan to 48,840 Yuan in rural.

Table SX-3.2 Nominal and Real Average Labor Force Human Capital by Region for Shanxi

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	21.64	41.91	14.38	21.64	41.91	14.38
1986	24.96	47.29	16.18	23.63	44.45	15.43
1987	28.09	51.96	18.33	24.72	45.01	16.41
1988	31.77	58.00	20.66	23.10	41.15	15.45
1989	35.93	64.93	23.18	21.89	39.61	14.10
1990	41.05	73.60	26.05	24.49	44.23	15.39
1991	45.84	81.18	29.23	26.10	45.94	16.78
1992	50.65	88.85	32.66	26.95	46.09	17.92
1993	56.33	97.96	36.44	26.16	43.76	17.75

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1994	62.52	107.90	40.45	23.18	38.29	15.83
1995	69.59	119.32	44.77	22.05	36.28	14.96
1996	76.31	130.16	48.82	22.41	36.55	15.20
1997	83.92	142.40	53.23	23.90	38.78	16.09
1998	92.30	155.49	58.06	26.63	42.90	17.81
1999	101.01	168.93	63.00	29.24	46.42	19.63
2000	110.28	183.74	68.78	30.71	48.23	20.80
2001	123.40	203.83	76.91	34.37	53.77	23.17
2002	137.92	226.42	86.06	39.03	61.07	26.11
2003	155.66	253.04	96.55	43.15	67.18	28.58
2004	174.37	279.60	107.97	46.30	71.65	30.32
2005	197.26	314.64	120.46	51.08	79.28	32.62
2006	222.58	350.71	135.77	56.45	86.81	35.87
2007	251.17	389.45	152.05	60.76	92.51	38.00
2008	285.44	435.98	170.49	64.34	96.79	39.56
2009	328.94	496.77	192.89	74.36	111.35	44.36
2010	379.73	569.63	218.30	83.32	123.84	48.84

Chapter 11 Human Capital for Inner Mongolia

11.1 Total human capital

Table NMG-1.1 gives the results of nominal and real total human capital and real physical capital for Inner Mongolia.

Table NMG-1.1 Real physical capital, Nominal and Real Human Capital for Inner Mongolia

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1021		1021		25
1986	1161		1104		28
1987	1318		1165		30
1988	1497		1138		34
1989	1677		1099		37
1990	1902		1218		40
1991	2109		1289		44
1992	2338		1336		51
1993	2621		1313		59
1994	2919		1187		67
1995	3255		1126		75
1996	3678		1180		82
1997	4172		1279		91
1998	4675		1441		100
1999	5186		1597		110
2000	5865	5923	1781	1797	121
2001	6911	7024	2080	2112	134
2002	7756	7894	2287	2327	155
2003	8495	8629	2456	2494	194

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	9629	9810	2707	2756	250
2005	10764	10975	2956	3014	332
2006	12729	13011	3444	3519	429
2007	14884	15229	3854	3943	549
2008	17177	17593	4212	4316	694
2009	19625	20124	4826	4947	891
2010	22762	23357	5430	5572	1113

11.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table NMG-2.1 presents human capital per capita for Inner Mongolia by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 18.19 times from 55,750 Yuan to 1,069,870 Yuan. Real human capital per capita increases 3.58 times from 55,750 Yuan to 255,220 Yuan.

Figure NMG-2.1 reports the results of human capital per capita by gender for Inner Mongolia. [5]The real human capital per capita of male is similar to that of female for Inner Mongolia from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[5] All the discussion below is based on five-education category.

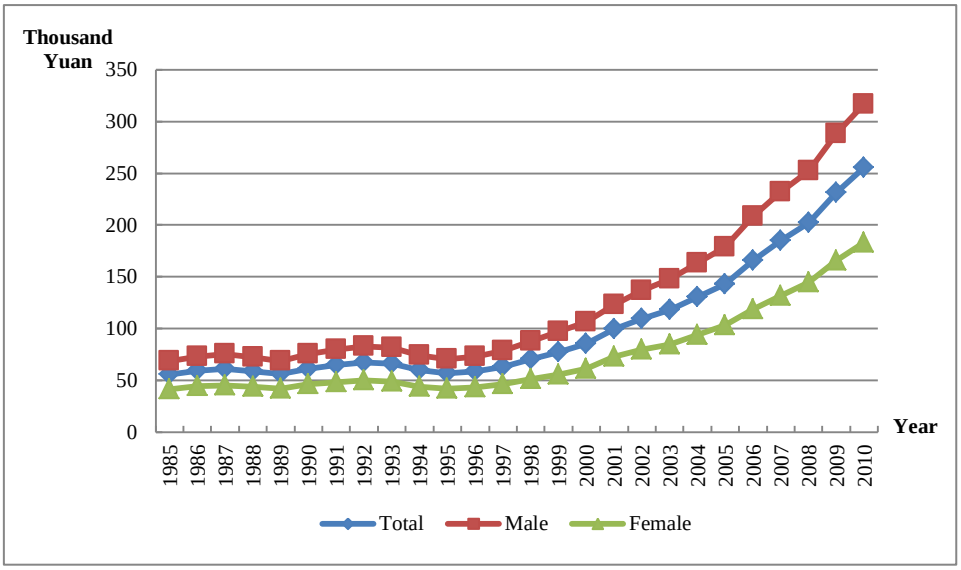


Figure NMG-2.1 Human Capital Per Capita by Gender for Inner Mongolia

Table NMG-2.1 reports the results of human capital per capita by region for Inner Mongolia. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 101,560 Yuan to 1,648,010 Yuan, the per capita rural human capital increases from 30,930 Yuan to 329,270 Yuan. The real human capital per capita for urban increases from 101,560 Yuan to 392,410 Yuan, the per capita rural human capital increases from 30,930 Yuan to 79,530 Yuan.

Table NMG-2.1 Nominal and Real Human Capital Per Capita by Region for Inner Mongolia

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	55.75	101.56	30.93	55.75	101.56	30.93
1986	62.45	113.00	34.36	59.39	107.11	32.88
1987	68.88	123.51	37.92	60.88	107.90	34.23
1988	77.27	138.63	42.36	58.73	103.51	33.25
1989	85.67	153.63	46.87	56.14	100.01	31.10

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1990	95.89	172.65	51.94	61.41	110.40	33.33
1991	106.19	190.51	57.50	64.89	114.93	36.00
1992	117.67	211.18	63.29	67.22	117.20	38.14
1993	131.92	237.60	69.99	66.11	114.97	37.49
1994	147.02	265.44	77.13	59.77	103.33	34.06
1995	163.96	297.10	84.90	56.74	98.76	31.77
1996	183.23	330.15	91.70	58.80	102.09	31.86
1997	205.53	369.06	98.92	63.01	109.11	32.96
1998	228.07	406.22	106.44	70.32	120.94	35.75
1999	251.18	442.65	114.39	77.34	131.39	38.77
2000	279.84	490.17	123.64	84.97	143.63	41.40
2001	329.89	582.76	134.94	99.29	169.74	44.96
2002	370.93	650.99	146.62	109.38	188.11	46.35
2003	407.24	705.76	159.59	117.73	200.92	48.75
2004	463.44	798.92	175.00	130.27	221.90	51.44
2005	520.38	889.61	192.06	142.93	242.24	54.66
2006	612.85	1026.28	214.48	165.82	275.87	59.84
2007	714.36	1170.61	238.60	184.99	301.69	63.28
2008	823.57	1319.71	263.83	201.97	322.69	65.82
2009	940.47	1471.83	295.47	231.28	360.97	73.87
2010	1069.87	1648.01	329.27	255.22	392.41	79.53

Figure NMG-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

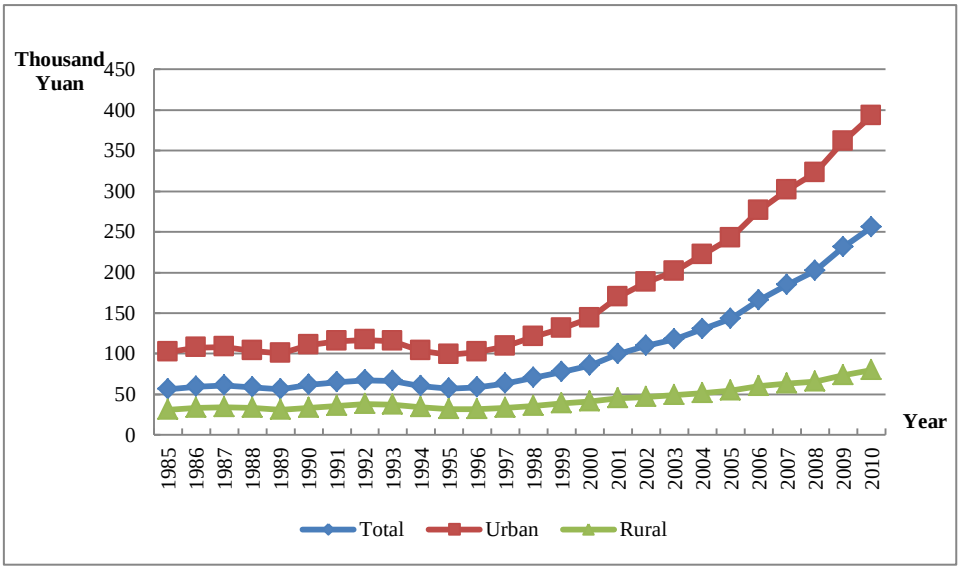


Figure NMG-2.2 Real Human Capital Per Capita by Region for Inner Mongolia

11.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

11.3.1 Total labor force human capital

The total labor force human capital for Inner Mongolia is reported in Table NMG-3.1. From 1985 to 2010, the nominal and real labor force human capital for Inner Mongolia show differential increases. Nominal labor force human capital increases 22.25 times, from 394 billion Yuan to 9,159 billion Yuan. Real labor force human capital increases almost 4.55 times, from 394 billion Yuan to 2,187 billion Yuan.

Table NMG-3.1 Nominal and Real Labor Force Human Capital for Inner Mongolia

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	394		394	
1986	473		449	
1987	567		500	
1988	641		487	
1989	718		471	
1990	813		521	
1991	912		558	
1992	1008		577	
1993	1114		561	
1994	1228		502	
1995	1356		472	
1996	1520		491	
1997	1710		528	
1998	1947		605	
1999	2200		683	
2000	2506	2477	768	759
2001	2767	2741	842	834
2002	3039	3020	904	898
2003	3380	3372	983	981
2004	3722	3742	1052	1057
2005	4135	4163	1140	1148
2006	4782	4819	1299	1308
2007	5516	5561	1432	1444
2008	6391	6453	1570	1586
2009	7583	7663	1868	1887
2010	9159	9268	2187	2213

11.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table NMG-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Inner Mongolia show differential increases. Nominal average labor force human capital increases more than 14.03 times, from 38,270 Yuan to 575,040 Yuan. Real average labor force human capital increases more than 2.59 times, from 38,270 Yuan to 137,320 Yuan.

Table NMG-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 63,350 Yuan to 850,270 Yuan in urban, and increases from 21,870 Yuan to 249,640 Yuan in rural. The real human capital increases from 63,350 Yuan to 202,460 Yuan in urban, and increases from 21,870 Yuan to 60,300 Yuan in rural.

Table NMG-3.2 Nominal and Real Average Labor Force Human Capital by Region for Inner Mongolia

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	38.27	63.35	21.87	38.27	63.35	21.87
1986	44.44	73.08	24.56	42.25	69.27	23.50
1987	50.04	81.79	27.43	44.18	71.45	24.76
1988	54.96	89.03	31.06	41.73	66.47	24.38
1989	59.94	96.77	35.03	39.28	62.99	23.25
1990	65.96	106.57	39.46	42.23	68.15	25.32
1991	72.50	117.01	43.64	44.34	70.59	27.32
1992	78.95	127.17	47.97	45.21	70.58	28.91
1993	86.48	139.30	52.86	43.52	67.40	28.31

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1994	94.81	152.65	57.94	38.76	59.42	25.59
1995	103.82	167.08	63.61	36.14	55.54	23.80
1996	114.02	182.65	68.95	36.85	56.48	23.96
1997	125.37	200.85	74.78	38.74	59.38	24.91
1998	139.04	222.25	81.04	43.21	66.17	27.22
1999	153.61	245.03	87.13	47.71	72.73	29.53
2000	169.76	270.67	93.83	52.00	79.31	31.42
2001	186.72	297.13	102.21	56.81	86.54	34.06
2002	203.93	324.21	110.98	60.63	93.68	35.08
2003	224.90	357.24	120.66	65.42	101.70	36.85
2004	247.91	393.72	130.61	70.04	109.35	38.40
2005	275.15	436.15	141.56	75.88	118.76	40.29
2006	316.47	493.85	160.01	85.93	132.75	44.64
2007	363.27	559.10	179.57	94.31	144.09	47.62
2008	417.22	631.41	200.51	102.49	154.39	50.03
2009	490.95	733.30	224.34	120.91	179.84	56.08
2010	575.04	850.27	249.64	137.32	202.46	60.30

Chapter 12 Human Capital for Liaoning

12.1 Total human capital

Table LN-1.1 gives the results of nominal and real total human capital and real physical capital for Liaoning.

Table LN-1.1 Real physical capital, Nominal and Real Human Capital for Liaoning

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1681		1681		77
1986	1872		1759		86
1987	2120		1837		97
1988	2355		1726		109
1989	2596		1611		119
1990	2880		1728		129
1991	3176		1810		140
1992	3504		1883		152
1993	3906		1833		170
1994	4328		1635		188
1995	4785		1556		204
1996	5319		1602		219
1997	5909		1719		233
1998	6464		1886		249
1999	7175		2116		265
2000	8024	8128	2361	2387	286
2001	8931	9039	2621	2648	309
2002	9993	10115	2955	2987	336
2003	11183	11306	3233	3265	373

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	12532	12668	3484	3518	431
2005	13767	13980	3763	3817	503
2006	15636	15789	4219	4254	594
2007	18026	18215	4616	4662	705
2008	20629	20869	5042	5096	895
2009	23544	23817	5746	5806	1046
2010	26635	27270	6305	6449	1228

12.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table LN-2.1 presents human capital per capita for Liaoning by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 13.84 times from 50,540 Yuan to 749,890 Yuan. Real human capital per capita increases 2.51 times from 50,540 Yuan to 177,510 Yuan.

Figure LN-2.1 reports the results of human capital per capita by gender for Liaoning. [6]The real human capital per capita of male is similar to that of female for Liaoning from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[6] All the discussion below is based on five-education category.

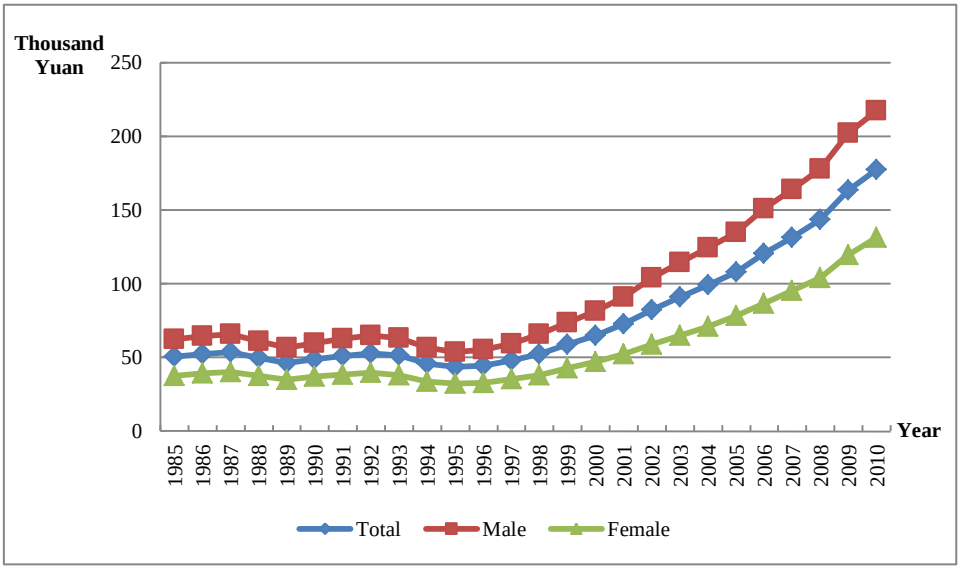


Figure LN-2.1 Human Capital Per Capita by Gender for Liaoning

Table LN-2.1 reports the results of human capital per capita by region for Liaoning. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 61,930 Yuan to 994,580 Yuan, the per capita rural human capital increases from 34,580 Yuan to 346,870 Yuan. The real human capital per capita for urban increases from 61,930 Yuan to 230,010 Yuan, the per capita rural human capital increases from 34,580 Yuan to 91,020 Yuan.

Table LN-2.1 Nominal and Real Human Capital Per Capita by Region for Liaoning

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	50.54	61.93	34.58	50.54	61.93	34.58
1986	55.75	69.16	38.14	52.41	64.63	36.33
1987	61.80	77.38	42.23	53.55	65.87	38.08
1988	68.03	85.99	46.91	49.84	61.20	36.50
1989	74.38	95.15	51.44	46.15	57.78	33.33

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1990	81.54	105.68	56.33	48.94	62.24	35.06
1991	89.53	115.90	62.03	51.02	64.40	37.05
1992	98.40	127.98	67.53	52.88	65.78	39.43
1993	109.45	143.17	74.32	51.35	63.06	39.13
1994	121.08	159.18	81.34	45.73	55.60	35.42
1995	133.58	176.35	89.09	43.45	53.05	33.45
1996	148.10	196.59	96.35	44.61	54.66	33.87
1997	164.49	219.64	104.00	47.84	58.84	35.81
1998	179.92	240.52	111.50	52.50	64.56	38.89
1999	199.77	268.74	119.63	58.92	73.08	42.45
2000	221.23	298.31	129.04	65.08	81.12	45.93
2001	247.44	331.88	142.30	72.61	90.34	50.55
2002	278.75	373.52	155.41	82.43	102.81	55.93
2003	314.43	420.92	169.76	90.91	114.48	58.92
2004	356.38	475.70	186.79	99.06	125.86	60.98
2005	394.75	523.50	205.30	107.89	137.40	64.45
2006	446.54	591.10	229.34	120.48	153.46	70.86
2007	513.58	681.67	254.08	131.51	169.19	73.37
2008	586.69	781.12	279.49	143.39	185.70	76.50
2009	670.24	892.21	312.17	163.57	212.11	85.19
2010	749.89	994.58	346.87	177.51	230.01	91.02

Figure LN-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

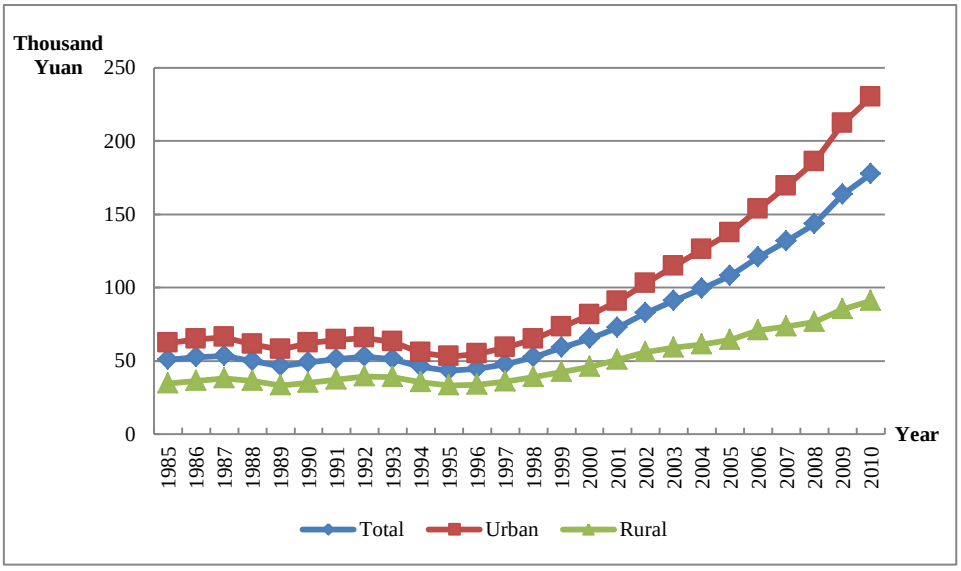


Figure LN-2.2 Real Human Capital Per Capita by Region for Liaoning

12.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

12.3.1 Total labor force human capital

The total labor force human capital for Liaoning is reported in Table LN-3.1. From 1985 to 2010, the nominal and real labor force human capital for Liaoning show differential increases. Nominal labor force human capital increases 16.48 times, from 799 billion Yuan to 13,964 billion Yuan. Real labor force human capital increases almost 3.15 times, from 799 billion Yuan to 3,315 billion Yuan.

Table LN-3.1 Nominal and Real Labor Force Human Capital for Liaoning

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	799		799	
1986	914		859	
1987	1067		923	
1988	1202		878	
1989	1335		827	
1990	1499		898	
1991	1661		945	
1992	1821		977	
1993	2004		939	
1994	2200		831	
1995	2423		790	
1996	2692		812	
1997	3016		880	
1998	3411		997	
1999	3781		1117	
2000	4181	4145	1233	1223
2001	4572	4539	1345	1335
2002	5024	4994	1493	1484
2003	5563	5538	1620	1611
2004	6056	6041	1695	1690
2005	6619	6670	1819	1831
2006	7676	7655	2081	2075
2007	8824	8800	2271	2264
2008	10274	10245	2523	2515
2009	12087	12048	2961	2950
2010	13964	14242	3315	3379

12.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables LN-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Liaoning show differential increases. Nominal average labor force human capital increases more than 11.97 times, from 38,710 Yuan to 502,230 Yuan. Real average labor force human capital increases more than 2.08 times, from 38,710 Yuan to 119,230 Yuan.

Table LN-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 45,740 Yuan to 644,020 Yuan in urban, and increases from 26,720 Yuan to 265,890 Yuan in rural. The real human capital increases from 45,740 Yuan to 148,940 Yuan in urban, and increases from 26,720 Yuan to 69,770 Yuan in rural.

Table LN-3.2 Nominal and Real Average Labor Force Human Capital by Region for Liaoning

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	38.71	45.74	26.72	38.71	45.74	26.72
1986	43.20	51.59	29.79	40.57	48.22	28.37
1987	48.44	58.49	33.18	41.90	49.78	29.92
1988	53.28	65.01	36.67	38.93	46.27	28.53
1989	58.05	71.62	40.33	35.96	43.49	26.13
1990	63.54	79.24	44.46	38.09	46.67	27.67
1991	69.37	86.59	48.72	39.47	48.11	29.10
1992	75.47	94.11	53.17	40.48	48.37	31.05
1993	82.26	102.86	58.18	38.54	45.30	30.63

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1994	89.41	111.91	63.47	33.77	39.09	27.64
1995	97.34	122.01	69.48	31.72	36.71	26.08
1996	107.20	135.02	74.93	32.36	37.54	26.34
1997	118.33	150.06	80.85	34.53	40.20	27.83
1998	131.17	167.07	87.08	38.35	44.84	30.38
1999	143.67	183.87	92.79	42.46	50.00	32.93
2000	156.56	201.01	98.67	46.17	54.66	35.12
2001	172.52	220.56	107.36	50.75	60.04	38.14
2002	189.32	241.53	117.14	56.27	66.48	42.16
2003	208.94	265.64	128.44	60.83	72.25	44.57
2004	229.69	290.56	140.10	64.28	76.87	45.74
2005	252.31	318.00	152.58	69.34	83.47	47.90
2006	290.04	366.88	171.59	78.63	95.25	53.02
2007	331.63	421.88	191.50	85.34	104.71	55.30
2008	381.99	489.08	212.88	93.79	116.27	58.27
2009	445.05	572.78	238.14	109.01	136.17	64.99
2010	502.23	644.02	265.89	119.23	148.94	69.77

Chapter 13 Human Capital for Jilin

13.1 Total human capital

Table JL-1.1 gives the results of nominal and real total human capital and real physical capital for Jilin.

Table JL-1.1 Real physical capital, Nominal and Real Human Capital for Jilin

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1022		1022		31
1986	1151		1088		35
1987	1291		1140		39
1988	1452		1068		44
1989	1623		1014		46
1990	1844		1094		50
1991	2053		1144		53
1992	2289		1185		58
1993	2580		1194		64
1994	2895		1104		71
1995	3199		1057		79
1996	3560		1097		87
1997	4008		1187		93
1998	4352		1298		101
1999	4877		1480		109
2000	5510	5599	1691	1717	119
2001	6145	6258	1861	1894	131
2002	6870	7013	2090	2131	145
2003	7860	8061	2358	2416	163

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2004	8849	9089	2552	2618	187
2005	9743	9993	2767	2835	225
2006	10985	11278	3074	3153	285
2007	12430	12799	3318	3413	370
2008	13876	14312	3521	3628	488
2009	15685	16211	3974	4104	615
2010	17622	18241	4312	4460	770

13.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table JL-2.1 presents human capital per capita for Jilin by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 15.08 times from 47,620 Yuan to 765,720 Yuan. Real human capital per capita increases 2.93 times from 47,620 Yuan to 187,380 Yuan.

Figure JL-2.1 reports the results of human capital per capita by gender for Jilin. [7]The real human capital per capita of male is similar to that of female for Jilin from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[7] All the discussion below is based on five-education category.

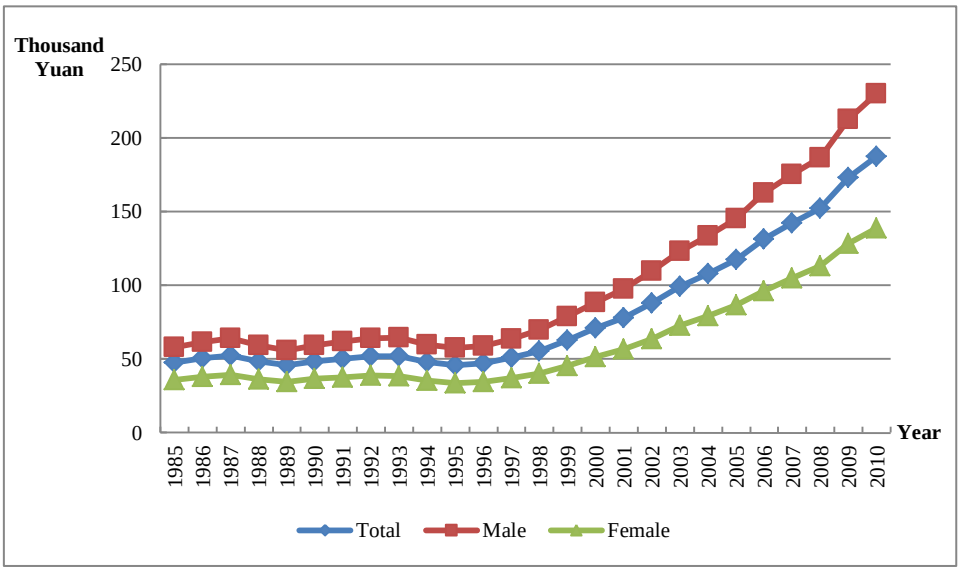


Figure JL-2.1 Human Capital Per Capita by Gender for Jilin

Table JL-2.1 reports the results of human capital per capita by region for Jilin. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 79,000 Yuan to 1,208,590 Yuan, the per capita rural human capital increases from 26,380 Yuan to 270,750 Yuan. The real human capital per capita for urban increases from 79,000 Yuan to 290,580 Yuan, the per capita rural human capital increases from 26,380 Yuan to 72,010 Yuan.

Table JL-2.1 Nominal and Real Human Capital Per Capita by Region for Jilin

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	47.62	79.00	26.38	47.62	79.00	26.38
1986	53.30	88.37	29.34	50.42	83.37	27.92
1987	59.32	98.12	32.61	52.40	85.71	29.47
1988	65.88	108.56	36.06	48.46	77.98	27.83
1989	72.94	119.80	39.81	45.58	73.62	25.75

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1990	81.63	133.78	43.91	48.44	79.12	26.25
1991	90.29	146.47	48.47	50.31	80.89	27.54
1992	100.09	161.23	53.21	51.81	81.46	29.10
1993	112.25	180.40	58.60	51.94	80.52	29.46
1994	125.66	201.03	64.53	47.90	72.83	27.70
1995	138.24	219.66	70.72	45.69	69.14	26.26
1996	152.82	242.50	76.19	47.08	70.87	26.74
1997	171.48	272.66	82.12	50.79	76.84	27.79
1998	185.35	292.06	88.22	55.28	82.89	30.16
1999	206.86	325.89	95.05	62.76	94.47	32.96
2000	230.52	362.59	102.87	70.75	106.93	35.81
2001	257.42	404.34	112.99	77.97	117.48	39.14
2002	288.42	452.78	124.00	87.74	132.62	42.82
2003	330.72	521.58	136.38	99.23	151.10	46.40
2004	373.58	589.03	150.41	107.72	164.71	48.69
2005	413.45	649.79	165.32	117.41	179.20	52.52
2006	468.62	736.69	182.42	131.14	200.75	56.82
2007	533.17	839.39	201.12	142.30	219.10	59.04
2008	599.14	943.36	220.85	152.04	234.29	61.57
2009	683.33	1077.22	245.22	173.13	267.80	67.89
2010	765.72	1208.59	270.75	187.38	290.58	72.01

Figure JL-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

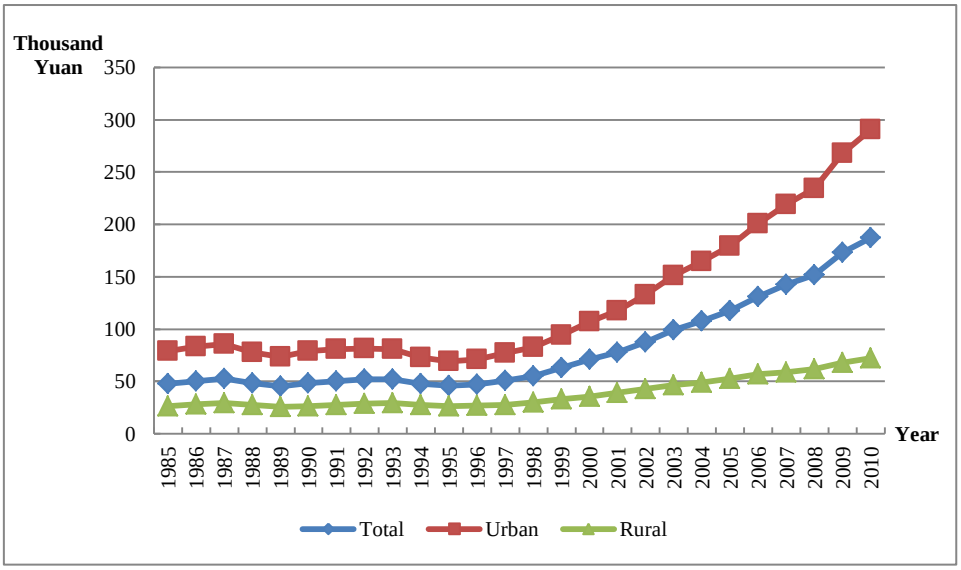


Figure JL-2.2 Real Human Capital Per Capita by Region for Jilin

13.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

13.3.1 Total labor force human capital

The total labor force human capital for Jilin is reported in Table JL-3.1. From 1985 to 2010, the nominal and real labor force human capital for Jilin show differential increases. Nominal labor force human capital increases 17.50 times, from 432 billion Yuan to 7,995 billion Yuan. Real labor force human capital increases almost 3.56 times, from 432 billion Yuan to 1,972 billion Yuan.

Table JL-3.1 Nominal and Real Labor Force Human Capital for Jilin

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	432		432	
1986	494		467	
1987	570		504	
1988	663		488	
1989	763		477	
1990	885		525	
1991	994		554	
1992	1104		573	
1993	1228		571	
1994	1365		524	
1995	1523		506	
1996	1684		523	
1997	1866		558	
1998	2092		630	
1999	2337		715	
2000	2652	2622	821	812
2001	2938	2920	898	893
2002	3231	3229	993	992
2003	3578	3604	1087	1094
2004	3971	3995	1159	1165
2005	4428	4460	1273	1281
2006	4941	4982	1400	1410
2007	5438	5487	1468	1480
2008	6051	6109	1552	1566
2009	6881	6953	1761	1778
2010	7995	8099	1972	1996

13.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables JL-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Jilin show differential increases. Nominal average labor force human capital increases more than 11.95 times, from 34,560 Yuan to 447,410 Yuan. Real average labor force human capital increases more than 2.19 times, from 34,560 Yuan to 110,380 Yuan.

Table JL-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 51,060 Yuan to 658,190 Yuan in urban, and increases from 21,930 Yuan to 225,040 Yuan in rural. The real human capital increases from 51,060 Yuan to 158,250 Yuan in urban, and increases from 21,930 Yuan to 59,850 Yuan in rural.

Table JL-3.2 Nominal and Real Average Labor Force Human Capital by Region for Jilin

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	34.56	51.06	21.93	34.56	51.06	21.93
1986	38.77	57.53	24.48	36.69	54.28	23.29
1987	43.75	65.32	27.30	38.68	57.06	24.67
1988	49.02	73.00	30.23	36.12	52.44	23.33
1989	54.62	81.26	33.36	34.17	49.93	21.58
1990	61.37	91.20	36.85	36.43	53.94	22.03
1991	67.34	99.17	40.50	37.54	54.76	23.01
1992	73.25	107.00	44.35	38.00	54.06	24.26
1993	80.10	116.43	48.71	37.22	51.97	24.48

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1994	87.83	126.94	53.27	33.71	45.99	22.86
1995	96.35	138.52	58.15	32.05	43.60	21.59
1996	104.94	150.66	62.60	32.57	44.03	21.97
1997	114.56	164.72	67.49	34.25	46.42	22.84
1998	125.75	181.21	72.76	37.86	51.43	24.88
1999	138.40	199.56	78.11	42.35	57.85	27.08
2000	153.08	221.54	84.07	47.37	65.33	29.27
2001	168.64	243.77	92.46	51.56	70.83	32.03
2002	184.26	266.16	101.84	56.63	77.96	35.17
2003	202.47	292.73	112.70	61.52	84.81	38.35
2004	224.45	324.94	124.51	65.53	90.86	40.31
2005	249.90	363.14	137.38	71.82	100.15	43.65
2006	278.41	404.97	152.65	78.86	110.36	47.55
2007	308.15	448.38	168.02	83.20	117.04	49.32
2008	343.50	500.36	184.76	88.10	124.27	51.51
2009	390.48	570.94	204.36	99.93	141.94	56.58
2010	447.41	658.19	225.04	110.38	158.25	59.85

Chapter 14 Human Capital for Heilongjiang

14.1 Total human capital

Table HLJ-1.1 gives the results of nominal and real total human capital and real physical capital for Heilongjiang.

Table HLJ-1.1 Real physical capital, Nominal and Real Human Capital for Heilongjiang

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	996		996		55
1986	1120		1049		62
1987	1265		1096		69
1988	1432		1057		75
1989	1610		1036		80
1990	1819		1104		84
1991	2021		1149		89
1992	2244		1181		95
1993	2498		1148		101
1994	2767		1044		109
1995	3064		996		120
1996	3354		1020		133
1997	3679		1072		145
1998	4037		1170		162
1999	4445		1330		176
2000	4963	4986	1511	1517	191
2001	5541	5577	1675	1684	209
2002	6195	6246	1882	1895	228

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2003	7013	7121	2105	2135	249
2004	7775	7937	2239	2283	274
2005	8743	8886	2483	2520	303
2006	9870	10011	2743	2779	342
2007	11218	11378	2952	2991	392
2008	12672	12878	3149	3198	452
2009	14013	14242	3473	3526	541
2010	16268	16558	3872	3939	626

14.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HLJ-2.1 presents human capital per capita for Heilongjiang by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.73 times from 31,800 Yuan to 500,280 Yuan. Real human capital per capita increases 2.74 times from 31,800 Yuan to 119,070 Yuan.

Figure HLJ-2.1 reports the results of human capital per capita by gender for Heilongjiang. [1] The real human capital per capita of male is similar to that of female for Heilongjiang from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap

[1] All the discussion below is based on five-education category.

appears to be expanding, especially from 1997.

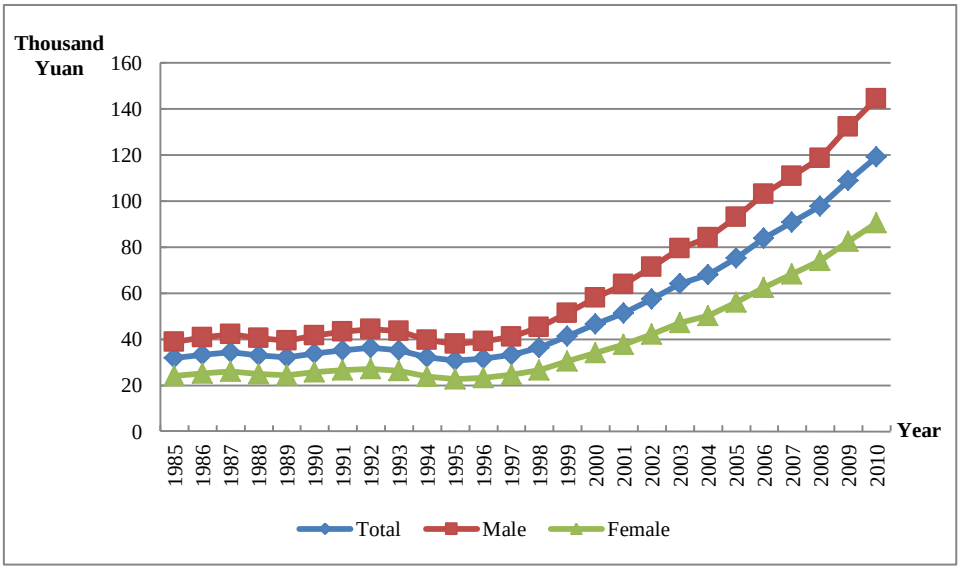


Figure HLJ-2.1 Human Capital Per Capita by Gender for Heilongjiang

Table HLJ-2.1 reports the results of human capital per capita by region for Heilongjiang. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 35,740 Yuan to 656,550 Yuan, the per capita rural human capital increases from 28,790 Yuan to 307,280 Yuan. The real human capital per capita for urban increases from 35,740 Yuan to 152,770 Yuan, the per capita rural human capital increases from 28,790 Yuan to 77,460 Yuan.

Table HLJ-2.1 Nominal and Real Human Capital Per Capita by Region for Heilongjiang

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	31.80	35.74	28.79	31.80	35.74	28.79
1986	35.56	40.12	31.96	33.31	37.85	29.73
1987	39.72	45.05	35.42	34.41	38.74	30.91
1988	44.57	50.57	39.52	32.88	36.67	29.70

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1989	49.80	56.69	43.78	32.05	35.87	28.71
1990	55.79	63.69	48.63	33.88	38.16	30.00
1991	61.96	70.79	53.86	35.21	39.20	31.56
1992	68.76	78.81	59.40	36.20	39.79	32.87
1993	76.63	88.35	65.61	35.22	38.72	31.93
1994	85.03	98.53	72.19	32.10	35.39	28.96
1995	94.36	110.01	79.34	30.68	34.09	27.39
1996	103.54	122.15	85.36	31.48	35.18	27.85
1997	113.79	135.68	92.12	33.16	37.39	28.96
1998	125.06	150.42	99.58	36.26	41.09	31.40
1999	137.96	168.09	107.22	41.28	47.33	35.11
2000	152.96	189.13	115.77	46.58	53.96	39.00
2001	169.80	211.28	126.72	51.33	59.80	42.52
2002	188.94	237.06	138.34	57.39	67.57	46.65
2003	213.09	271.06	151.51	63.95	76.65	50.49
2004	236.03	301.44	165.89	67.97	82.36	52.54
2005	265.07	340.57	183.69	75.27	92.31	56.88
2006	301.10	389.06	203.98	83.67	103.59	61.68
2007	344.68	450.03	225.40	90.70	113.68	64.66
2008	392.99	517.55	248.69	97.66	124.52	66.55
2009	439.02	575.80	277.24	108.81	138.81	73.31
2010	500.28	656.55	307.28	119.07	152.77	77.46

Figure HLJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural

expands rapidly.

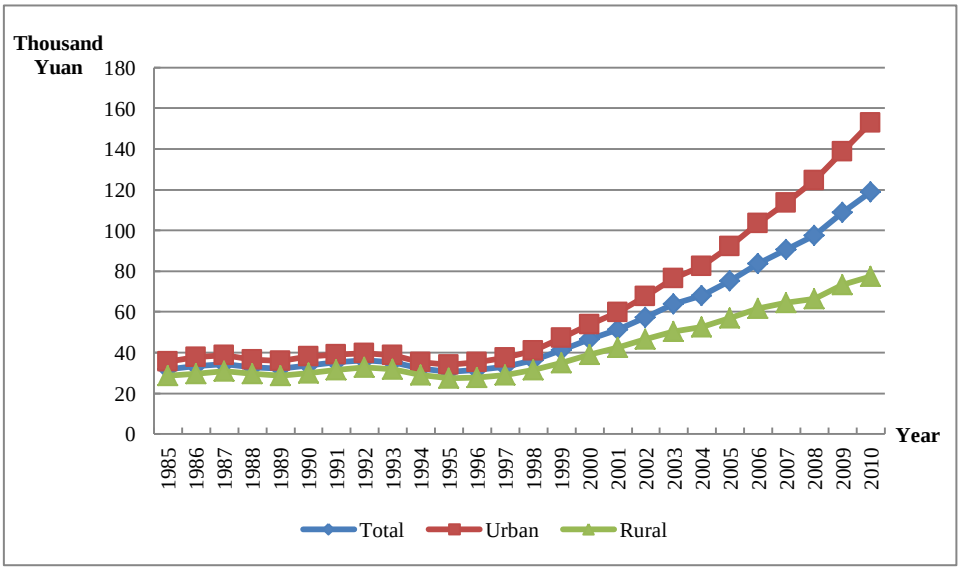


Figure HLJ-2.2 Real Human Capital Per Capita by Region for Heilongjiang

14.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

14.3.1 Total labor force human capital

The total labor force human capital for Heilongjiang is reported in Table HLJ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Heilongjiang show differential increases. Nominal labor force human capital increases 18.87 times, from 464 billion Yuan to 9,219 billion Yuan. Real labor force human capital increases almost 3.74 times, from 464 billion Yuan to 2,200 billion Yuan.

Table HLJ-3.1 Nominal and Real Labor Force Human Capital for Heilongjiang

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	464		464	
1986	531		498	
1987	613		530	
1988	719		529	
1989	839		539	
1990	974		590	
1991	1105		626	
1992	1241		650	
1993	1394		638	
1994	1553		583	
1995	1736		562	
1996	1916		580	
1997	2094		608	
1998	2313		668	
1999	2536		756	
2000	2838	2796	862	850
2001	3158	3124	954	944
2002	3521	3498	1071	1064
2003	3939	3930	1187	1184
2004	4352	4359	1259	1261
2005	4851	4859	1383	1385
2006	5401	5416	1509	1513
2007	5982	6002	1586	1590
2008	6714	6747	1680	1687
2009	7712	7762	1920	1932
2010	9219	9307	2200	2221

14.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables HLJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Heilongjiang show differential increases. Nominal average labor force human capital increases more than 13.12 times, from 25,840 Yuan to 364,920 Yuan. Real average labor force human capital increases more than 2.37 times, from 25,840 Yuan to 87,100 Yuan.

Table HLJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 29,450 Yuan to 466,600 Yuan in urban, and increases from 22,570 Yuan to 246,350 Yuan in rural. The real human capital increases from 29,450 Yuan to 108,570 Yuan in urban, and increases from 22,570 Yuan to 62,100 Yuan in rural.

Table HLJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Heilongjiang

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	25.84	29.45	22.57	25.84	29.45	22.57
1986	29.00	33.22	25.03	27.19	31.34	23.29
1987	32.62	37.60	27.79	28.23	32.34	24.25
1988	36.85	42.53	31.14	27.14	30.84	23.40
1989	41.54	48.12	34.70	26.68	30.45	22.76
1990	46.84	54.35	38.69	28.39	32.56	23.87
1991	52.03	60.51	42.89	29.48	33.51	25.13
1992	57.49	67.02	47.22	30.12	33.83	26.13

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
1993	63.74	74.55	52.13	29.15	32.67	25.37
1994	70.41	82.52	57.34	26.45	29.64	23.00
1995	77.82	91.52	63.05	25.19	28.36	21.77
1996	84.93	100.40	68.15	25.71	28.92	22.24
1997	92.65	110.32	73.32	26.89	30.41	23.05
1998	101.37	121.42	79.06	29.26	33.17	24.93
1999	110.09	132.61	84.84	32.83	37.34	27.78
2000	120.04	145.89	91.40	36.48	41.62	30.79
2001	131.66	160.19	100.32	39.77	45.34	33.66
2002	144.18	175.76	110.11	43.86	50.10	37.13
2003	158.59	193.64	121.15	47.80	54.76	40.37
2004	174.21	212.90	132.93	50.39	58.17	42.11
2005	191.97	234.88	146.01	54.75	63.66	45.21
2006	215.52	264.21	163.27	60.23	70.35	49.37
2007	240.99	296.70	181.54	63.89	74.95	52.08
2008	272.42	338.83	200.81	68.17	81.52	53.74
2009	314.44	397.70	223.00	78.29	95.87	58.97
2010	364.92	466.60	246.35	87.10	108.57	62.10

Chapter 15 Human Capital for Shanghai

15.1 Total human capital

Table SH-1.1 gives the results of nominal and real total human capital and real physical capital for Shanghai.

Table SH-1.1 Real physical capital, Nominal and Real Human Capital for Shanghai

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1393		1393		57
1986	1582		1489		66
1987	1815		1580		76
1988	2056		1490		88
1989	2329		1456		97
1990	2630		1547		106
1991	2931		1560		115
1992	3260		1577		127
1993	3633		1462		144
1994	4034		1311		171
1995	4623		1265		207
1996	5261		1319		250
1997	6083		1483		292
1998	7041		1717		333
1999	8318		1998		371
2000	9930	10330	2327	2421	412
2001	11230	11680	2632	2737	455
2002	12780	13270	2979	3095	504

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
2003	15000	16070	3496	3743	553
2004	17570	19320	4005	4403	613
2005	20610	22410	4652	5058	681
2006	25030	28390	5581	6331	765
2007	31250	36630	6754	7916	862
2008	38330	45220	7829	9236	952
2009	46430	55050	9522	11290	1066
2010	55550	66110	11050	13150	1169

15.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 21.28 times from 133,270 Yuan to 2,969,520 Yuan. Real human capital per capita increases 3.43 times from 133,270 Yuan to 590,700 Yuan.

Figure SH-2.1 reports the results of human capital per capita by gender for Shanghai. [2] The real human capital per capita of male is similar to that of female for Shanghai from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[2] All the discussion below is based on five-education category.

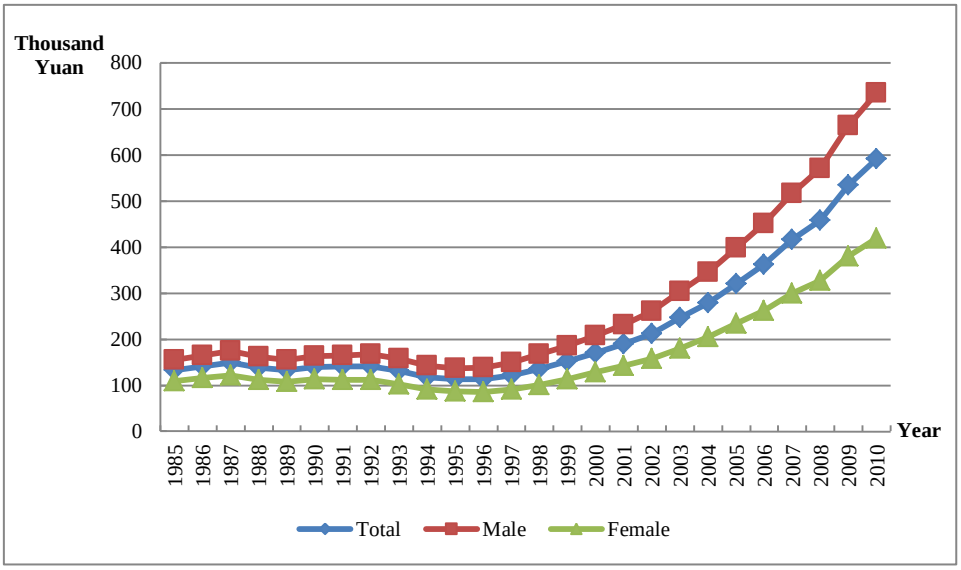


Figure SH-2.1 Human Capital Per Capita by Gender for Shanghai

15.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

15.3.1 Total labor force human capital

The total labor force human capital for Shanghai is reported in Table SH-3.1. From 1985 to 2010, the nominal and real labor force human capital for Shanghai show differential increases. Nominal labor force human capital increases 43.05 times, from 654 billion Yuan to 28,810 billion Yuan. Real labor force human capital increases almost 7.76 times, from 654 billion Yuan to 5,729 billion Yuan.

TableSH-3.1 Nominal and Real Labor Force Human Capital for Shanghai

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	654		654	
1986	732		689	
1987	822		716	
1988	932		675	
1989	1053		658	
1990	1188		699	
1991	1297		690	
1992	1413		684	
1993	1551		624	
1994	1703		553	
1995	1876		514	
1996	2217		556	
1997	2670		651	
1998	3234		789	
1999	3827		919	
2000	4571	4395	1071	1030
2001	5241	5104	1228	1196
2002	6034	5970	1407	1392
2003	7066	7117	1646	1658
2004	8144	8360	1857	1906
2005	9527	9809	2150	2214
2006	11970	12390	2669	2763
2007	15100	15710	3264	3395
2008	18990	19840	3878	4053
2009	23490	24660	4818	5058
2010	28810	30390	5729	6045

15.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. From 1985 to 2010, the nominal and real average labor force human capital for Shanghai show differential increases. Nominal average labor force human capital increases more than 20.31 times, from 86,350 Yuan to 1,840,470 Yuan. Real average labor force human capital increases more than 3.24 times, from 86,350 Yuan to 365,990 Yuan.

Chapter 16 Human Capital for Jiangsu

16.1 Total human capital

Table JS-1.1 gives the results of nominal and real total human capital and real physical capital for Jiangsu.

Table JS-1.1 Real physical capital, Nominal and Real Human Capital for Jiangsu

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	3704		3704		79
1986	4181		3898		98
1987	4599		3947		118
1988	5395		3801		142
1989	6136		3674		161
1990	7109		4127		181
1991	8036		4482		206
1992	8998		4724		247
1993	10154		4515		297
1994	11451		4124		346
1995	12868		3997		401
1996	14741		4175		463
1997	17186		4739		531
1998	19403		5336		610
1999	21849		6050		691
2000	25015	25783	6893	7088	781
2001	28530	29395	7771	7991	880
2002	32772	33508	8974	9160	992
2003	37258	39267	10061	10577	1154

2004	42330	45396	10960	11722	1343
2005	47774	49758	12087	12569	1584
2006	55600	57440	13821	14268	1855
2007	65870	68110	15682	16196	2152
2008	75900	78530	17145	17712	2496
2009	87950	91060	19922	20610	2925
2010	100730	105000	22001	22905	3419

16.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table JS-2.1 presents human capital per capita for Jiangsu by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 21.94 times from 68,680 Yuan to 1,575,750 Yuan. Real human capital per capita increases 4.01 times from 68,680 Yuan to 344,170 Yuan.

Figure JS-2.1 reports the results of human capital per capita by gender for Jiangsu. [3] The real human capital per capita of male is similar to that of female for Jiangsu from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[3] All the discussion below is based on five-education category.

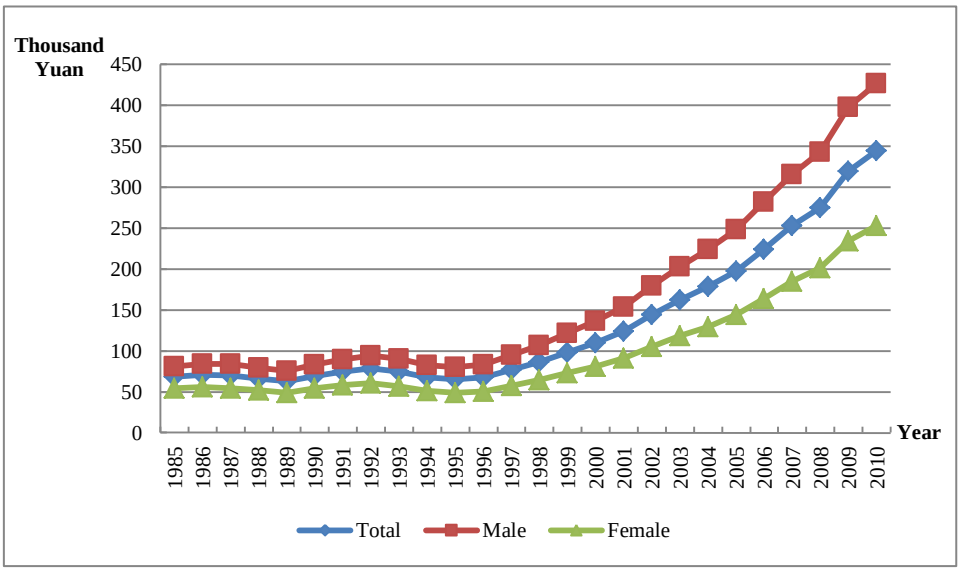


Figure JS-2.1 Human Capital Per Capita by Gender for Jiangsu

Table JS-2.1 reports the results of human capital per capita by region for Jiangsu. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 113,830 Yuan to 2,122,640 Yuan, the per capita rural human capital increases from 57,720 Yuan to 685,440 Yuan. The real human capital per capita for urban increases from 113,830 Yuan to 453,890 Yuan, the per capita rural human capital increases from 57,720 Yuan to 165,370 Yuan.

Table JS-2.1 Nominal and Real Human Capital Per Capita by Region for Jiangsu

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	68.68	113.83	57.72	68.68	113.83	57.72
1986	76.05	126.29	63.68	70.90	118.69	59.13
1987	81.58	133.65	68.57	70.01	113.68	59.12
1988	93.96	156.62	77.73	66.20	108.66	55.20

1989	105.07	176.77	86.06	62.91	105.72	51.57
1990	119.72	202.93	96.74	69.50	117.37	56.28
1991	134.12	229.91	105.75	74.80	123.47	60.38
1992	148.99	254.81	115.38	78.22	125.78	63.10
1993	167.01	284.34	127.45	74.26	118.24	59.42
1994	187.54	319.82	140.09	67.54	106.14	53.67
1995	209.54	355.16	154.69	65.09	101.44	51.40
1996	239.27	401.01	167.27	67.77	103.37	51.90
1997	278.67	466.81	181.39	76.84	118.79	55.17
1998	314.33	513.69	196.01	86.44	130.71	60.22
1999	354.71	564.75	211.86	98.22	145.75	65.88
2000	399.12	620.76	232.55	109.98	160.20	72.24
2001	455.01	693.69	254.00	123.93	178.85	77.74
2002	525.64	786.14	277.19	143.94	205.98	84.67
2003	600.98	880.37	304.10	162.29	228.61	91.79
2004	688.01	984.98	336.12	178.14	246.65	96.99
2005	780.54	1090.30	374.66	197.48	267.67	105.58
2006	901.93	1247.42	425.41	224.20	301.42	117.88
2007	1062.20	1462.06	479.32	252.88	339.37	126.73
2008	1216.99	1666.08	535.94	274.91	367.61	134.19
2009	1409.58	1911.75	610.79	319.29	423.51	153.70
2010	1575.75	2122.64	685.44	344.17	453.89	165.37

Figure JS-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

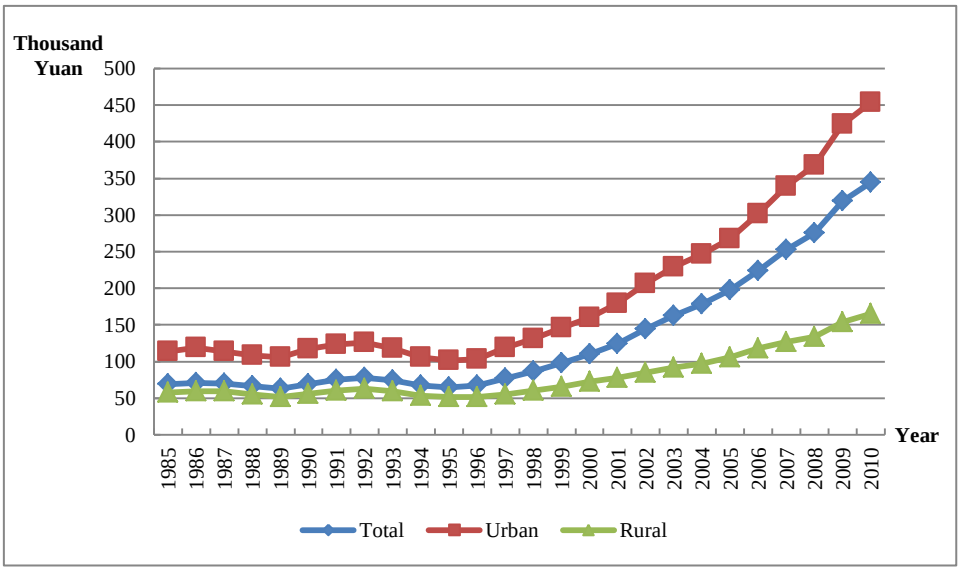


Figure JS-2.2 Real Human Capital Per Capita by Region for Jiangsu

16.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

16.3.1 Total labor force human capital

The total labor force human capital for Jiangsu is reported in Table JS-3.1. From 1985 to 2010, the nominal and real labor force human capital for Jiangsu show differential increases. Nominal labor force human capital increases 22.43 times, from 1,611 billion Yuan to 37,753 billion Yuan. Real labor force human capital increases almost 4.16 times, from 1,611 billion Yuan to 8,312 billion Yuan.

Table JS-3.1 Nominal and Real Labor Force Human Capital for Jiangsu

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	1611		1611	
1986	1872		1745	
1987	2196		1886	
1988	2556		1802	
1989	2897		1736	
1990	3264		1896	
1991	3626		2029	
1992	4016		2123	
1993	4468		2001	
1994	4968		1806	
1995	5532		1734	
1996	6149		1764	
1997	6898		1931	
1998	7676		2147	
1999	8629		2425	
2000	9802	9718	2738	2714
2001	10773	10722	2972	2957
2002	11869	11831	3290	3278
2003	13066	13044	3573	3566
2004	14567	14510	3813	3796
2005	16314	16394	4164	4185
2006	19006	18934	4776	4756
2007	22594	22507	5436	5414
2008	26712	26605	6095	6069
2009	32003	31876	7317	7285
2010	37753	38288	8312	8422

16.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables JS-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Jiangsu show differential increases. Nominal average labor force human capital increases more than 16.74 times, from 45,750 Yuan to 811,490 Yuan. Real average labor force human capital increases more than 2.91 times, from 45,750 Yuan to 178,660 Yuan.

Table JS-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 64,450 Yuan to 1,036,700 Yuan in urban, and increases from 41,140 Yuan to 471,440 Yuan in rural. The real human capital increases from 64,450 Yuan to 221,680 Yuan in urban, and increases from 41,140 Yuan to 113,740 Yuan in rural.

Table JS-3.2 Nominal and Real Average Labor Force Human Capital by Region for Jiangsu

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	45.75	64.45	41.14	45.75	64.45	41.14
1986	51.30	73.10	46.00	47.80	68.70	42.71
1987	57.75	83.16	51.43	49.58	70.73	44.34
1988	64.67	93.10	57.36	45.61	64.59	40.73
1989	71.77	103.85	63.38	43.00	62.11	37.98
1990	80.06	117.07	69.73	46.50	67.71	40.57
1991	87.95	128.17	76.04	49.21	68.83	43.42
1992	96.34	140.29	82.64	50.92	69.25	45.20

1993	106.26	155.56	90.15	47.60	64.69	42.03
1994	117.34	173.31	97.70	42.66	57.52	37.43
1995	129.35	192.67	105.93	40.53	55.03	35.20
1996	144.42	213.31	114.42	41.43	54.99	35.50
1997	161.06	235.07	123.97	45.09	59.82	37.71
1998	177.54	253.03	134.25	49.66	64.39	41.25
1999	197.89	277.30	144.21	55.61	71.56	44.85
2000	218.71	302.15	155.45	61.09	77.98	48.29
2001	244.17	335.31	168.35	67.36	86.45	51.53
2002	272.22	369.50	182.08	75.46	96.81	55.62
2003	301.06	403.78	197.82	82.33	104.85	59.71
2004	337.20	447.53	213.47	88.26	112.06	61.60
2005	377.05	491.88	232.53	96.24	120.76	65.53
2006	438.58	566.84	273.89	110.21	136.97	75.89
2007	519.38	671.99	317.73	124.96	155.98	84.01
2008	605.91	784.61	363.27	138.25	173.12	90.95
2009	717.11	925.08	415.44	163.96	204.93	104.54
2010	811.49	1036.70	471.44	178.66	221.68	113.74

Chapter 17 Human Capital for Zhejiang

17.1 Total human capital

Table ZJ-1.1 gives the results of nominal and real total human capital and real physical capital for Zhejiang.

Table ZJ-1.1 Real physical capital, Nominal and Real Human Capital for Zhejiang

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	2658		2658		12
1986	2985		2811		14
1987	3356		2919		16
1988	3791		2718		19
1989	4187		2535		21
1990	4683		2778		23
1991	5332		3061		25
1992	5962		3205		29
1993	6629		2989		32
1994	7221		2606		37
1995	7983		2468		42
1996	9552		2698		49
1997	11097		3011		58
1998	12528		3372		69
1999	14033		3776		85
2000	15987	16237	4231	4291	106
2001	19353	19678	5107	5184	129
2002	22205	22561	5901	5988	157
2003	25158	25593	6576	6681	184

2004	27916	28475	7044	7175	214
2005	31039	31769	7705	7873	379
2006	37237	38030	9115	9297	552
2007	43262	43922	10162	10304	736
2008	51071	51894	11402	11573	917
2009	60320	61370	13624	13850	1113
2010	69540	71370	15096	15476	1324

17.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table ZJ-2.1 presents human capital per capita for Zhejiang by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 18.97 times from 76,520 Yuan to 1527,920 Yuan. Real human capital per capita increases 3.33 times from 76,520 Yuan to 331,690 Yuan.

Figure ZJ-2.1 reports the results of human capital per capita by gender for Zhejiang. [4] The real human capital per capita of male is similar to that of female for Zhejiang from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[4] All the discussion below is based on five-education category.

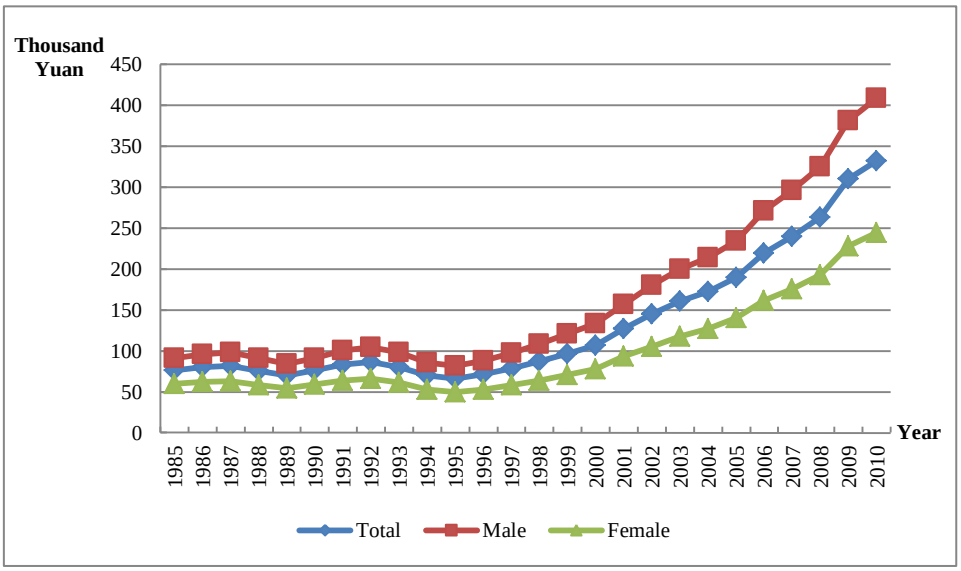


Figure ZJ-2.1 Human Capital Per Capita by Gender for Zhejiang

Table ZJ-2.1 reports the results of human capital per capita by region for Zhejiang. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 107,580 Yuan to 1,986,520 Yuan, the per capita rural human capital increases from 63,660 Yuan to 713,940 Yuan. The real human capital per capita for urban increases from 107,580 Yuan to 416,900 Yuan, the per capita rural human capital increases from 63,660 Yuan to 180,400 Yuan.

Table ZJ-2.1 Nominal and Real Human Capital Per Capita by Region for Zhejiang

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	76.52	107.58	63.66	76.52	107.58	63.66
1986	84.64	118.48	70.01	79.70	111.46	65.98
1987	93.75	129.74	77.58	81.54	110.05	68.72

1988	105.23	147.15	86.41	75.44	101.15	63.90
1989	115.90	162.64	95.04	70.17	95.72	58.76
1990	128.09	180.09	104.67	75.99	103.81	63.44
1991	144.70	207.05	116.15	83.07	113.02	69.36
1992	160.74	233.08	127.11	86.41	116.51	72.43
1993	178.21	260.67	139.30	80.35	107.33	67.61
1994	194.06	284.16	150.90	70.03	93.83	58.64
1995	214.50	314.78	165.94	66.32	88.84	55.40
1996	251.73	371.48	183.39	71.10	95.48	57.22
1997	288.61	421.08	200.48	78.31	103.97	61.26
1998	322.84	462.45	215.49	86.89	113.62	66.31
1999	359.81	506.41	229.90	96.82	125.04	71.83
2000	403.19	557.05	250.19	106.71	136.32	77.32
2001	479.87	665.20	284.06	126.63	163.44	87.78
2002	544.81	748.97	315.52	144.78	186.26	98.19
2003	614.87	841.25	343.59	160.72	208.16	103.91
2004	683.35	927.59	372.20	172.43	223.28	107.62
2005	763.68	1026.01	408.79	189.57	243.32	116.79
2006	894.71	1196.96	461.23	219.01	280.77	130.47
2007	1018.02	1348.31	516.49	239.13	304.40	139.95
2008	1178.23	1553.71	574.79	263.05	334.70	147.90
2009	1369.95	1795.36	645.17	309.42	391.86	169.06
2010	1527.92	1986.52	713.94	331.69	416.90	180.40

Figure ZJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

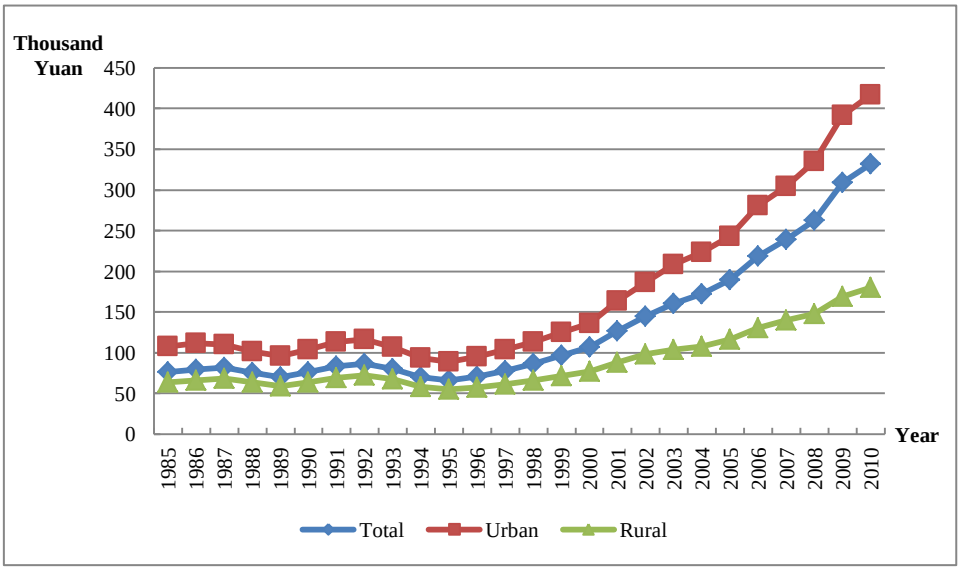


Figure ZJ-2.2 Real Human Capital Per Capita by Region for Zhejiang

17.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

17.3.1 Total labor force human capital

The total labor force human capital for Zhejiang is reported in Table ZJ-3.1. From 1985 to 2010, the nominal and real labor force human capital

for Zhejiang show differential increases. Nominal labor force human capital increases 24.27 times, from 1,206 billion Yuan to 30,472 billion Yuan. Real labor force human capital increases almost 4.52 times, from 1,206 billion Yuan to 6,659 billion Yuan.

Table ZJ-3.1 Nominal and Real Labor Force Human Capital for Zhejiang

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	1206		1206	
1986	1375		1295	
1987	1576		1373	
1988	1772		1274	
1989	1991		1208	
1990	2261		1342	
1991	2470		1423	
1992	2685		1453	
1993	2952		1343	
1994	3266		1191	
1995	3645		1138	
1996	3970		1137	
1997	4494		1235	
1998	5303		1442	
1999	6273		1703	
2000	7368	7317	1963	1950
2001	7813	7765	2078	2065
2002	8634	8592	2310	2298
2003	9605	9565	2532	2521
2004	10919	10886	2779	2770
2005	12528	12585	3140	3151

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	15290	15242	3776	3762
2007	18187	18127	4305	4289
2008	21746	21671	4891	4872
2009	26028	25941	5921	5898
2010	30472	30942	6659	6755

17.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables ZJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Zhejiang show differential increases. Nominal average labor force human capital increases more than 15.9 times, from 52,300 Yuan to 883,940 Yuan. Real average labor force human capital increases more than 2.69 times, from 52,300 Yuan to 193,170 Yuan.

Table ZJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 64,650 Yuan to 1,102,440 Yuan in urban, and increases from 47,250 Yuan to 495,670 Yuan in rural. The real human capital increases from 64,650 Yuan to 231,360 Yuan in urban, and increases from 47,250 Yuan to 125,250 Yuan in rural.

Table ZJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Zhejiang

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	52.30	64.65	47.25	52.30	64.65	47.25
1986	58.19	72.24	52.18	54.81	67.96	49.18
1987	65.00	81.01	57.77	56.63	68.72	51.17
1988	72.40	91.19	63.83	52.05	62.69	47.20
1989	80.60	103.07	70.31	48.88	60.66	43.47
1990	89.86	115.81	77.46	53.34	66.76	46.95
1991	98.01	125.89	84.74	56.45	68.72	50.60
1992	106.89	137.54	92.46	57.84	68.75	52.69
1993	116.59	149.38	101.12	53.06	61.51	49.08
1994	126.48	161.91	109.73	46.12	53.46	42.64
1995	137.60	175.85	119.01	42.97	49.63	39.73
1996	153.88	198.90	128.43	44.06	51.12	40.07
1997	175.02	229.11	138.96	48.11	56.57	42.46
1998	200.34	263.33	150.88	54.47	64.70	46.43
1999	226.50	296.03	162.51	61.47	73.09	50.77
2000	250.68	323.77	173.73	66.78	79.23	53.69
2001	279.16	360.44	188.68	74.25	88.56	58.31
2002	313.53	404.88	205.65	83.88	100.69	64.00
2003	345.69	442.42	226.67	91.13	109.47	68.55
2004	380.91	482.44	249.47	96.95	116.12	72.13
2005	415.81	519.38	273.56	104.22	123.17	78.16
2006	496.15	623.89	311.50	122.53	146.35	88.12
2007	579.79	731.44	351.46	137.24	165.13	95.23
2008	677.73	855.84	394.84	152.43	184.37	101.60
2009	792.60	998.40	444.19	180.30	217.91	116.39
2010	883.94	1102.44	495.67	193.17	231.36	125.25

Chapter 18 Human Capital for Anhui

18.1 Total human capital

Table AH-1.1 gives the results of nominal and real total human capital and real physical capital for Anhui.

Table AH-1.1 Real physical capital, Nominal and Real Human Capital for Anhui

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1165		1165		37
1986	1316		1239		43
1987	1493		1291		49
1988	1721		1241		55
1989	1959		1200		60
1990	2255		1345		65
1991	2564		1451		70
1992	2911		1522		75
1993	3314		1506		84
1994	3735		1339		94
1995	4193		1312		107
1996	4705		1338		121
1997	5272		1478		137
1998	5859		1638		152
1999	6383		1823		167
2000	7466	7487	2112	2117	184
2001	8687	8736	2436	2449	203
2002	10012	10081	2832	2850	224
2003	11511	11598	3193	3216	248

2004	13182	13288	3493	3520	285
2005	14957	15068	3907	3936	327
2006	16935	17075	4369	4404	375
2007	19310	19519	4729	4777	435
2008	21609	21858	4984	5039	509
2009	24241	24541	5642	5710	594
2010	27676	28059	6245	6328	696

18.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table AH-2.1 presents human capital per capita for Anhui by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 21.96 times from 24,480 Yuan to 562,170 Yuan. Real human capital per capita increases 5.18 times from 24,480 Yuan to 126,850 Yuan.

Figure AH-2.1 reports the results of human capital per capita by gender for Anhui. [5] The real human capital per capita of male is similar to that of female for Anhui from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[5] All the discussion below is based on five-education category.

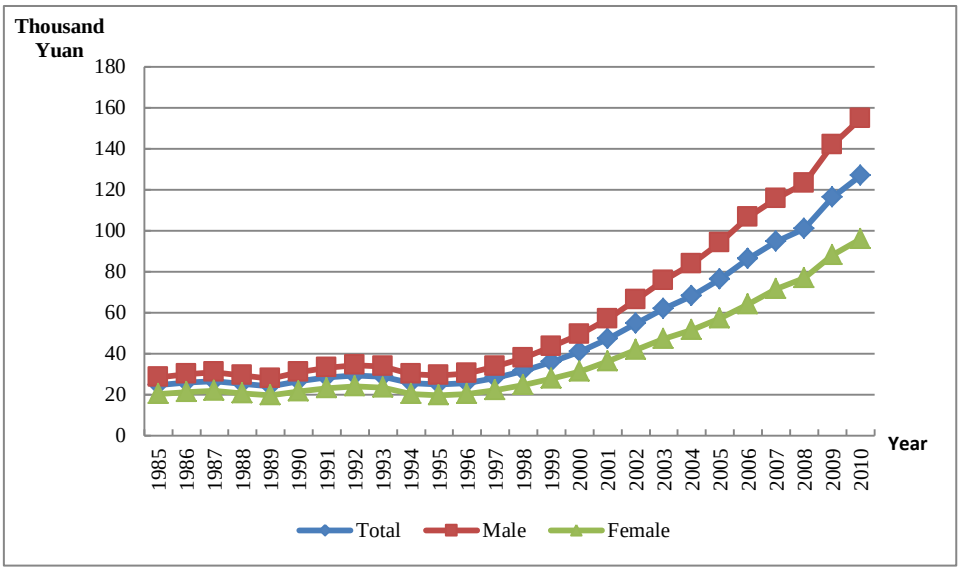


Figure AH-2.1 Real Human Capital Per Capita by Gender for Anhui

Table AH-2.1 reports the results of human capital per capita by region for Anhui. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 54,870 Yuan to 927,640 Yuan, the per capita rural human capital increases from 18,870 Yuan to 273,170 Yuan. The real human capital per capita for urban increases from 54,870 Yuan to 206,600 Yuan, the per capita rural human capital increases from 18,870 Yuan to 63,770 Yuan.

Table AH-2.1 Nominal and Real Human Capital Per Capita by Region for Anhui

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	24.48	54.87	18.87	24.48	54.87	18.87
1986	27.32	60.33	21.05	25.71	57.02	19.77
1987	30.66	66.52	23.57	26.51	57.21	20.44
1988	34.82	75.21	26.57	25.10	53.28	19.34

1989	39.08	83.04	29.88	23.94	50.84	18.31
1990	44.45	94.59	33.54	26.50	56.45	19.99
1991	49.96	105.82	37.70	28.29	58.80	21.59
1992	56.20	118.73	42.25	29.37	60.64	22.40
1993	63.37	134.15	47.41	28.80	59.89	21.78
1994	70.91	149.66	52.88	25.42	52.45	19.24
1995	79.08	167.51	58.64	24.75	50.65	18.76
1996	89.26	187.51	64.00	25.38	51.49	18.67
1997	100.44	207.93	70.02	28.16	56.04	20.28
1998	112.83	229.13	76.48	31.55	61.56	22.17
1999	125.73	256.86	83.42	35.91	70.71	24.68
2000	144.05	284.94	92.38	40.75	77.74	27.19
2001	167.73	322.74	102.28	47.03	88.06	29.72
2002	193.07	361.65	113.12	54.61	99.57	33.30
2003	223.21	404.92	125.08	61.92	109.51	36.21
2004	257.25	451.80	139.02	68.17	117.15	38.40
2005	292.02	493.96	156.03	76.28	126.81	42.29
2006	333.64	558.79	177.32	86.07	141.48	47.64
2007	385.78	646.26	198.72	94.48	155.39	50.75
2008	437.68	730.17	220.08	100.95	165.63	52.82
2009	498.91	826.18	246.00	116.12	189.52	59.38
2010	562.17	927.64	273.17	126.85	206.60	63.77

Figure AH-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

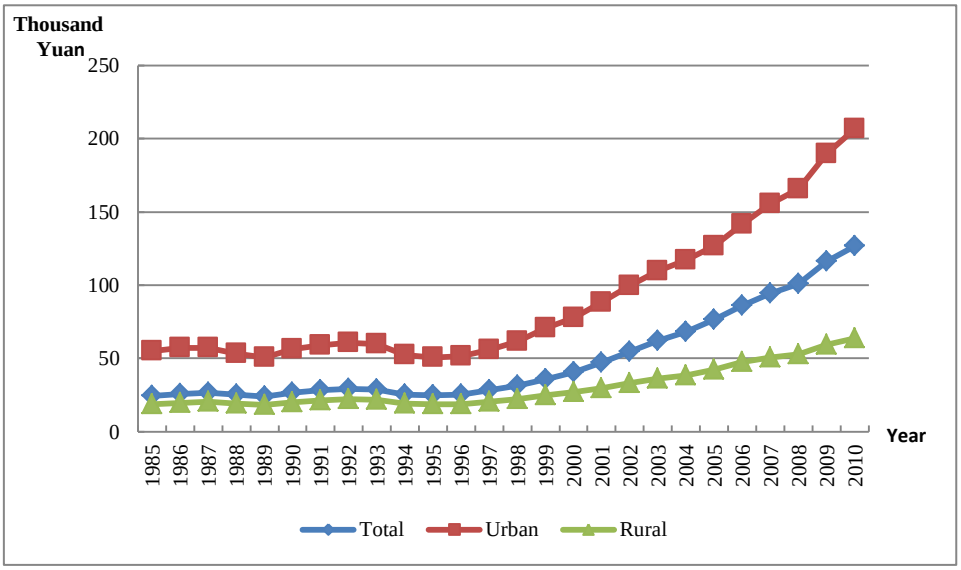


Figure AH-2.2 Real Human Capital Per Capita by Region for Anhui

18.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

18.3.1 Total labor force human capital

The total labor force human capital for Anhui is reported in Table AH-3.1. From 1985 to 2010, the nominal and real labor force human capital

for Anhui show differential increases. Nominal labor force human capital increases 22.55 times, from 492 billion Yuan to 11,587 billion Yuan. Real labor force human capital increases almost 4.34 times, from 492 billion Yuan to 2,625 billion Yuan.

Table AH-3.1 Nominal and Real Labor Force Human Capital for Anhui

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	492		492	
1986	585		550	
1987	694		600	
1988	817		590	
1989	956		586	
1990	1106		659	
1991	1253		711	
1992	1411		739	
1993	1589		724	
1994	1772		637	
1995	1975		621	
1996	2171		621	
1997	2390		675	
1998	2616		737	
1999	2768		797	
2000	3239	3185	923	908
2001	3563	3521	1005	993
2002	4013	3979	1142	1132
2003	4560	4538	1272	1266
2004	5029	5027	1340	1339
2005	5662	5660	1485	1484

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	6517	6522	1689	1689
2007	7598	7608	1870	1872
2008	8732	8748	2024	2027
2009	9884	9912	2311	2317
2010	11587	11643	2625	2637

18.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table AH-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Anhui show differential increases. Nominal average labor force human capital increases more than 18.04 times, from 18,190 Yuan to 346,320 Yuan. Real average labor force human capital increases more than 3.31 times, from 18,190 Yuan to 78,460 Yuan.

Table AH-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 34,170 Yuan to 524,690 Yuan in urban, and increases from 15,470 Yuan to 214,580 Yuan in rural. The real human capital increases from 34,170 Yuan to 116,850 Yuan in urban, and increases from 15,470 Yuan to 50,100 Yuan in rural.

Table AH-3.2 Nominal and Real Average Labor Force Human Capital by Region for Anhui

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	18.19	34.17	15.47	18.19	34.17	15.47
1986	20.60	38.22	17.43	19.38	36.13	16.36
1987	23.51	43.13	19.67	20.34	37.09	17.05
1988	26.81	49.16	22.34	19.35	34.83	16.26
1989	30.42	55.55	25.24	18.64	34.02	15.46
1990	34.59	62.58	28.43	20.63	37.35	16.95
1991	38.58	69.67	31.76	21.88	38.72	18.18
1992	42.91	77.08	35.37	22.48	39.37	18.75
1993	47.81	85.69	39.48	21.77	38.26	18.14
1994	52.84	94.09	43.81	18.99	32.97	15.94
1995	58.38	103.64	48.62	18.35	31.34	15.56
1996	64.61	113.71	53.09	18.47	31.23	15.48
1997	71.50	124.75	57.84	20.20	33.62	16.75
1998	79.03	136.27	62.79	22.27	36.61	18.20
1999	85.67	148.11	67.70	24.67	40.77	20.03
2000	97.19	168.17	73.33	27.69	45.88	21.59
2001	109.62	183.14	79.90	30.92	49.97	23.22
2002	122.93	202.15	87.06	34.98	55.65	25.63
2003	139.98	225.06	95.30	39.04	60.87	27.59
2004	155.86	244.25	103.37	41.52	63.33	28.55
2005	174.18	267.37	112.76	45.69	68.64	30.57
2006	202.99	309.06	131.19	52.60	78.25	35.24
2007	235.30	358.28	150.81	57.92	86.14	38.51
2008	269.15	409.07	170.77	62.38	92.79	40.99
2009	305.27	461.14	192.35	71.37	105.78	46.43
2010	346.32	524.69	214.58	78.46	116.85	50.10

Chapter 19 Human Capital for Fujian

19.1 Total human capital

Table FJ-1.1 gives the results of nominal and real total human capital and real physical capital for Fujian.

Table FJ-1.1 Real physical capital, Nominal and Real Human Capital for Fujian

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1368		1368		25
1986	1563		1475		28
1987	1767		1531		32
1988	2029		1391		35
1989	2317		1336		38
1990	2642		1536		40
1991	3067		1723		43
1992	3589		1899		47
1993	4156		1898		54
1994	4840		1756		64
1995	5475		1716		76
1996	6104		1795		90
1997	6835		1965		106
1998	7655		2198		124
1999	8582		2481		143
2000	9495	9605	2674	2700	162
2001	10662	10778	3031	3060	181
2002	12133	12278	3453	3490	202
2003	13250	13392	3734	3770	225

2004	14807	14984	4002	4046	256
2005	16598	16831	4378	4437	298
2006	17954	18090	4698	4730	348
2007	20435	20602	5072	5109	412
2008	22268	22489	5278	5324	495
2009	24848	25091	5988	6042	591
2010	28527	28825	6656	6720	691

19.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table FJ-2.1 presents human capital per capita for Fujian by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 15.41 times from 54,530 Yuan to 894,920 Yuan. Real human capital per capita increases 2.83 times from 54,530 Yuan to 208,800 Yuan.

Figure FJ-2.1 reports the results of human capital per capita by gender for Fujian. [6] The real human capital per capita of male is similar to that of female for Fujian from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[6] All the discussion below is based on five-education category.

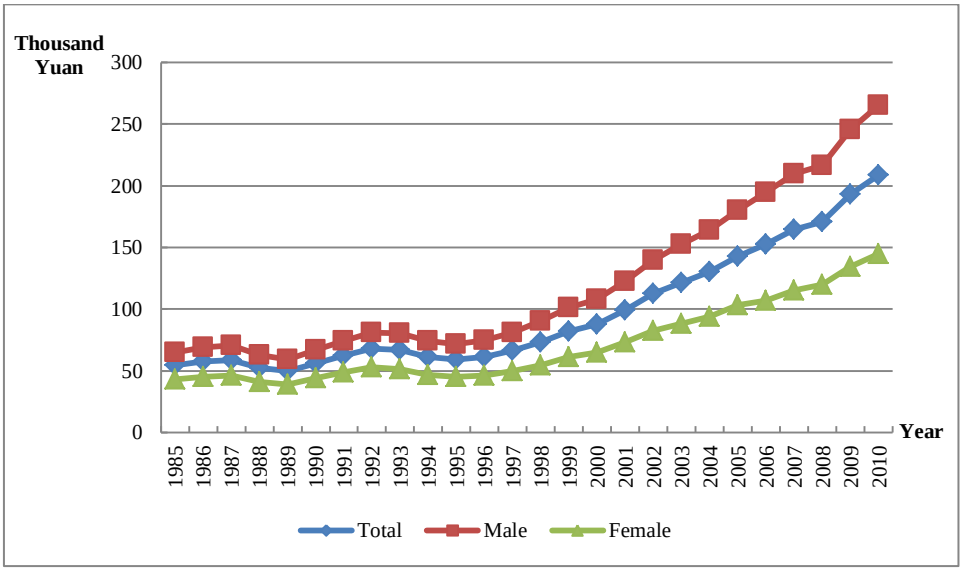


Figure FJ-2.1 Human Capital Per Capita by Gender for Fujian

Table FJ-2.1 reports the results of human capital per capita by region for Fujian. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 100,059Yuan to 1,172,600 Yuan, the per capita rural human capital increases from 42,940 Yuan to 505,380 Yuan. The real human capital per capita for urban increases from 100,110 Yuan to 262,000 Yuan, the per capita rural human capital increases from 42,970Yuan to 134,210Yuan.

Table FJ-2.1 Nominal and Real Human Capital Per Capita by Region for Fujian

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	54.53	100.59	42.94	54.53	100.59	42.94
1986	61.28	113.71	47.93	57.83	106.37	45.48
1987	67.86	124.84	52.82	58.78	105.59	46.45
1988	76.65	141.65	59.44	52.55	94.34	41.48

1989	86.24	159.27	66.83	49.74	89.28	39.22
1990	96.70	179.47	74.53	56.22	100.51	44.37
1991	110.98	202.54	82.78	62.34	108.44	48.12
1992	128.22	231.50	92.04	67.85	114.77	51.39
1993	146.62	258.89	102.35	66.96	109.88	50.05
1994	168.65	293.85	113.60	61.19	99.70	44.26
1995	188.49	319.11	125.02	59.08	93.01	42.58
1996	207.77	343.11	135.57	61.11	93.55	43.81
1997	230.29	372.17	147.80	66.20	99.00	47.15
1998	255.51	404.79	161.35	73.38	107.68	51.73
1999	284.11	444.69	174.79	82.13	119.85	56.49
2000	311.50	477.77	189.82	87.73	124.78	60.56
2001	348.25	526.94	207.60	99.00	140.00	66.70
2002	395.11	594.92	226.07	112.45	159.33	72.78
2003	431.05	634.56	246.68	121.47	168.77	78.63
2004	482.30	700.72	270.80	130.35	179.54	82.75
2005	541.60	777.25	298.20	142.85	195.43	88.65
2006	583.07	808.38	333.94	152.57	201.05	98.97
2007	661.87	901.80	376.63	164.28	213.40	105.91
2008	719.43	966.81	405.44	170.52	218.93	108.99
2009	801.96	1058.79	453.69	193.26	243.91	124.58
2010	894.92	1172.60	505.38	208.80	262.00	134.21

Figure FJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

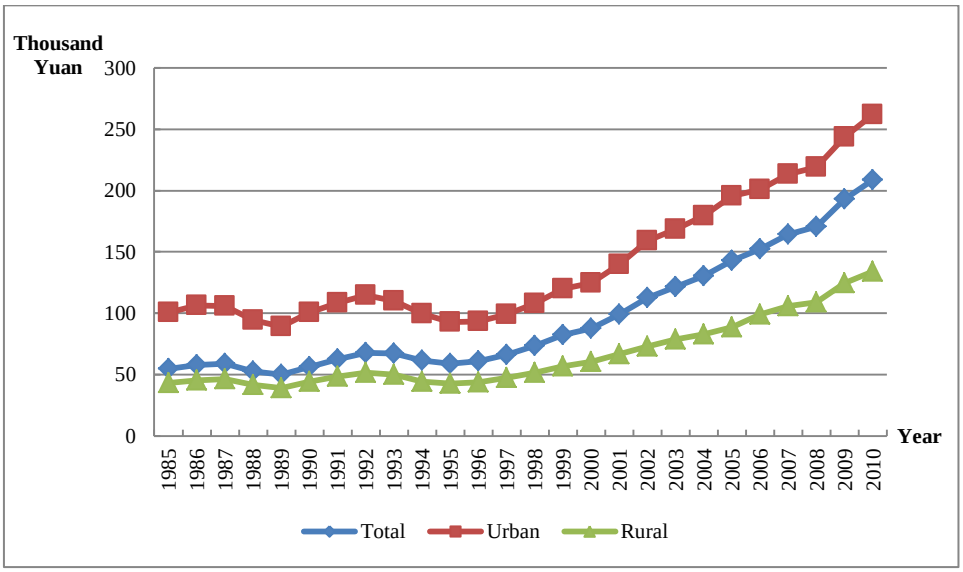


Figure FJ-2.2 Real Human Capital Per Capita by Region for Fujian

19.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

19.3.1 Total labor force human capital

The total labor force human capital for Fujian is reported in Table FJ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Fujian show differential increases. Nominal labor force human capital increases 33.78 times, from 503 billion Yuan to 17,496 billion Yuan. Real labor force human capital increases almost 7.11 times, from 503 billion Yuan to 4,080 billion Yuan.

Table FJ-3.1 Nominal and Real Labor Force Human Capital for Fujian

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	503		503	
1986	581		549	
1987	684		594	
1988	796		547	
1989	916		529	
1990	1053		614	
1991	1220		689	
1992	1400		748	
1993	1612		746	
1994	1815		669	
1995	2056		655	
1996	2330		696	
1997	2655		775	
1998	3078		895	
1999	3552		1038	
2000	4062	4052	1155	1152
2001	4447	4444	1279	1277
2002	4884	4909	1410	1416
2003	5473	5497	1562	1567
2004	6115	6130	1670	1673
2005	6919	6943	1840	1845
2006	8078	8114	2130	2138
2007	9399	9460	2353	2366
2008	10847	10925	2591	2608
2009	13560	13681	3279	3307
2010	17496	17695	4080	4123

19.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table FJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Fujian show differential increases. Nominal average labor force human capital increases more than 18.74 times, from 35,960 Yuan to 709,860 Yuan. Real average labor force human capital increases more than 3.60 times, from 35,960 Yuan to 165,540 Yuan.

Table FJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 56,590 Yuan to 923,670 Yuan in urban, and increases from 30,640 Yuan to 401,240 Yuan in rural. The real human capital increases from 56,590 Yuan to 206,380 Yuan in urban, and increases from 30,640 Yuan to 106,560 Yuan in rural.

Table FJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Fujian

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	35.96	56.59	30.64	35.96	56.59	30.64
1986	40.07	62.76	34.04	37.84	58.71	32.30
1987	45.12	70.48	38.01	39.16	59.61	33.43
1988	51.14	79.37	43.27	35.14	52.86	30.20
1989	57.47	88.63	48.80	33.22	49.68	28.64
1990	64.61	99.35	54.83	37.69	55.64	32.64
1991	73.35	112.01	61.21	41.41	59.97	35.58
1992	82.88	125.82	68.35	44.29	62.37	38.17

1993	93.83	141.25	76.47	43.44	59.95	37.39
1994	104.92	155.73	84.74	38.64	52.84	33.02
1995	117.64	173.65	93.19	37.47	50.62	31.74
1996	130.48	191.95	100.51	38.98	52.34	32.48
1997	145.17	211.91	108.84	42.35	56.37	34.72
1998	161.93	232.98	118.50	47.10	61.97	37.99
1999	179.16	254.12	128.33	52.37	68.49	41.47
2000	197.06	272.36	139.74	56.05	71.13	44.58
2001	215.65	295.74	152.09	62.00	78.57	48.86
2002	235.57	322.73	164.47	67.98	86.43	52.95
2003	261.67	358.97	178.32	74.66	95.47	56.84
2004	291.00	399.03	191.12	79.46	102.24	58.40
2005	325.21	443.72	206.15	86.49	111.57	61.28
2006	373.37	499.44	240.92	98.46	124.22	71.40
2007	429.15	566.35	277.18	107.43	134.02	77.94
2008	491.24	641.14	314.03	117.36	145.19	84.42
2009	589.96	766.86	355.39	142.66	176.66	97.59
2010	709.86	923.67	401.24	165.54	206.38	106.56

Chapter 20 Human Capital for Jiangxi

20.1 Total human capital

Table JX-1.1 gives the results of nominal and real total human capital and real physical capital for Jiangxi.

Table JX-1.1 Real physical capital, Nominal and Real Human Capital for Jiangxi

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1065		1065		35
1986	1211		1133		40
1987	1373		1211		43
1988	1573		1148		44
1989	1789		1098		48
1990	2033		1218		51
1991	2302		1348		54
1992	2607		1455		60
1993	2947		1446		68
1994	3324		1285		76
1995	3708		1224		85
1996	4054		1233		95
1997	4472		1327		107
1998	4956		1454		119
1999	5548		1649		133
2000	6219	6235	1841	1844	147
2001	7113	7134	2105	2110	164
2002	8083	8113	2380	2386	189
2003	8844	8864	2579	2583	222

2004	9964	9991	2801	2807	263
2005	11223	11260	3090	3098	311
2006	12516	12522	3402	3402	366
2007	14284	14289	3690	3688	426
2008	15641	15658	3803	3804	494
2009	17382	17408	4256	4259	586
2010	20094	20138	4768	4777	686

20.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table JX-2.1 presents human capital per capita for Jiangxi by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.78 times from 33,010 Yuan to 520,930 Yuan. Real human capital per capita increases 2.74 times from 33,010 Yuan to 123,610 Yuan.

Figure JX-2.1 reports the results of human capital per capita by gender for Jiangxi. [1] The real human capital per capita of male is similar to that of female for Jiangxi from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

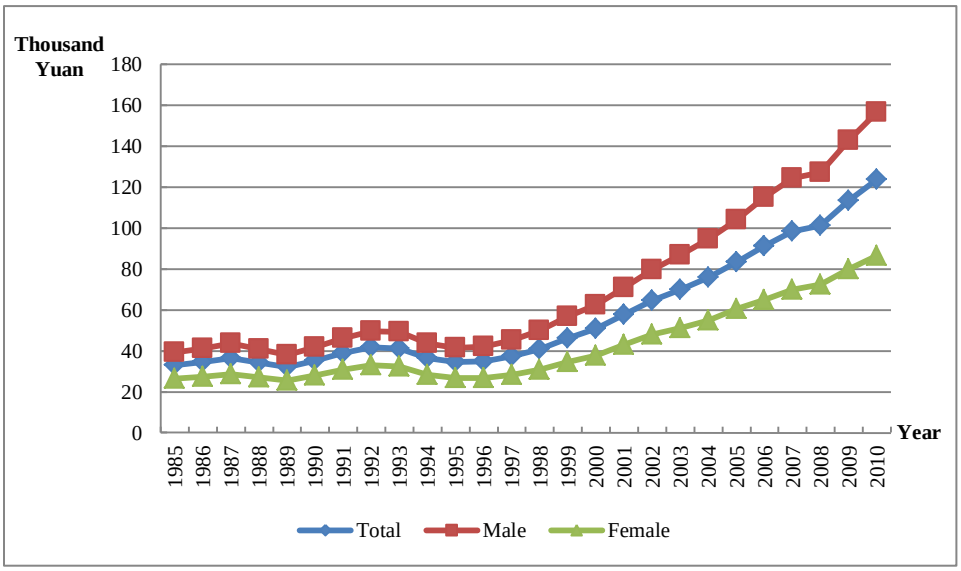


Figure JX-2.1 Human Capital Per Capita by Gender for Jiangxi

Table JX-2.1 reports the results of human capital per capita by region for Jiangxi. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 50,470 Yuan to 694,160 Yuan, the per capita rural human capital increases from 28,720 Yuan to 384,530 Yuan. The real human capital per capita for urban increases from 50,470 Yuan to 155,730 Yuan, the per capita rural human capital increases from 28,720 Yuan to 98,380 Yuan.

Table JX-2.1 Nominal and Real Human Capital Per Capita by Region for Jiangxi

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	33.01	50.47	28.72	33.01	50.47	28.72
1986	36.99	56.80	32.10	34.58	53.59	29.89
1987	41.39	63.43	35.92	36.52	55.46	31.82
1988	46.74	72.40	40.31	34.10	51.17	29.83
1989	52.33	81.40	45.02	32.11	49.09	27.83

1990	58.81	91.98	50.31	35.24	54.65	30.26
1991	66.37	104.30	56.19	38.87	59.36	33.36
1992	74.65	118.07	62.35	41.66	62.51	35.77
1993	84.01	133.09	69.40	41.22	60.85	35.39
1994	94.33	150.24	76.90	36.45	54.13	30.95
1995	104.71	165.86	84.93	34.57	51.12	29.22
1996	114.43	179.50	92.43	34.81	51.17	29.28
1997	125.83	196.87	100.86	37.33	54.49	31.29
1998	139.07	217.99	110.28	40.79	59.74	33.88
1999	155.49	244.82	121.71	46.22	67.70	38.11
2000	171.74	273.01	132.76	50.84	73.94	41.95
2001	194.62	309.73	144.97	57.59	84.06	46.17
2002	219.68	345.15	159.52	64.68	93.49	50.86
2003	239.55	360.94	175.43	69.86	96.89	55.60
2004	269.37	397.34	195.61	75.72	103.25	59.90
2005	302.64	437.95	218.18	83.32	112.13	65.37
2006	335.01	471.57	244.58	91.06	119.65	72.12
2007	381.01	530.48	276.29	98.43	128.93	77.01
2008	416.28	572.48	301.13	101.22	131.38	78.96
2009	462.33	620.84	340.49	113.20	143.34	90.00
2010	520.93	694.16	384.53	123.61	155.73	98.38

Figure JX-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

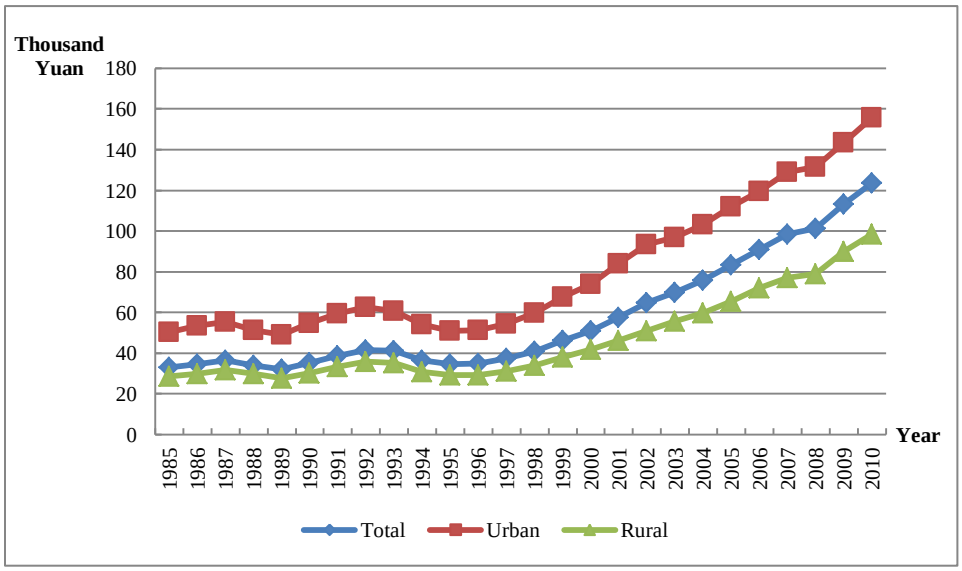


Figure JX-2.2 Real Human Capital Per Capita by Region for Jiangxi

20.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

20.3.1 Total labor force human capital

The total labor force human capital for Jiangxi is reported in Table JX-3.1. From 1985 to 2010, the nominal and real labor force human capital for Jiangxi show differential increases. Nominal labor force human capital increases 24.62 times, from 417 billion Yuan to 10,683 billion Yuan. Real labor force human capital increases almost 5.09 times, from 417 billion Yuan to 2,538 billion Yuan.

Table JX-3.1 Nominal and Real Labor Force Human Capital for Jiangxi

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	417		417	
1986	478		447	
1987	548		484	
1988	642		469	
1989	754		463	
1990	881		528	
1991	1004		589	
1992	1148		644	
1993	1309		648	
1994	1476		576	
1995	1664		555	
1996	1831		562	
1997	2006		601	
1998	2211		655	
1999	2422		728	
2000	2686	2679	806	804
2001	2925	2925	880	880
2002	3196	3195	958	958
2003	3488	3484	1034	1033
2004	3789	3781	1080	1077
2005	4177	4170	1163	1160
2006	4929	4921	1356	1353
2007	5753	5746	1505	1502
2008	6643	6640	1636	1634
2009	8262	8275	2037	2039
2010	10683	10731	2538	2548

20.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table JX-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Jiangxi show differential increases. Nominal average labor force human capital increases more than 15.64 times, from 24,060 Yuan to 400,470 Yuan. Real average labor force human capital increases more than 2.95 times, from 24,060 Yuan to 95,140 Yuan.

Table JX-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 33,240 Yuan to 527,980 Yuan in urban, and increases from 21,750 Yuan to 300,330 Yuan in rural. The real human capital increases from 33,240 Yuan to 118,440 Yuan in urban, and increases from 21,750 Yuan to 76,840 Yuan in rural.

Table JX-3.2 Nominal and Real Average Labor Force Human Capital by Region for Jiangxi

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	24.06	33.24	21.75	24.06	33.24	21.75
1986	26.92	37.14	24.36	25.16	35.04	22.68
1987	30.20	41.70	27.28	26.66	36.46	24.16
1988	34.19	47.06	30.88	24.99	33.26	22.85
1989	38.64	53.19	34.88	23.73	32.08	21.57
1990	43.80	60.60	39.37	26.25	36.01	23.68
1991	48.97	67.19	44.16	28.74	38.24	26.22
1992	54.74	75.03	49.40	30.71	39.72	28.34
1993	61.23	83.99	55.24	30.30	38.40	28.17

1994	67.93	92.79	61.35	26.53	33.43	24.69
1995	75.54	103.51	67.94	25.19	31.90	23.37
1996	82.40	113.60	73.55	25.30	32.39	23.30
1997	89.71	124.17	79.52	26.88	34.37	24.67
1998	97.76	136.21	86.06	28.97	37.33	26.44
1999	106.10	148.67	92.76	31.91	41.11	29.04
2000	115.71	159.44	100.70	34.72	43.18	31.82
2001	126.59	173.20	109.12	38.08	47.01	34.76
2002	138.07	188.33	117.51	41.40	51.01	37.47
2003	151.05	205.52	126.57	44.78	55.17	40.11
2004	165.39	224.44	135.46	47.14	58.32	41.48
2005	181.43	244.39	145.69	50.50	62.57	43.65
2006	211.17	278.03	172.64	58.08	70.55	50.91
2007	243.65	315.97	201.13	63.74	76.79	56.06
2008	279.34	358.14	230.77	68.78	82.19	60.51
2009	331.71	427.05	264.32	81.78	98.60	69.87
2010	400.47	527.98	300.33	95.14	118.44	76.84

Chapter 21 Human Capital for Shandong

21.1 Total human capital

Table SD-1.1 gives the results of nominal and real total human capital and real physical capital for Shandong.

Table SD-1.1 Real physical capital, Nominal and Real Human Capital for Shandong

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	3006		3006		98
1986	3466		3316		111
1987	3934		3478		128
1988	4411		3284		144
1989	4957		3144		158
1990	5720		3511		171
1991	6592		3848		189
1992	7611		4161		209
1993	8755		4238		232
1994	9960		3892		255
1995	11264		3745		282
1996	12458		3763		314
1997	13634		3997		352
1998	15008		4417		395
1999	16515		4878		443
2000	18550	18775	5432	5492	505
2001	21460	21776	6163	6244	571
2002	24762	25194	7145	7260	651
2003	28778	29412	8189	8361	745

2004	32755	33515	8999	9197	868
2005	36091	36905	9765	9972	1028
2006	42507	43531	11373	11634	1216
2007	49150	50390	12612	12915	1413
2008	56140	57630	13699	14051	1629
2009	63470	65190	15479	15889	1924
2010	72030	74020	17068	17530	2249

21.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table SD-2.1 presents human capital per capita for Shandong by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 20.35 times from 42,480 Yuan to 907,000 Yuan. Real human capital per capita increases 4.06 times from 42,480 Yuan to 214,920 Yuan.

Figure SD-2.1 reports the results of human capital per capita by gender for Shandong. [2] The real human capital per capita of male is similar to that of female for Shandong from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female.

[2] All the discussion below is based on five-education category.

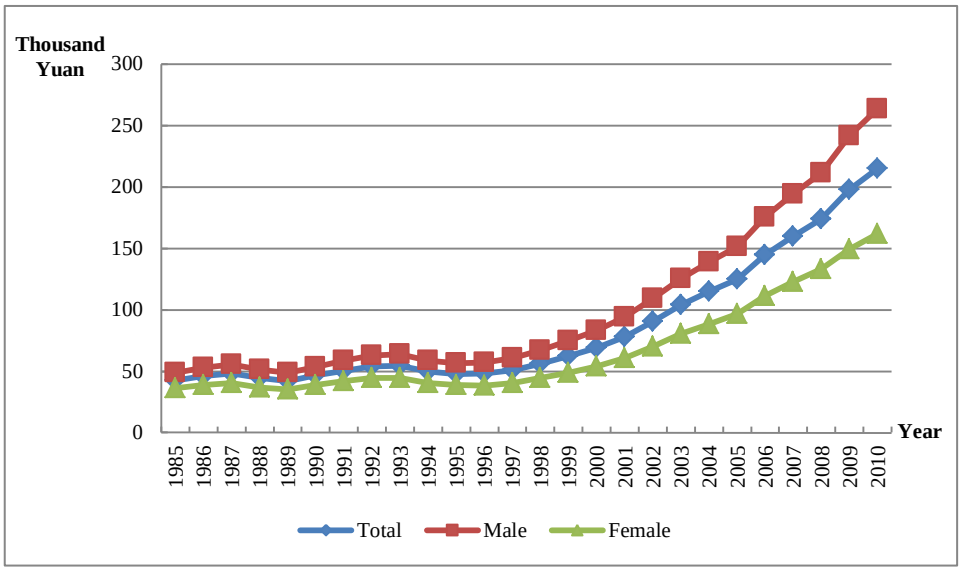


Figure SD-2.1 Human Capital Per Capita by Gender for Shandong

Table SD-2.1 reports the results of human capital per capita by region for Shandong. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 85,410 Yuan to 1,413,480 Yuan, the per capita rural human capital increases from 29,780 Yuan to 378,610 Yuan. The real human capital per capita for urban increases from 85,410 Yuan to 328,230 Yuan, the per capita rural human capital increases from 29,780 Yuan to 96,790 Yuan.

Table SD-2.1 Nominal and Real Human Capital Per Capita by Region for Shandong

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	42.48	85.41	29.78	42.48	85.41	29.78
1986	48.13	95.33	33.36	46.05	90.79	32.04
1987	54.52	106.66	37.24	48.20	93.11	33.31

1988	59.76	113.36	41.03	44.49	82.05	31.37
1989	66.42	123.10	45.65	42.13	77.01	29.35
1990	75.70	139.91	51.30	46.47	85.31	31.71
1991	86.42	158.33	57.42	50.45	90.91	34.13
1992	98.94	179.52	64.24	54.09	94.91	36.51
1993	112.84	202.65	71.98	54.62	93.49	36.95
1994	127.61	226.18	80.20	49.86	83.21	33.83
1995	143.85	252.67	88.94	47.83	79.59	31.82
1996	158.92	277.13	95.80	48.00	79.00	31.44
1997	173.49	298.37	103.56	50.86	82.41	33.20
1998	190.65	325.22	111.80	56.11	90.10	36.20
1999	209.96	355.53	120.68	62.02	98.50	39.63
2000	236.17	404.08	129.81	69.16	110.62	42.93
2001	271.62	456.80	144.04	78.01	123.69	46.52
2002	312.59	520.18	158.38	90.20	142.71	51.20
2003	364.37	602.28	173.35	103.68	164.08	55.21
2004	417.41	680.17	191.34	114.68	180.26	58.26
2005	461.61	738.23	210.22	124.89	193.51	62.51
2006	539.80	858.69	240.86	144.43	222.86	70.91
2007	622.51	986.29	270.45	159.74	246.61	75.62
2008	711.90	1121.11	302.92	173.71	267.73	79.75
2009	809.64	1268.88	339.88	197.46	303.20	89.41
2010	907.00	1413.48	378.61	214.92	328.23	96.79

Figure SD-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

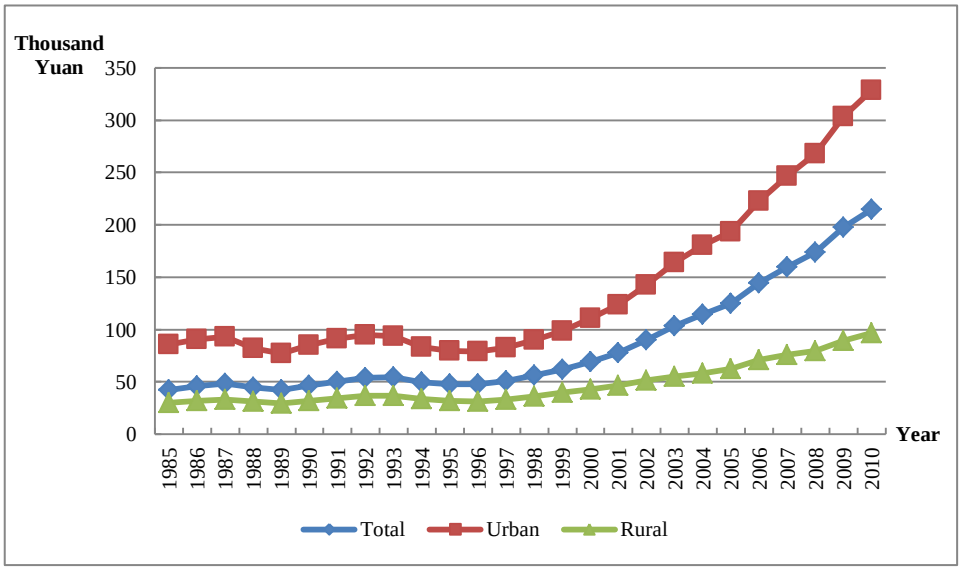


Figure SD-2.2 Real Human Capital Per Capita by Region for Shandong

21.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

21.3.1 Total labor force human capital

The total labor force human capital for Shandong is reported in Table SD-3.1. From 1985 to 2010, the nominal and real labor force human capital for Shandong show differential increases. Nominal labor force human capital increases 23.14 times, from 981 billion Yuan to 23,685 billion Yuan. Real labor force human capital increases almost 4.77 times, from 981 billion Yuan to 5,664 billion Yuan.

Table SD-3.1 Nominal and Real Labor Force Human Capital for Shandong

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	981		981	
1986	1140		1092	
1987	1322		1170	
1988	1573		1175	
1989	1841		1170	
1990	2240		1376	
1991	2478		1450	
1992	2730		1500	
1993	2994		1462	
1994	3256		1288	
1995	3596		1210	
1996	3925		1200	
1997	4322		1283	
1998	4816		1434	
1999	5402		1615	
2000	6536	6412	1945	1910
2001	7193	7102	2101	2074
2002	8051	7986	2364	2345
2003	9030	8998	2621	2610
2004	10185	10202	2846	2849
2005	11647	11665	3195	3198
2006	12869	12912	3497	3507
2007	14516	14583	3778	3793
2008	16593	16689	4098	4120
2009	19417	19563	4788	4819
2010	23685	23914	5664	5714

21.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table SD-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Shandong show differential increases. Nominal average labor force human capital increases more than 15.56 times from 28,440 Yuan to 470,870 Yuan. Real average labor force human capital increases more than 2.96 times, from 28,440 Yuan to 112,600 Yuan.

Table SD-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 47,820 Yuan to 682,160 Yuan in urban, and increases from 22,820 Yuan to 268,920 Yuan in rural. The real human capital increases from 47,820 Yuan to 158,410 Yuan in urban, and increases from 22,820 Yuan to 68,750 Yuan in rural.

Table SD-3.2 Nominal and Real Average Labor Force Human Capital by Region for Shandong

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	28.44	47.82	22.82	28.44	47.82	22.82
1986	32.21	53.68	25.59	30.84	51.12	24.58
1987	36.78	61.09	28.73	32.57	53.32	25.69
1988	41.79	68.59	32.17	31.21	49.65	24.59
1989	47.11	76.28	35.85	29.92	47.72	23.05
1990	52.70	84.44	39.90	32.37	51.49	24.67
1991	58.46	92.72	44.21	34.20	53.24	26.28
1992	65.10	102.72	48.82	35.77	54.31	27.74
1993	72.30	113.87	53.91	35.29	52.53	27.68

1994	79.61	124.73	59.11	31.48	45.89	24.93
1995	88.42	138.82	65.02	29.75	43.73	23.26
1996	97.11	152.53	69.79	29.70	43.48	22.91
1997	106.57	167.18	75.14	31.63	46.18	24.09
1998	117.12	182.85	80.91	34.88	50.66	26.20
1999	128.14	198.66	86.86	38.31	55.04	28.52
2000	140.46	218.31	93.89	41.79	59.76	31.05
2001	155.13	237.73	102.83	45.30	64.37	33.21
2002	170.75	257.36	112.66	50.14	70.61	36.42
2003	187.80	277.00	124.00	54.51	75.46	39.50
2004	209.14	304.18	135.95	58.44	80.61	41.39
2005	234.35	336.97	149.14	64.29	88.33	44.35
2006	265.34	378.39	170.72	72.10	98.21	50.26
2007	301.79	431.13	192.92	78.54	107.80	53.94
2008	344.97	493.39	215.51	85.20	117.83	56.74
2009	401.18	577.65	241.27	98.93	138.03	63.47
2010	470.87	682.16	268.92	112.60	158.41	68.75

Chapter 22 Human Capital for Henan

22.1 Total human capital

Table HeN-1.1 gives the results of nominal and real total human capital and real physical capital for Henan.

Table HeN-1.1 Real physical capital, Nominal and Real Human Capital for Henan

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1888		1888		78
1986	2130		2024		88
1987	2461		2199		96
1988	2825		2114		109
1989	3236		2034		119
1990	3767		2350		128
1991	4245		2605		139
1992	4791		2815		151
1993	5433		2893		163
1994	6087		2600		182
1995	6778		2488		207
1996	7539		2499		236
1997	8721		2781		269
1998	9821		3203		307
1999	11152		3736		345
2000	12435	12497	4192	4210	386
2001	14034	14267	4694	4765	430
2002	16113	16556	5360	5497	480
2003	18723	19635	6112	6395	541

2004	21524	23020	6653	7089	616
2005	25070	27270	7567	8194	729
2006	28870	31860	8583	9428	884
2007	33080	36910	9313	10343	1086
2008	37880	43130	9945	11271	1328
2009	43540	50450	11486	13252	1642
2010	51340	52170	13051	13253	2009

22.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HeN-2.1 presents human capital per capita for Henan by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 22.29 times from 27,540 Yuan to 641,430 Yuan. Real human capital per capita increases 4.92 times from 27,540 Yuan to 163,060 Yuan.

Figure HeN-2.1 reports the results of human capital per capita by gender for Henan. [3] The real human capital per capita of male is similar to that of female for Henan from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[3] All the discussion below is based on five-education category.

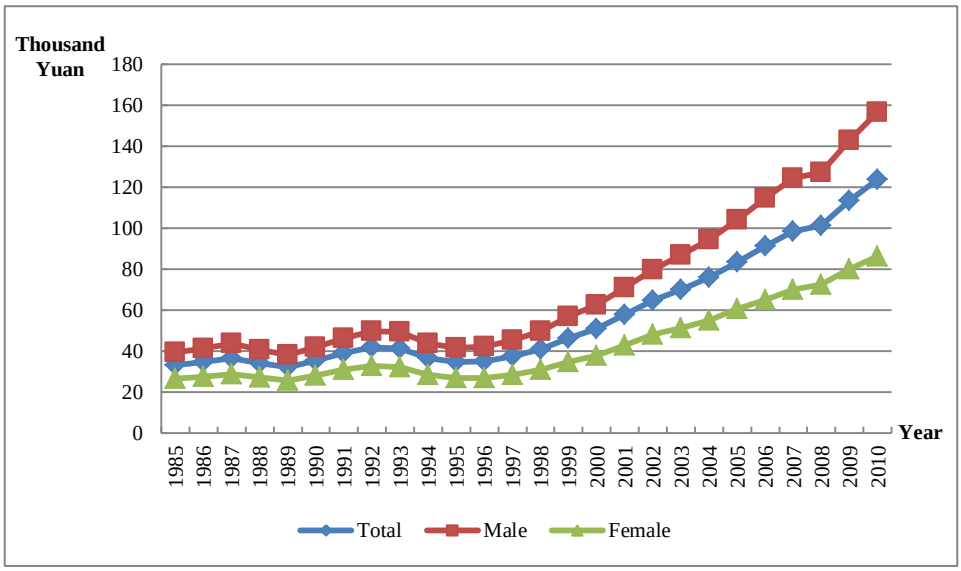


Figure HeN-2.1 Human Capital Per Capita by Gender for Henan

Table HeN-2.1 reports the results of human capital per capita by region for Henan. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 56,240 Yuan to 1,094,920 Yuan, the per capita rural human capital increases from 21,020 Yuan to 348,300 Yuan. The real human capital per capita for urban increases from 56,240 Yuan to 270,930 Yuan, the per capita rural human capital increases from 21,020 Yuan to 93,370 Yuan.

Table HeN-2.1 Nominal and Real Human Capital Per Capita by Region for Henan

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	27.54	56.24	21.02	27.54	56.24	21.02
1986	30.77	61.87	23.39	29.23	57.93	22.43
1987	34.68	67.91	26.15	31.00	58.99	23.81
1988	39.80	78.12	29.98	29.78	55.85	23.12
1989	44.40	90.14	34.07	27.90	56.09	21.53

1990	48.87	106.67	38.35	30.48	66.04	24.02
1991	55.15	121.22	43.13	33.84	71.40	27.01
1992	62.25	138.07	48.58	36.58	75.51	29.57
1993	70.67	156.59	55.19	37.63	77.44	30.45
1994	79.29	175.74	62.15	33.87	68.22	27.77
1995	88.24	194.88	69.71	32.39	64.71	26.78
1996	98.12	224.89	75.67	32.53	68.19	26.22
1997	112.41	257.50	82.57	35.85	76.25	27.53
1998	126.01	278.62	89.96	41.10	84.28	30.89
1999	142.39	309.63	97.68	47.70	96.95	34.54
2000	158.13	333.89	106.71	53.31	105.50	38.04
2001	179.06	383.02	119.18	59.89	120.18	42.19
2002	204.64	423.03	132.48	68.07	133.00	46.62
2003	236.90	477.30	148.44	77.33	147.55	51.52
2004	271.07	528.94	167.37	83.79	155.14	55.11
2005	311.19	566.68	189.45	93.93	162.79	61.10
2006	359.57	662.59	212.52	106.90	188.09	67.52
2007	414.00	748.17	240.41	116.55	201.47	72.47
2008	476.45	848.95	270.09	125.09	214.66	75.46
2009	550.55	962.38	308.93	145.24	246.23	85.96
2010	641.43	1094.92	348.30	163.06	270.93	93.37

Figure HeN-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

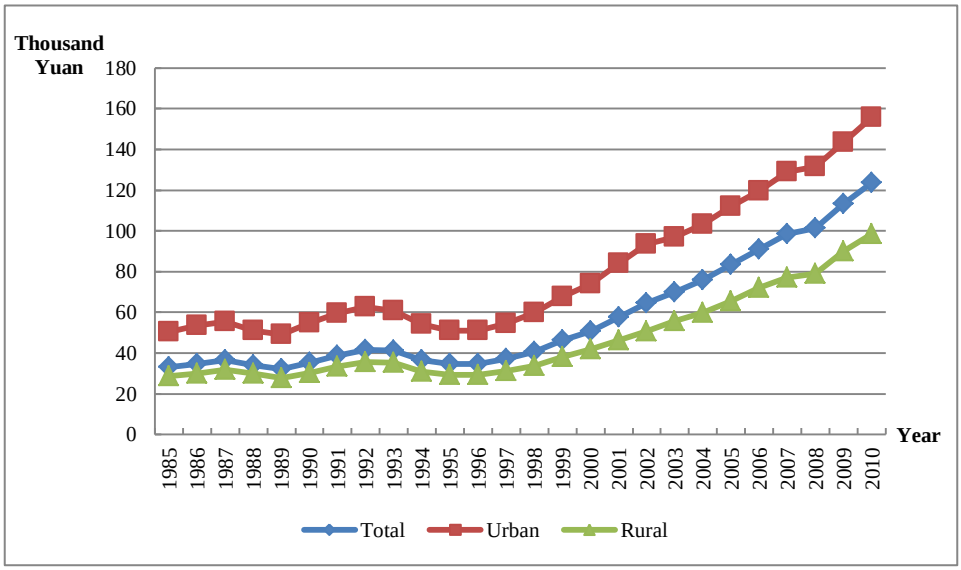


Figure HeN-2.2 Real Human Capital Per Capita by Region for Henan

22.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

22.3.1 Total labor force human capital

The total labor force human capital for Henan is reported in Table HeN-3.1. From 1985 to 2010, the nominal and real labor force human capital for Henan show differential increases. Nominal labor force human capital increases 24.61 times, from 781 billion Yuan to 19,999 billion Yuan. Real labor force human capital increases almost 5.56 times, from 781 billion Yuan to 5,124 billion Yuan.

Table HeN-3.1 Nominal and Real Labor Force Human Capital for Henan

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	781		781	
1986	917		872	
1987	1097		982	
1988	1262		948	
1989	1477		928	
1990	1745		1089	
1991	1938		1194	
1992	2136		1266	
1993	2361		1269	
1994	2592		1122	
1995	2908		1082	
1996	3136		1057	
1997	3483		1131	
1998	3905		1299	
1999	4325		1477	
2000	4799	4770	1649	1639
2001	5265	5249	1796	1790
2002	5978	5987	2024	2026
2003	7031	7095	2335	2354
2004	8105	8216	2545	2576
2005	9931	10135	3035	3091
2006	11051	11341	3338	3419
2007	12598	13022	3606	3719
2008	14297	14918	3809	3966
2009	16494	17424	4398	4636
2010	19999	20100	5124	5147

22.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table HeN-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Henan show differential increases. Nominal average labor force human capital increases more than 18.23 times, from 20,040 Yuan to 385,320 Yuan. Real average labor force human capital increases more than 3.93 times, from 20,040 Yuan to 98,730 Yuan.

Table HeN-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 35,410 Yuan to 608,440 Yuan in urban, and increases from 16,620 Yuan to 257,700 Yuan in rural. The real human capital increases from 35,410 Yuan to 150,560 Yuan in urban, and increases from 16,620 Yuan to 69,080 Yuan in rural.

Table HeN-3.2 Nominal and Real Average Labor Force Human Capital by Region for Henan

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	20.04	35.41	16.62	20.04	35.41	16.62
1986	22.68	39.60	18.68	21.58	37.08	17.91
1987	25.94	44.49	21.02	23.23	38.64	19.14
1988	29.66	51.34	23.98	22.27	36.70	18.49
1989	33.19	59.24	27.28	20.87	36.86	17.24
1990	36.50	68.16	30.92	22.79	42.20	19.37
1991	40.60	75.33	34.74	25.02	44.37	21.76
1992	44.94	82.94	38.84	26.64	45.36	23.64
1993	50.16	91.76	43.56	26.96	45.38	24.04

1994	55.41	100.35	48.54	23.98	38.95	21.69
1995	61.41	110.43	54.23	22.85	36.67	20.84
1996	66.14	120.05	58.90	22.30	36.40	20.41
1997	72.70	133.67	64.08	23.60	39.58	21.37
1998	80.61	146.61	69.54	26.80	44.35	23.88
1999	88.34	159.36	74.75	30.18	49.90	26.43
2000	97.59	171.20	81.21	33.52	54.09	28.95
2001	107.64	190.20	89.47	36.72	59.68	31.67
2002	121.85	212.90	98.62	41.25	66.93	34.71
2003	140.46	241.23	110.36	46.65	74.57	38.30
2004	159.66	268.39	122.96	50.14	78.72	40.49
2005	187.22	301.21	138.69	57.22	86.53	44.73
2006	212.15	340.87	160.13	64.08	96.76	50.88
2007	242.80	384.72	182.28	69.50	103.60	54.95
2008	277.76	437.32	205.75	74.00	110.58	57.48
2009	323.89	511.41	232.14	86.36	130.85	64.60
2010	385.32	608.44	257.70	98.73	150.56	69.08

Chapter 23 Human Capital for Hubei

23.1 Total human capital

Table HuB-1.1 gives the results of nominal and real total human capital and real physical capital for Hubei.

Table HuB-1.1 Real physical capital, Nominal and Real Human Capital for Hubei

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1521		1521		55
1986	1742		1662		60
1987	2012		1784		67
1988	2330		1736		73
1989	2670		1715		78
1990	3067		1915		82
1991	3427		2037		88
1992	3830		2080		95
1993	4318		1982		105
1994	4880		1781		120
1995	5511		1675		141
1996	6158		1710		167
1997	6966		1874		195
1998	7863		2145		224
1999	8899		2482		255
2000	10211	10319	2861	2889	288
2001	11355	11486	3173	3207	324
2002	12556	12699	3516	3554	361
2003	14153	14341	3873	3921	399

2004	15725	15956	4101	4156	445
2005	17186	17404	4353	4407	501
2006	19372	19634	4827	4890	575
2007	21611	21919	5136	5205	664
2008	24014	24379	5382	5460	764
2009	27101	27547	6100	6198	892
2010	30408	30953	6652	6768	1046

23.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HuB-2.1 presents human capital per capita for Hubei by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 17.89 times from 33,640 Yuan to 635,580 Yuan. Real human capital per capita increases 3.13 times from 33,640 Yuan to 139,040 Yuan.

Figure HuB-2.1 reports the results of human capital per capita by gender for Hubei.[4] The real human capital per capita of male is similar to that of female for Hubei from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[4] All the discussion below is based on five-education category.

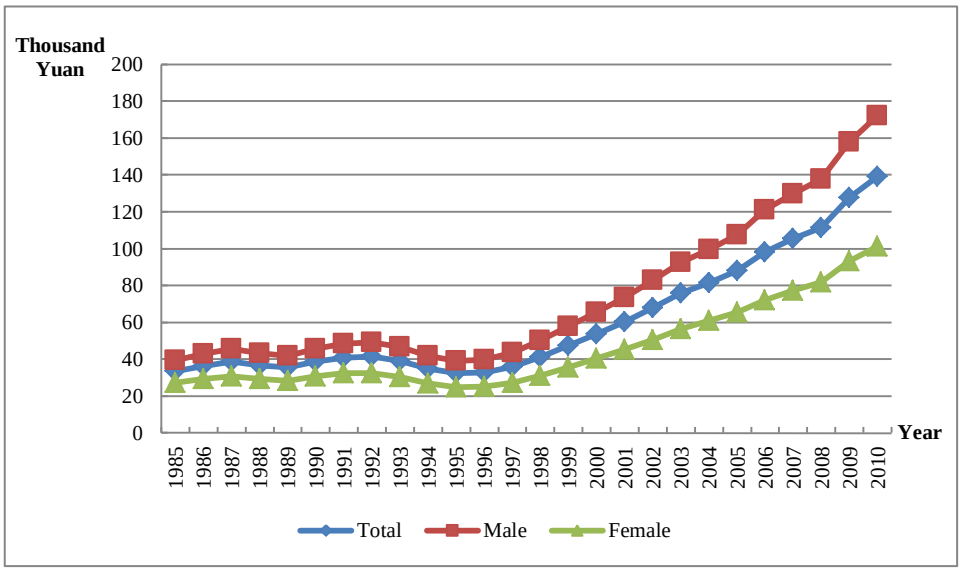


Figure HuB-2.1 Human Capital Per Capita by Gender for Hubei

Table HuB-2.1 reports the results of human capital per capita by region for Hubei. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 73,520 Yuan to 979,280 Yuan, the per capita rural human capital increases from 22,160 Yuan to 282,810 Yuan. The real human capital per capita for urban increases from 73,520 Yuan to 211,840 Yuan, the per capita rural human capital increases from 22,160 Yuan to 64,340 Yuan.

Table HuB-2.1 Nominal and Real Human Capital Per Capita by Region for Hubei

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	33.64	73.52	22.16	33.64	73.52	22.16
1986	38.18	81.31	24.69	36.42	77.15	23.70
1987	43.49	91.07	27.54	38.56	79.49	24.84
1988	49.24	101.02	30.79	36.69	73.17	23.69
1989	55.34	110.72	34.37	35.54	70.29	22.38

1990	62.23	121.91	38.35	38.85	75.65	24.13
1991	68.87	133.01	42.46	40.93	77.72	25.78
1992	76.12	145.81	46.87	41.34	77.10	26.33
1993	85.06	161.86	52.09	39.05	72.05	24.88
1994	95.24	180.64	57.93	34.77	63.31	22.30
1995	106.80	201.54	64.38	32.46	58.82	20.67
1996	118.59	217.51	69.96	32.94	57.60	20.81
1997	133.85	240.06	76.52	36.00	61.96	21.97
1998	150.58	264.83	83.25	41.08	69.82	24.15
1999	169.75	293.33	90.51	47.35	79.56	26.71
2000	191.96	327.32	99.18	53.78	88.78	29.80
2001	215.81	367.07	109.50	60.31	99.17	32.97
2002	242.05	408.55	121.61	67.78	111.26	36.33
2003	276.93	467.45	134.74	75.78	124.08	39.73
2004	312.52	524.69	149.66	81.50	133.27	41.71
2005	346.89	578.12	165.32	87.86	142.99	44.60
2006	394.00	647.04	183.63	98.17	157.82	48.62
2007	442.82	715.76	204.12	105.24	166.75	51.42
2008	497.21	789.61	226.08	111.43	174.36	53.03
2009	567.12	886.46	253.74	127.65	197.13	59.52
2010	635.58	979.28	282.81	139.04	211.84	64.34

Figure HuB-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

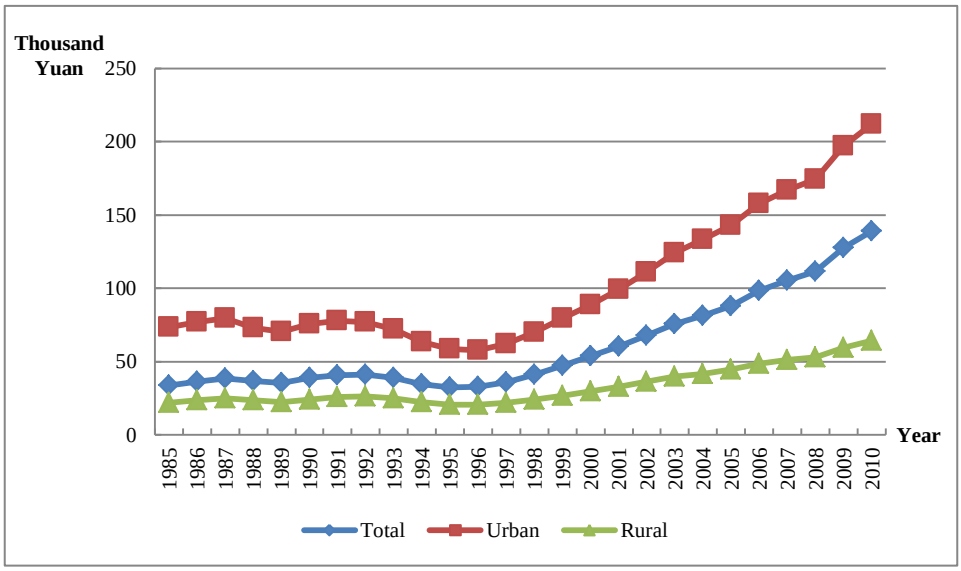


Figure HuB-2.2 Real Human Capital Per Capita by Region for Hubei

23.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

23.3.1 Total labor force human capital

The total labor force human capital for Hubei is reported in Table HuB-3.1. From 1985 to 2010, the nominal and real labor force human capital for Hubei show differential increases. Nominal labor force human capital increases 20.03 times, from 644 billion Yuan to 13,546 billion Yuan. Real labor force human capital increases almost 3.62 times, from 644 billion Yuan to 2,977 billion Yuan.

Table HuB-3.1 Nominal and Real Labor Force Human Capital for Hubei

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	644		644	
1986	753		719	
1987	890		791	
1988	1067		798	
1989	1254		806	
1990	1472		919	
1991	1645		979	
1992	1824		993	
1993	2019		930	
1994	2219		814	
1995	2438		745	
1996	2715		759	
1997	3095		837	
1998	3589		985	
1999	4115		1153	
2000	4806	4699	1354	1324
2001	5184	5085	1458	1431
2002	5585	5507	1575	1553
2003	6075	6033	1679	1668
2004	6531	6547	1721	1724
2005	7147	7170	1829	1834
2006	8011	8043	2016	2024
2007	8827	8867	2117	2126
2008	9875	9928	2228	2239
2009	11387	11463	2578	2594
2010	13546	13664	2977	3002

23.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table HuB-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Hubei show differential increases. Nominal average labor force human capital increases more than 15.06 times, from 24,440 Yuan to 392,550 Yuan. Real average labor force human capital increases more than 2.53 times, from 24,440 Yuan to 86,280 Yuan.

Table HuB-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 43,670 Yuan to 563,760 Yuan in urban, and increases from 18,910 Yuan to 233,030 Yuan in rural. The real human capital increases from 43,670 Yuan to 121,950 Yuan in urban, and increases from 18,910 Yuan to 53,020 Yuan in rural.

Table HuB-3.2 Nominal and Real Average Labor Force Human Capital by Region for Hubei

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	24.44	43.67	18.91	24.44	43.67	18.91
1986	28.01	50.04	20.98	26.75	47.47	20.13
1987	32.18	57.29	23.34	28.59	50.01	21.05
1988	36.71	64.54	26.21	27.45	46.75	20.17
1989	41.67	72.27	29.20	26.79	45.88	19.01
1990	47.35	81.23	32.53	29.58	50.41	20.46
1991	52.10	88.16	35.88	31.01	51.51	21.79
1992	56.77	95.20	39.37	30.91	50.34	22.12
1993	62.29	103.56	43.34	28.70	46.10	20.70

1994	68.05	112.37	47.41	24.96	39.38	18.25
1995	74.51	121.71	51.85	22.76	35.52	16.64
1996	82.65	132.52	56.66	23.10	35.09	16.86
1997	92.42	146.00	62.16	25.01	37.68	17.85
1998	104.31	163.16	68.02	28.61	43.02	19.73
1999	116.59	180.27	73.81	32.68	48.90	21.78
2000	130.84	200.83	80.45	36.86	54.47	24.17
2001	143.75	220.19	89.12	40.44	59.49	26.83
2002	157.24	240.29	98.82	44.35	65.44	29.52
2003	173.23	263.94	110.20	47.89	70.06	32.50
2004	189.98	288.06	122.34	50.05	73.17	34.10
2005	210.14	319.26	135.11	53.78	78.96	36.45
2006	235.83	354.56	150.97	59.35	86.48	39.97
2007	262.28	389.15	167.44	62.91	90.66	42.18
2008	294.59	430.08	186.17	66.47	94.97	43.67
2009	339.10	490.19	208.83	76.78	109.01	48.98
2010	392.55	563.76	233.03	86.28	121.95	53.02

Chapter 24 Human Capital for Hunan

24.1 Total human capital

Table HuN-1.1 gives the results of nominal and real total human capital and real physical capital for Hunan.

Table HuN-1.1 Real physical capital, Nominal and Real Human Capital for Hunan

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1528		1528		38
1986	1709		1622		43
1987	1914		1659		48
1988	2190		1512		53
1989	2487		1448		56
1990	2893		1679		57
1991	3244		1806		60
1992	3606		1829		64
1993	4007		1740		69
1994	4473		1548		75
1995	4953		1441		82
1996	5626		1513		90
1997	6376		1666		99
1998	7202		1871		109
1999	8139		2099		121
2000	9220	9270	2345	2356	134
2001	10211	10259	2619	2630	148
2002	11488	11544	2958	2972	164
2003	12795	12842	3211	3223	182

2004	13851	13862	3319	3322	204
2005	15359	15394	3596	3603	234
2006	17481	17483	4033	4035	269
2007	19229	19189	4193	4186	312
2008	21608	21568	4431	4425	371
2009	23422	23384	4823	4815	441
2010	25971	26080	5185	5209	531

24.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HuN-2.1 presents human capital per capita for Hunan by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.85 times from 30,040 Yuan to 476,070 Yuan. Real human capital per capita increases 2.16 times from 30,040 Yuan to 95,050 Yuan.

Figure HuN-2.1 reports the results of human capital per capita by gender for Hunan.[5] The real human capital per capita of male is similar to that of female for Hunan from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[5] All the discussion below is based on five-education category.

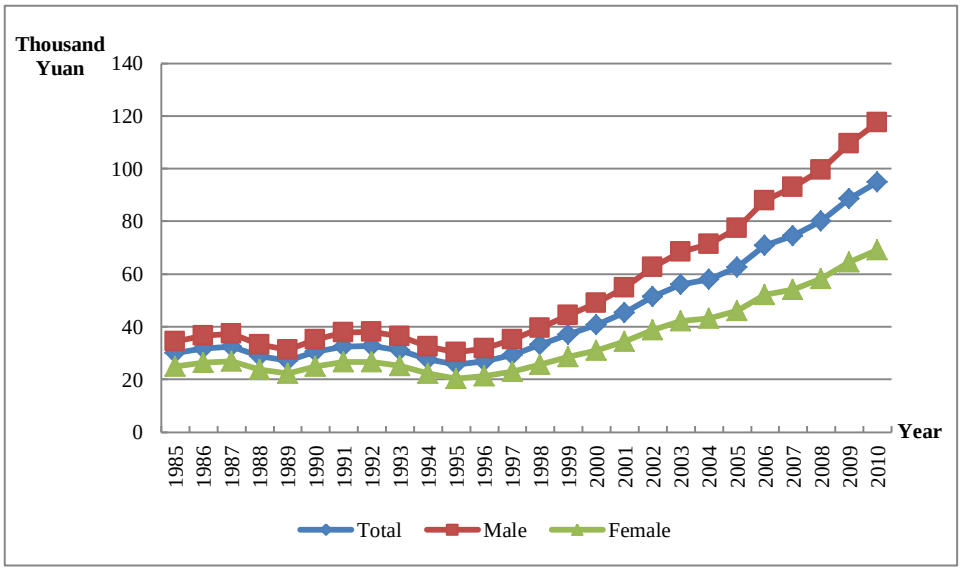


Figure HuN-2.1 Human Capital Per Capita by Gender for Hunan

Table HuN-2.1 reports the results of human capital per capita by region for Hunan. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 69,200 Yuan to 717,340 Yuan, the per capita rural human capital increases from 24,240 Yuan to 283,890 Yuan. The real human capital per capita for urban increases from 69,200 Yuan to 144,560 Yuan, the per capita rural human capital increases from 24,240 Yuan to 55,600 Yuan.

Table HuN-2.1 Nominal and Real Human Capital Per Capita by Region for Hunan

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	30.04	69.20	24.24	30.04	69.20	24.24
1986	33.49	77.19	27.00	31.78	73.24	25.65
1987	37.40	86.31	30.20	32.41	73.57	26.36
1988	41.75	95.83	33.41	28.83	64.99	23.26
1989	46.55	105.16	37.11	27.11	60.79	21.69

1990	52.44	114.95	41.32	30.43	66.06	24.10
1991	58.48	127.26	45.59	32.56	69.59	25.62
1992	64.64	138.79	50.18	32.79	66.86	26.13
1993	71.59	150.41	55.63	31.09	61.72	24.89
1994	79.78	167.29	61.43	27.61	55.01	21.88
1995	88.18	180.68	68.16	25.65	50.30	20.32
1996	99.76	200.54	73.74	26.83	52.09	20.32
1997	112.65	220.88	80.15	29.43	55.70	21.54
1998	127.34	244.13	86.83	33.09	61.25	23.31
1999	143.55	270.80	94.01	37.02	68.22	24.89
2000	160.07	292.73	103.01	40.71	72.79	26.90
2001	176.95	316.13	112.46	45.39	79.49	29.57
2002	199.63	351.72	123.58	51.40	88.79	32.70
2003	223.10	386.04	135.61	55.99	96.11	34.47
2004	242.23	406.77	148.63	58.04	97.28	35.74
2005	267.35	442.86	162.58	62.59	103.74	38.03
2006	307.32	501.97	183.51	70.90	115.73	42.41
2007	342.05	543.62	206.04	74.59	119.14	44.55
2008	390.85	611.81	230.81	80.15	126.73	46.46
2009	429.98	663.39	252.61	88.54	137.83	51.06
2010	476.07	717.34	283.89	95.05	144.56	55.60

Figure HuN-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

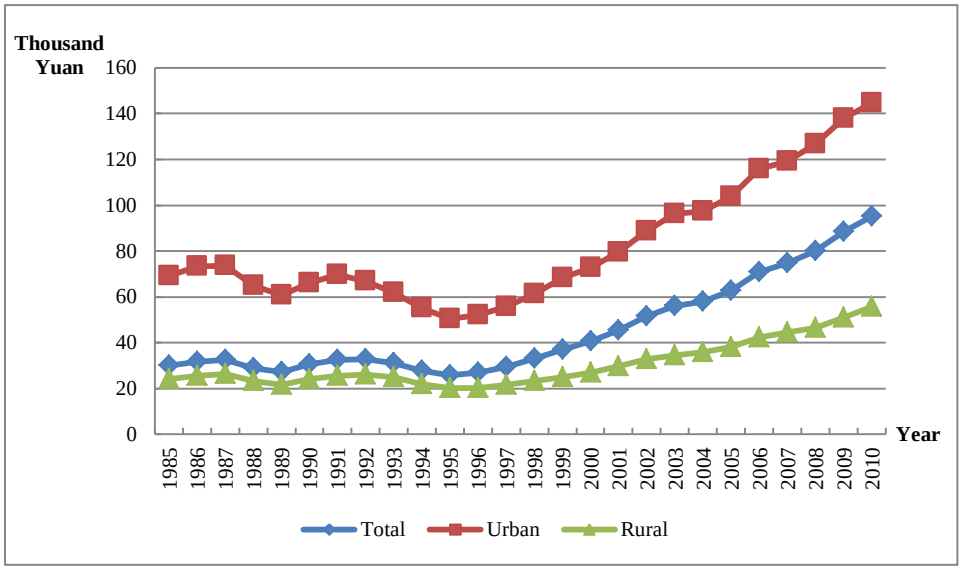


Figure HuN-2.2 Real Human Capital Per Capita by Region for Hunan

24.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

24.3.1 Total labor force human capital

The total labor force human capital for Hunan is reported in Table HuN-3.1. From 1985 to 2010, the nominal and real labor force human capital for Hunan show differential increases. Nominal labor force human capital increases 20.12times, from 667 billion Yuan to 14,086 billion Yuan. Real labor force human capital increases almost 3.21 times, from 667 billion Yuan to 2,809 billion Yuan.

Table HuN-3.1 Nominal and Real Labor Force Human Capital for Hunan

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	667		667	
1986	762		724	
1987	866		752	
1988	1014		702	
1989	1165		679	
1990	1374		799	
1991	1542		860	
1992	1719		878	
1993	1908		834	
1994	2089		728	
1995	2309		675	
1996	2580		697	
1997	2930		770	
1998	3343		874	
1999	3810		988	
2000	4405	4369	1125	1115
2001	4834	4798	1245	1235
2002	5344	5309	1382	1373
2003	5924	5891	1490	1482
2004	6607	6577	1584	1577
2005	7495	7488	1754	1753
2006	8424	8382	1944	1935
2007	9317	9268	2029	2019
2008	10518	10463	2152	2141
2009	11901	11834	2446	2432
2010	14086	14178	2809	2828

24.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table HuN-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Hunan show differential increases. Nominal average labor force human capital increases more than 15.05 times, from 22,430 Yuan to 359,910 Yuan. Real average labor force human capital increases more than 2.20 times, from 22,430 Yuan to 71,770Yuan.

Table HuN-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 40,410 Yuan to 524,730 Yuan in urban, and increases from 20,330 Yuan to 234,740 Yuan in rural. The real human capital increases from 40,410 Yuan to 105,740 Yuan in urban, and increases from 20,330 Yuan to 45,970 Yuan in rural.

Table HuN-3.2 Nominal and Real Average Labor Force Human Capital by Region for Hunan

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	22.43	40.41	20.33	22.43	40.41	20.33
1986	25.24	46.00	22.70	23.96	43.64	21.56
1987	28.54	52.59	25.40	24.79	44.83	22.17
1988	31.72	57.44	28.33	21.96	38.95	19.72
1989	35.36	63.34	31.43	20.61	36.62	18.37
1990	40.02	71.36	34.95	23.25	41.01	20.39
1991	44.24	77.88	38.53	24.68	42.59	21.65
1992	48.69	85.57	42.23	24.86	41.23	21.99
1993	53.66	93.47	46.32	23.47	38.36	20.73

1994	58.84	101.78	50.44	20.50	33.47	17.97
1995	64.62	111.09	54.96	18.89	30.93	16.38
1996	71.81	121.54	59.82	19.41	31.57	16.48
1997	80.20	134.79	65.30	21.07	33.99	17.55
1998	89.79	148.23	71.39	23.49	37.19	19.17
1999	99.90	163.77	77.29	25.90	41.26	20.47
2000	111.22	179.83	83.67	28.40	44.72	21.85
2001	122.45	194.90	91.39	31.53	49.01	24.03
2002	135.19	212.70	99.61	34.96	53.70	26.35
2003	149.00	231.33	109.04	37.48	57.59	27.71
2004	164.44	253.53	119.21	39.43	60.63	28.66
2005	181.18	276.58	130.88	42.41	64.79	30.61
2006	206.87	312.84	148.77	47.74	72.13	34.38
2007	233.98	351.29	167.75	50.96	76.99	36.27
2008	269.08	401.34	188.11	55.05	83.14	37.87
2009	310.01	459.81	210.96	63.70	95.53	42.64
2010	359.91	524.73	234.74	71.77	105.74	45.97

Chapter 25 Human Capital for Guangdong

25.1 Total human capital

Table GD-1.1 gives the results of nominal and real total human capital and real physical capital for Guangdong.

Table GD-1.1 Real physical capital, Nominal and Real Human Capital for Guangdong

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	4068		4068		87
1986	4531		4314		99
1987	5051		4328		111
1988	6008		3974		125
1989	7065		3823		140
1990	8312		4610		158
1991	9146		5007		178
1992	10056		5124		208
1993	11132		4669		256
1994	12258		4225		311
1995	13538		4095		377
1996	16222		4579		441
1997	19400		5366		509
1998	23095		6491		593
1999	27031		7723		695
2000	31373	31464	8806	8829	796
2001	34923	35053	9864	9900	909
2002	39297	39463	11246	11293	1043
2003	44487	44709	12638	12701	1207

2004	50656	50949	13983	14063	1392
2005	57410	57760	15507	15603	1628
2006	66640	67120	17679	17806	1891
2007	77210	77850	19749	19905	2187
2008	88720	89560	21490	21683	2489
2009	101840	102900	25254	25519	2885
2010	116890	118260	28108	28418	3351

25.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table GD-2.1 presents human capital per capita for Guangdong by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.77 times from 80,230 Yuan to 1265,610 Yuan. Real human capital per capita increases 2.79 times from 80,230 Yuan to 304,340 Yuan.

Figure GD-2.1 reports the results of human capital per capita by gender for Guangdong.[6] The real human capital per capita of male is similar to that of female for Guangdong from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[6] All the discussion below is based on five-education category.

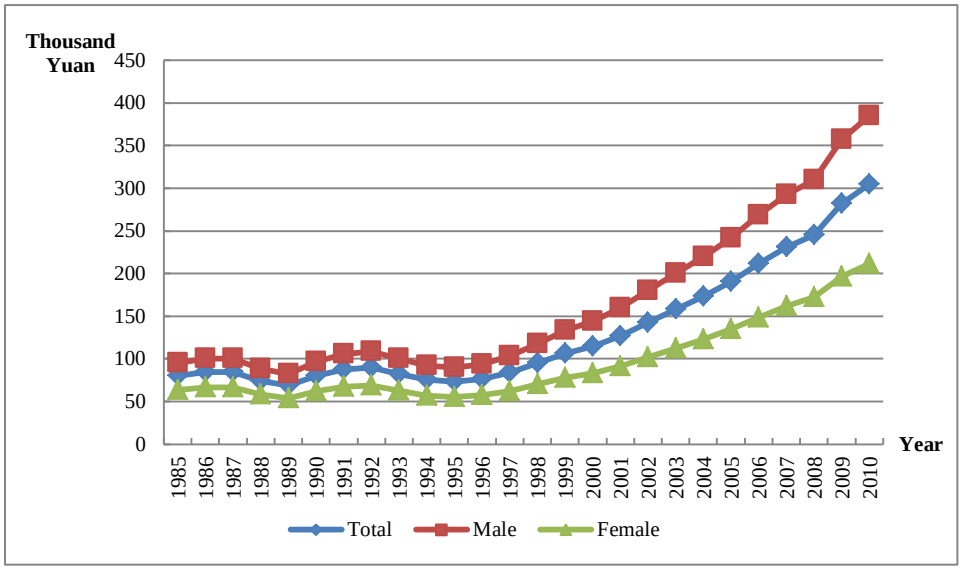


Figure GD-2.1 Human Capital Per Capita by Gender for Guangdong

Table GD-2.1 reports the results of human capital per capita by region for Guangdong. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 149,920 Yuan to 1,602,690 Yuan, the per capita rural human capital increases from 57,720 Yuan to 571,770 Yuan. The real human capital per capita for urban increases from 149,920 Yuan to 381,400 Yuan, the per capita rural human capital increases from 57,720 Yuan to 145,560 Yuan.

Table GD-2.1 Nominal and Real Human Capital Per Capita by Region for Guangdong

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	80.23	149.92	57.72	80.23	149.92	57.72
1986	88.69	166.27	63.42	84.44	158.81	60.23
1987	98.24	184.98	69.72	84.17	156.63	60.35
1988	112.32	200.81	76.59	74.29	131.30	51.28

1989	127.48	216.70	84.02	68.98	116.23	45.96
1990	144.11	234.25	92.37	79.93	129.00	51.77
1991	159.38	258.04	101.51	87.25	138.91	56.95
1992	176.48	285.13	110.92	89.93	141.60	58.76
1993	196.75	318.30	121.73	82.52	129.56	53.47
1994	218.25	351.83	134.02	75.22	118.36	48.06
1995	243.02	390.96	147.66	73.51	116.29	45.92
1996	270.48	419.84	158.64	76.35	116.49	46.33
1997	302.78	454.03	171.12	83.75	123.39	49.23
1998	337.89	493.07	183.83	94.97	136.31	53.91
1999	372.96	526.66	197.58	106.56	147.97	59.31
2000	407.40	556.29	214.87	114.35	152.93	64.50
2001	447.84	603.93	233.34	126.49	167.36	70.33
2002	497.12	664.86	254.42	142.26	186.86	77.77
2003	556.57	738.48	277.81	158.11	206.11	84.58
2004	627.99	825.36	307.19	173.35	224.52	90.19
2005	703.84	917.76	338.53	190.11	244.76	96.78
2006	796.70	1031.75	378.54	211.36	270.30	106.51
2007	901.21	1161.42	419.85	230.51	293.41	114.14
2008	1011.40	1296.93	464.53	244.98	310.56	119.36
2009	1136.64	1448.41	516.73	281.86	355.37	135.76
2010	1265.61	1602.69	571.77	304.34	381.40	145.56

Figure GD-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

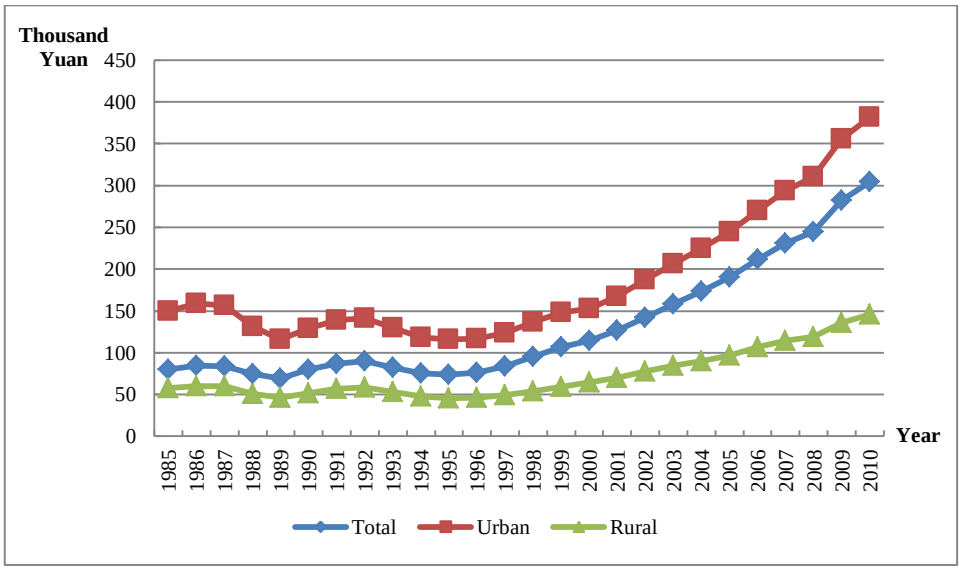


Figure GD-2.2 Real Human Capital Per Capita by Region for Guangdong

25.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

25.3.1 Total labor force human capital

The total labor force human capital for Guangdong is reported in Table GD-3.1. From 1985 to 2010, the nominal and real labor force human capital for Guangdong show differential increases. Nominal labor force human capital increases 40.16 times, from 1,553 billion Yuan to 63,918 billion Yuan. Real labor force human capital increases almost 8.88 times, from 1,553 billion Yuan to 15,337 billion Yuan.

Table GD-3.1 Nominal and Real Labor Force Human Capital for Guangdong

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	1553		1553	
1986	1735		1652	
1987	1950		1672	
1988	2405		1592	
1989	2920		1580	
1990	3531		1958	
1991	3812		2086	
1992	4073		2075	
1993	4368		1831	
1994	4656		1605	
1995	5072		1535	
1996	6530		1842	
1997	8322		2300	
1998	10542		2958	
1999	13011		3709	
2000	15789	15749	4417	4406
2001	17506	17506	4928	4929
2002	19513	19551	5569	5579
2003	22119	22195	6267	6288
2004	25031	25154	6894	6927
2005	28366	28522	7644	7686
2006	33365	33623	8834	8899
2007	39152	39536	9995	10091
2008	45995	46524	11120	11246
2009	54253	54950	13425	13601
2010	63918	64846	15337	15562

25.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table GD-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Guangdong show differential increases. Nominal average labor force human capital increases more than 16.04 times, from 55,410 Yuan to 944,040 Yuan. Real average labor force human capital increases more than 3.09 times, from 55,410 Yuan to 226,520 Yuan.

Table GD-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 90,350 Yuan to 1,155,740 Yuan in urban, and increases from 42,250 Yuan to 403,700 Yuan in rural. The real human capital increases from 90,350 Yuan to 275,030 Yuan in urban, and increases from 42,250 Yuan to 102,770 Yuan in rural.

Table GD-3.2 Nominal and Real Average Labor Force Human Capital by Region for Guangdong

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	55.41	90.35	42.25	55.41	90.35	42.25
1986	60.92	99.80	46.53	58.00	95.32	44.19
1987	67.60	111.03	51.46	57.96	94.01	44.55
1988	78.08	124.24	56.41	51.67	81.23	37.77
1989	89.74	138.88	61.51	48.55	74.49	33.64
1990	102.72	154.64	67.12	56.96	85.16	37.62
1991	111.51	166.98	73.05	61.01	89.89	40.98
1992	120.40	179.11	78.95	61.34	88.95	41.83
1993	130.79	194.13	85.52	54.83	79.02	37.56

1994	142.39	210.37	92.44	49.08	70.77	33.15
1995	156.62	228.87	102.24	47.39	68.07	31.80
1996	182.07	261.71	111.42	51.37	72.62	32.54
1997	211.18	297.41	121.65	58.35	80.82	35.00
1998	241.90	333.59	132.18	67.87	92.22	38.77
1999	273.51	366.29	142.49	77.96	102.91	42.77
2000	304.16	396.92	153.80	85.10	109.11	46.17
2001	332.77	429.64	166.07	93.68	119.06	50.05
2002	363.32	467.43	179.45	103.69	131.37	54.85
2003	403.34	515.97	194.85	114.28	144.01	59.32
2004	449.73	570.70	211.17	123.86	155.25	62.00
2005	501.68	631.88	230.01	135.19	168.52	65.75
2006	570.80	713.26	259.08	151.13	186.86	72.90
2007	648.00	806.54	290.11	165.43	203.76	78.87
2008	734.77	911.31	323.73	177.64	218.22	83.18
2009	836.64	1031.44	362.56	207.03	253.06	95.25
2010	944.04	1155.74	403.70	226.52	275.03	102.77

Chapter 26 Human Capital for Guangxi

26.1 Total human capital

Table GX-1.1 gives the results of nominal and real total human capital and real physical capital for Guangxi.

Table GX-1.1 Real physical capital, Nominal and Real Human Capital for Guangxi

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	1140		1140		32
1986	1285		1210		35
1987	1448		1271		38
1988	1668		1220		39
1989	1898		1137		41
1990	2151		1260		42
1991	2443		1391		44
1992	2770		1488		47
1993	3150		1402		53
1994	3529		1245		60
1995	3931		1172		67
1996	4391		1227		75
1997	4895		1357		83
1998	5414		1548		92
1999	5998		1756		103
2000	6662	6684	1955	1961	114
2001	7521	7553	2195	2204	126
2002	8411	8443	2476	2485	140

2003	9787	9872	2850	2874	156
2004	11071	11204	3087	3124	178
2005	12155	12308	3307	3349	207
2006	13690	13812	3674	3706	247
2007	15663	15817	3965	4003	298
2008	17749	17925	4162	4204	359
2009	20032	20235	4803	4853	462
2010	22656	22974	5271	5346	605

26.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table GX-2.1 presents human capital per capita for Guangxi by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 16.89 times from 32,350 Yuan to 578,820 Yuan. Real human capital per capita increases 3.16 times from 32,350 Yuan to 134,660 Yuan.

Figure GX-2.1 reports the results of human capital per capita by gender for Guangxi. [1]The real human capital per capita of male is similar to that of female for Guangxi from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

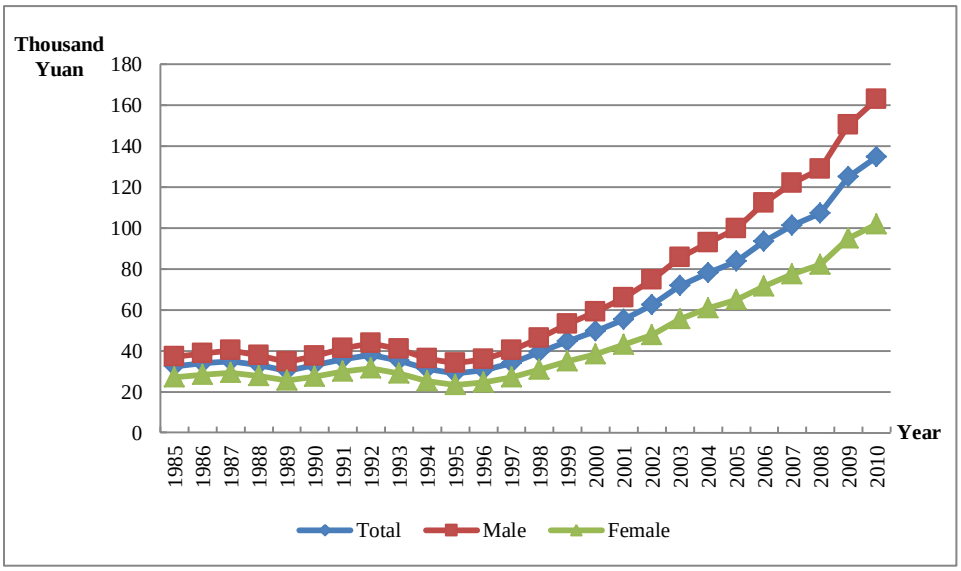


Figure GX-2.1 Human Capital Per Capita by Gender for Guangxi

Table GX-2.1 reports the results of human capital per capita by region for Guangxi. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 79,740 Yuan to 1,009,340 Yuan, the per capita rural human capital increases from 25,130 Yuan to 281,120 Yuan. The real human capital per capita for urban increases from 79,740 Yuan to 234,560 Yuan, the per capita rural human capital increases from 25,130 Yuan to 65,650 Yuan.

Table GX-2.1 Nominal and Real Human Capital Per Capita by Region for Guangxi

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	32.35	79.74	25.13	32.35	79.74	25.13
1986	35.89	87.49	27.77	33.79	82.39	26.15
1987	39.79	97.02	30.54	34.94	82.90	27.18

1988	45.07	108.81	34.49	32.98	75.41	25.93
1989	50.53	121.11	38.51	30.26	70.12	23.47
1990	56.12	132.73	42.92	32.88	78.17	25.06
1991	62.94	147.31	47.39	35.83	84.48	26.87
1992	70.58	163.37	52.37	37.92	87.56	28.17
1993	79.29	181.06	58.36	35.28	78.70	26.36
1994	88.07	197.08	64.54	31.08	68.31	23.04
1995	97.37	211.98	71.30	29.02	62.27	21.46
1996	109.40	232.99	77.15	30.57	64.87	21.62
1997	122.63	255.67	83.45	34.01	70.69	23.20
1998	136.68	277.06	90.19	39.09	78.90	25.91
1999	152.45	302.10	97.44	44.62	88.51	28.50
2000	168.27	323.89	106.27	49.39	94.89	31.24
2001	189.38	362.76	115.85	55.26	104.91	34.20
2002	211.28	400.24	126.33	62.19	117.04	37.55
2003	246.08	472.88	138.13	71.66	137.05	40.53
2004	279.30	534.14	151.72	77.88	148.71	42.44
2005	307.11	575.79	166.94	83.56	155.63	45.96
2006	347.56	638.68	184.99	93.28	169.89	50.47
2007	399.91	726.84	205.11	101.24	183.09	52.40
2008	457.00	818.94	226.88	107.16	191.72	53.42
2009	520.13	917.43	253.14	124.71	219.38	61.13
2010	578.82	1009.34	281.12	134.66	234.56	65.65

Figure GX-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

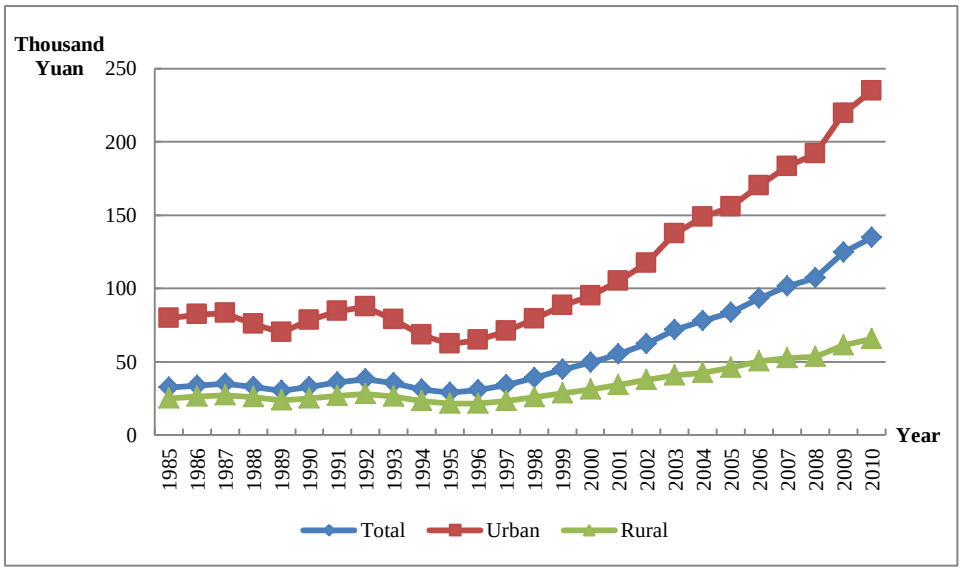


Figure GX-2.2 Real Human Capital Per Capita by Region for Guangxi

26.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

26.3.1 Total labor force human capital

The total labor force human capital for Guangxi is reported in Table GX-3.1. From 1985 to 2010, the nominal and real labor force human capital for Guangxi show differential increases. Nominal labor force human capital increases 17.16 times, from 486 billion Yuan to 8,828 billion Yuan. Real labor force human capital increases almost 3.23 times, from 486 billion

Yuan to 2,056 billion Yuan.

Table GX-3.1 Nominal and Real Labor Force Human Capital for Guangxi

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	486		486	
1986	562		529	
1987	651		572	
1988	740		543	
1989	835		501	
1990	948		555	
1991	1066		607	
1992	1182		635	
1993	1313		586	
1994	1460		516	
1995	1644		491	
1996	1840		514	
1997	2059		571	
1998	2313		662	
1999	2593		759	
2000	2954	2936	867	862
2001	3262	3245	953	948
2002	3587	3571	1058	1053
2003	3919	3904	1143	1138
2004	4282	4262	1195	1189
2005	4718	4719	1286	1286
2006	5363	5342	1443	1437
2007	6041	6018	1531	1525
2008	6803	6775	1596	1590
2009	7725	7690	1854	1846

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2010	8828	8865	2056	2064

26.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table GX-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Guangxi show differential increases. Nominal average labor force human capital increases more than 13.28 times, from 24,200 Yuan to 345,620 Yuan. Real average labor force human capital increases more than 2.33 times, from 24,200 Yuan to 80,480 Yuan.

Table GX-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 51,090 Yuan to 559,070 Yuan in urban, and increases from 20,300 Yuan to 212,000 Yuan in rural. The real human capital increases from 51,090 Yuan to 129,920 Yuan in urban, and increases from 20,300 Yuan to 49,510 Yuan in rural.

Table GX-3.2 Nominal and Real Average Labor Force Human Capital by Region for Guangxi

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	24.20	51.09	20.30	24.20	51.09	20.30
1986	27.00	56.86	22.44	25.43	53.54	21.13
1987	30.27	63.57	24.85	26.63	54.32	22.11
1988	34.10	70.02	28.03	25.04	48.53	21.07
1989	38.29	77.15	31.43	22.99	44.67	19.16
1990	43.07	85.96	35.27	25.22	50.62	20.59
1991	47.27	93.24	38.70	26.90	53.47	21.94
1992	51.69	100.41	42.39	27.78	53.81	22.80
1993	56.74	109.17	46.58	25.32	47.46	21.04
1994	62.54	119.05	51.00	22.11	41.27	18.21
1995	69.49	130.54	55.99	20.75	38.35	16.85
1996	77.09	142.69	60.92	21.56	39.73	17.07
1997	85.50	156.25	66.11	23.72	43.20	18.38
1998	95.36	171.55	71.44	27.29	48.85	20.52
1999	106.15	188.40	76.72	31.08	55.19	22.44
2000	118.16	205.67	83.07	34.67	60.26	24.42
2001	129.43	223.11	90.52	37.81	64.53	26.72
2002	140.76	240.65	98.02	41.50	70.37	29.14
2003	153.36	259.83	105.99	44.72	75.30	31.10
2004	168.43	283.03	113.93	47.00	78.80	31.87
2005	185.22	307.82	122.90	50.47	83.20	33.84
2006	210.61	348.09	139.23	56.65	92.59	37.99
2007	238.66	395.01	155.84	60.48	99.50	39.81
2008	270.67	446.51	173.42	63.52	104.53	40.83
2009	309.15	506.41	192.54	74.21	121.10	46.49
2010	345.62	559.07	212.00	80.48	129.92	49.51

Chapter 27 Human Capital for Hainan

27.1 Total human capital

Table HaN-1.1 gives the results of nominal and real total human capital and real physical capital for Hainan.

Table HaN-1.1 Real physical capital, Nominal and Real Human Capital for Hainan

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billion of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	445		445		9
1986	501		478		10
1987	563		490		11
1988	625		428		12
1989	685		368		14
1990	758		387		16
1991	855		422		19
1992	971		455		24
1993	1102		433		31
1994	1234		381		39
1995	1387		373		46
1996	1511		390		51
1997	1650		423		55
1998	1808		478		60
1999	1991		536		65
2000	2215	2275	590	606	70
2001	2465	2534	666	685	76
2002	2771	2836	753	770	82
2003	3119	3234	848	879	89

2004	3491	3642	910	950	97
2005	3944	4095	1014	1053	107
2006	4464	4665	1131	1183	118
2007	5070	5338	1224	1290	131
2008	5640	5943	1276	1346	149
2009	6305	6652	1437	1518	171
2010	7146	7539	1554	1643	201

27.2 Human capital per capita

In order to get further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HaN-2.1 presents human capital per capita for Hainan by region. From 1985 to 2010, both nominal and real human capital per capita increased in different extents. Nominal human capital per capita increases 10.63 times from 81,400 Yuan to 946,450 Yuan. Real human capital per capita increases 1.53 times from 81,400 Yuan to 205,820 Yuan.

Figure HaN-2.1 reports the results of human capital per capita by gender for Hainan. [1]The real human capital per capita of male is similar to that of female for Hainan from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

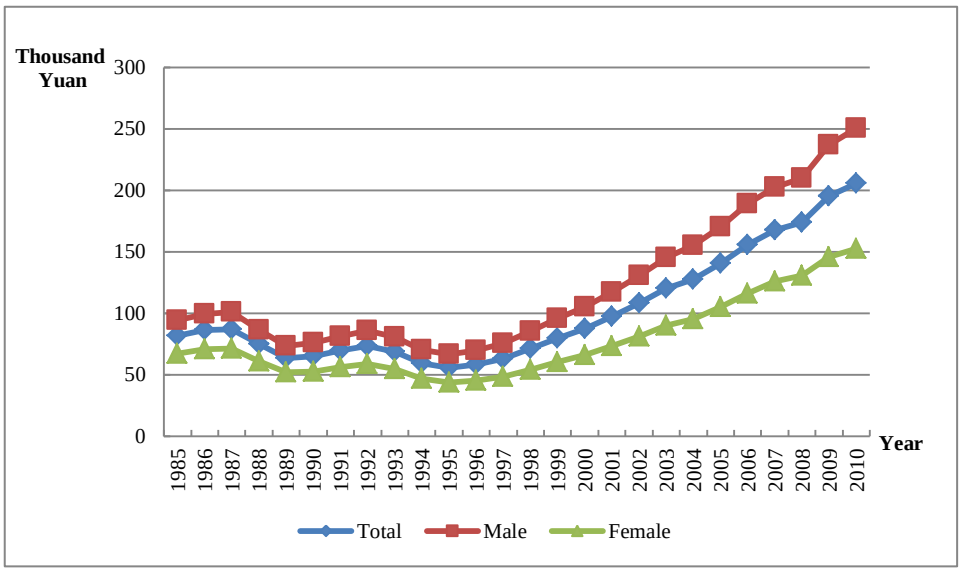


Figure HaN-2.1 Human Capital Per Capita by Gender for Hainan

Table HaN-2.1 reports the results of human capital per capita by region for Hainan. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 108,740 Yuan to 1,360,500 Yuan, the per capita rural human capital increases from 75,350 Yuan to 526,220 Yuan. The real human capital per capita for urban increases from 108,740 Yuan to 304,250 Yuan, the per capita rural human capital increases from 75,350 Yuan to 105,940 Yuan.

Table HaN-2.1 Nominal and Real Human Capital Per Capita by Region for Hainan

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	81.40	108.74	75.35	81.40	108.74	75.35
1986	90.15	120.11	82.86	86.08	115.82	78.84
1987	99.93	131.79	91.50	86.93	115.75	79.29

1988	109.34	142.80	99.77	74.77	97.00	68.40
1989	118.20	152.84	107.52	63.55	82.20	57.81
1990	127.30	165.06	115.12	65.04	89.12	57.26
1991	140.63	184.01	125.04	69.43	95.53	60.03
1992	156.62	206.76	136.74	73.42	98.48	63.49
1993	174.37	230.47	150.02	68.56	88.74	59.79
1994	191.71	251.21	163.68	59.25	77.01	50.89
1995	207.23	269.47	176.59	55.72	74.69	46.37
1996	225.24	296.91	187.14	58.20	78.53	47.39
1997	245.40	327.67	198.32	62.93	85.39	50.07
1998	268.53	362.77	210.66	70.95	96.86	55.05
1999	295.44	404.62	223.75	79.50	109.01	60.10
2000	327.96	451.88	241.14	87.42	119.95	64.64
2001	359.37	498.30	257.76	97.15	133.88	70.29
2002	397.45	557.26	275.55	107.95	151.23	74.99
2003	441.30	623.43	297.38	119.94	170.21	80.21
2004	489.46	693.85	322.34	127.52	183.56	81.71
2005	547.06	780.71	351.52	140.61	203.89	87.62
2006	613.60	881.45	378.54	155.48	227.47	92.23
2007	693.15	1001.39	409.45	167.31	247.05	93.94
2008	767.88	1108.26	442.24	173.67	257.70	93.26
2009	856.93	1233.63	483.20	195.31	288.29	102.92
2010	946.45	1360.50	526.22	205.82	304.25	105.94

Figure HaN-2.2 reflects the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growth of human capital of rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

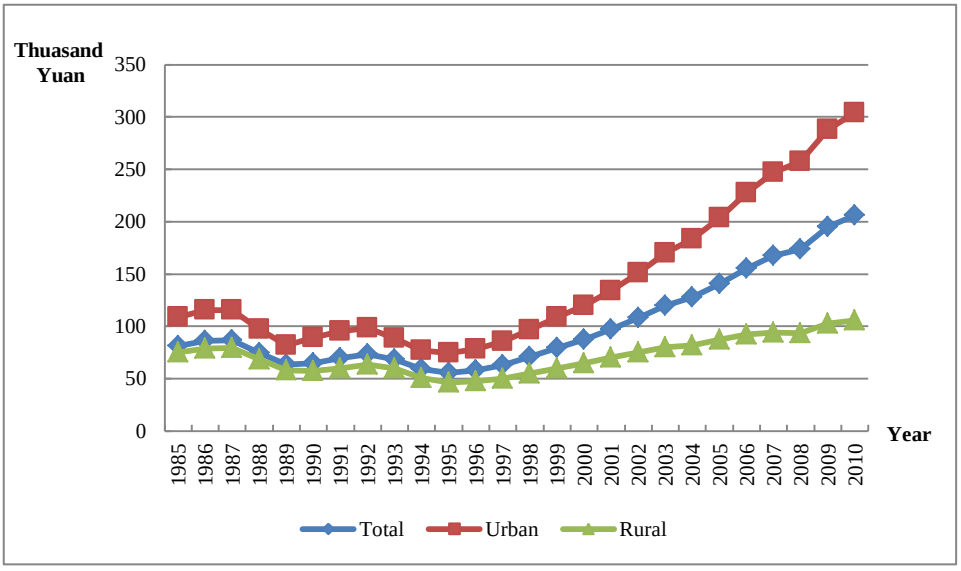


Figure HaN-2.2 Real Human Capital Per Capita by Region for Hainan

27.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

27.3.1 Total labor force human capital

The total labor force human capital for Hainan is reported in Table HaN-3.1. From 1985 to 2010, the nominal and real labor force human capitals for Hainan show increases at different extents. Nominal labor force human capital increases 17.18 times, from 141 billion Yuan to 2,563 billion Yuan. Real labor force human capital increases almost 2.92 times, from 141 billion Yuan to 553 billion Yuan.

Table HaN-3.1 Nominal and Real Labor Force Human Capital for Hainan

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	141		141	
1986	161		154	
1987	184		160	
1988	210		144	
1989	236		127	
1990	268		137	
1991	302		149	
1992	340		159	
1993	384		151	
1994	440		136	
1995	520		140	
1996	555		143	
1997	601		154	
1998	648		171	
1999	703		189	
2000	779	763	208	203
2001	852	839	231	227
2002	944	933	256	254
2003	1048	1042	285	283
2004	1141	1142	296	297
2005	1284	1285	329	329
2006	1458	1461	367	368
2007	1655	1659	396	397
2008	1876	1881	420	421
2009	2162	2170	488	490
2010	2563	2575	553	556

27.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table HaN-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capitals for Hainan show increases at different extents. Nominal average labor force human capital increases more than 9.05 times, from 50,540 Yuan to 507,960 Yuan. Real average labor force human capital increases more than 1.17 times, from 50,540 Yuan to 109,550 Yuan.

Table HaN-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal one increases from 59,440 Yuan to 692,900 Yuan in urban, and increases from 48,720 Yuan to 343,230 Yuan in rural. The real one increases from 59,440 Yuan to 154,950 Yuan in urban, and increases from 48,720 Yuan to 69,100 Yuan in rural.

Table HaN-3.2 Nominal and Real Average Labor Force Human Capital by Region for Hainan

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	50.54	59.44	48.72	50.54	59.44	48.72
1986	55.53	65.12	53.42	52.98	62.80	50.82
1987	61.39	73.31	58.47	53.38	64.39	50.67
1988	67.47	81.18	63.74	46.13	55.14	43.69
1989	73.62	89.39	68.83	39.59	48.07	37.01
1990	80.15	98.08	74.22	40.90	52.96	36.92
1991	87.81	106.57	81.05	43.27	55.33	38.91
1992	96.63	117.89	88.35	45.26	56.15	41.02
1993	106.79	129.64	97.29	42.04	49.92	38.78
1994	118.99	145.51	106.96	36.80	44.61	33.25

1995	132.23	162.85	117.48	35.49	45.14	30.85
1996	140.42	173.57	123.43	36.22	45.91	31.26
1997	150.98	189.78	129.74	38.67	49.46	32.75
1998	162.53	206.45	136.75	42.91	55.12	35.74
1999	175.15	223.24	144.39	47.11	60.15	38.78
2000	191.42	245.15	153.73	51.05	65.07	41.21
2001	204.51	260.21	165.40	55.32	69.91	45.10
2002	221.29	284.26	177.15	60.13	77.14	48.21
2003	241.57	313.32	190.69	65.57	85.54	51.43
2004	260.68	337.54	205.38	67.66	89.30	52.06
2005	286.75	372.17	223.07	73.37	97.19	55.60
2006	319.66	418.45	245.71	80.47	107.99	59.87
2007	356.93	472.92	268.26	85.44	116.67	61.55
2008	397.18	530.18	291.43	88.84	123.28	61.46
2009	449.04	605.87	317.32	101.39	141.59	67.59
2010	507.96	692.90	343.23	109.55	154.95	69.10

Chapter 28 Human Capital for Chongqing

28.1 Total human capital

Table CQ-1.1 gives the results of nominal and real total human capital and real physical capital for Chongqing.

Table CQ-1.1 Real physical capital, Nominal and Real Human Capital for Chongqing

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	815		815		36
1986	932		894		39
1987	1061		927		42
1988	1213		864		46
1989	1397		850		49
1990	1613		967		53
1991	1825		1023		57
1992	2066		1042		62
1993	2369		1006		72
1994	2716		889		84
1995	3073		843		102
1996	3384		846		118
1997	3762		911		138
1998	4178		1049		166
1999	4661		1179		194
2000	5279	5319	1381	1391	224
2001	5875	5915	1511	1521	260
2002	6591	6646	1702	1716	305
2003	7106	7161	1823	1837	362

2004	7816	7876	1934	1949	432
2005	8665	8737	2127	2145	515
2006	9698	9740	2325	2335	607
2007	11235	11285	2572	2584	712
2008	12446	12522	2699	2715	851
2009	13902	14005	3063	3087	983
2010	16087	16237	3434	3467	1138

28.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table CQ-2.1 presents human capital per capita for Chongqing by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 16.87 times from 39,260 Yuan to 701,460 Yuan. Real human capital per capita increases 2.81 times from 39,260 Yuan to 149,750 Yuan.

Figure CQ-2.1 reports the results of human capital per capita by gender for Chongqing. [1]The real human capital per capita of male is similar to that of female for Chongqing from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

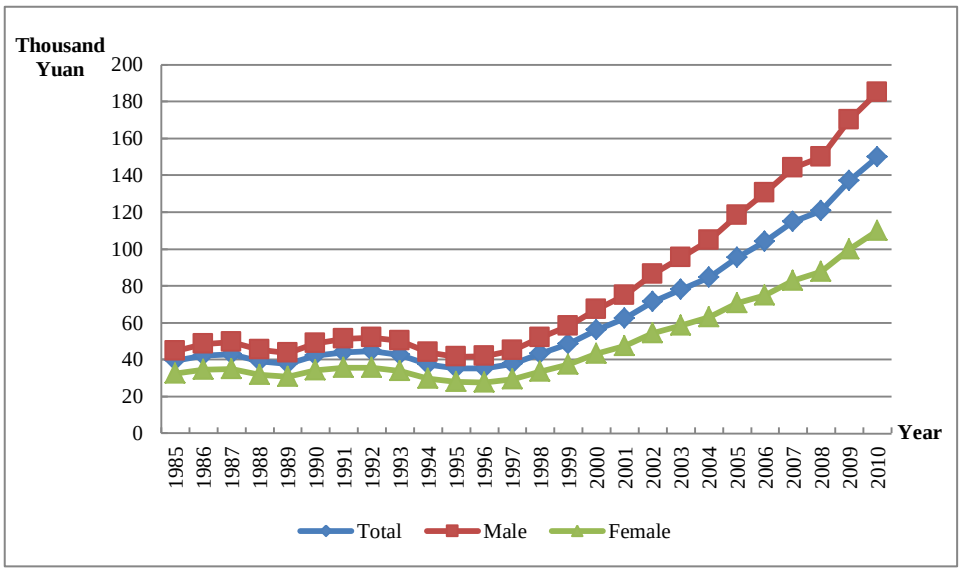


Figure CQ-2.1 Human Capital Per Capita by Gender for Chongqing

Table CQ-2.1 reports the results of human capital per capita by region for Chongqing. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 79,670 Yuan to 1,002,380 Yuan, the per capita rural human capital increases from 27,090 Yuan to 329,880 Yuan. The real human capital per capita for urban increases from 79,670 Yuan to 214,030 Yuan, the per capita rural human capital increases from 27,090 Yuan to 70,440 Yuan.

Table CQ-2.1 Nominal and Real Human Capital Per Capita by Region for Chongqing

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	39.26	79.67	27.09	39.26	79.67	27.09
1986	43.98	88.87	30.11	42.20	85.29	28.89
1987	48.97	98.11	33.45	42.80	85.75	29.24

1988	54.85	109.27	37.25	39.07	77.84	26.54
1989	61.97	123.17	41.74	37.70	74.93	25.39
1990	70.16	139.94	46.64	42.09	83.95	27.98
1991	78.61	154.71	51.32	44.08	86.74	28.77
1992	88.20	171.87	56.36	44.47	86.65	28.42
1993	100.38	194.32	62.44	42.63	82.54	26.52
1994	114.31	219.92	69.12	37.42	72.02	22.64
1995	128.56	245.68	76.12	35.26	67.39	20.88
1996	140.95	265.00	82.50	35.24	66.26	20.63
1997	155.86	289.20	89.89	37.72	70.00	21.76
1998	172.28	316.10	97.76	43.25	79.37	24.55
1999	191.52	347.85	106.71	48.42	87.96	26.98
2000	214.14	391.45	115.59	56.00	102.36	30.23
2001	241.75	430.18	126.08	62.18	110.61	32.42
2002	275.91	479.49	137.92	71.24	123.78	35.60
2003	303.63	507.38	150.59	77.91	130.20	38.64
2004	342.33	555.90	164.64	84.69	137.56	40.74
2005	388.67	615.65	179.86	95.39	151.13	44.15
2006	433.14	664.30	205.75	103.83	159.25	49.32
2007	501.72	755.37	234.73	114.87	172.96	53.75
2008	556.10	819.70	258.88	120.57	177.73	56.13
2009	622.11	897.70	292.17	137.06	197.81	64.38
2010	701.46	1002.38	329.88	149.75	214.03	70.44

Figure CQ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

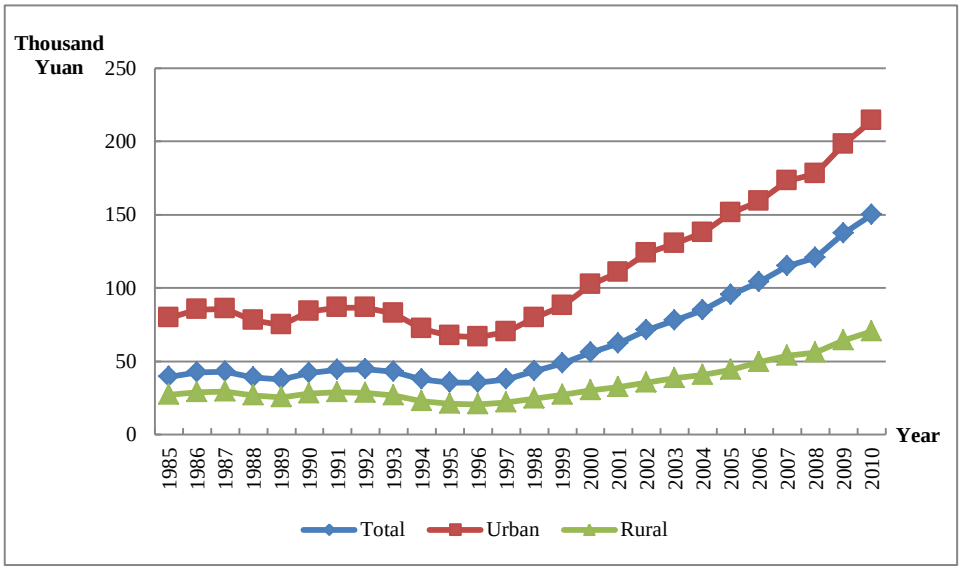


Figure CQ-2.2 Real Human Capital Per Capita by Region for Chongqing

28.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

28.3.1 Total labor force human capital

The total labor force human capital for Chongqing is reported in Table CQ-3.1. From 1985 to 2010, the nominal and real labor force human capital

for Chongqing show differential increases. Nominal labor force human capital increases 23.57 times, from 366 billion Yuan to 8,993 billion Yuan. Real labor force human capital increases almost 4.25 times, from 366 billion Yuan to 1,920 billion Yuan.

Table CQ-3.1 Nominal and Real Labor Force Human Capital for Chongqing

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	366		366	
1986	414		398	
1987	479		419	
1988	573		408	
1989	672		409	
1990	785		471	
1991	906		508	
1992	1024		516	
1993	1153		490	
1994	1282		420	
1995	1414		388	
1996	1541		385	
1997	1690		409	
1998	1862		468	
1999	2038		515	
2000	2244	2256	587	590
2001	2383	2402	613	618
2002	2570	2584	663	667
2003	2770	2780	711	713
2004	2981	2985	738	738
2005	3269	3277	803	804

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	3816	3831	915	918
2007	4449	4474	1019	1025
2008	5210	5252	1130	1139
2009	6682	6762	1472	1490
2010	8993	9133	1920	1951

28.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table CQ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Chongqing show differential increases. Nominal average labor force human capital increases more than 18.41 times, from 27,620 Yuan to 536,100 Yuan. Real average labor force human capital increases more than 3.14 times, from 27,620 Yuan to 114,440 Yuan.

Table CQ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 48,760 Yuan to 757,820 Yuan in urban, and increases from 20,900 Yuan to 233,020 Yuan in rural. The real human capital increases from 48,760 Yuan to 161,810 Yuan in urban, and increases from 20,900 Yuan to 49,750 Yuan in rural.

Table CQ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Chongqing

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	27.62	48.76	20.90	27.62	48.76	20.90
1986	30.81	54.54	23.16	29.57	52.35	22.22
1987	34.77	61.90	25.88	30.39	54.10	22.62
1988	39.50	70.05	29.22	28.14	49.90	20.81
1989	44.43	78.45	32.75	27.02	47.72	19.92
1990	49.95	88.12	36.62	29.96	52.87	21.97
1991	56.09	97.83	40.84	31.45	54.85	22.90
1992	62.25	107.23	45.23	31.39	54.06	22.80
1993	69.63	119.36	49.84	29.58	50.70	21.17
1994	77.23	131.48	54.41	25.29	43.06	17.82
1995	85.12	144.39	59.31	23.34	39.60	16.27
1996	92.70	156.45	63.49	23.18	39.12	15.87
1997	101.35	169.92	68.19	24.53	41.13	16.50
1998	110.77	185.60	73.36	27.82	46.60	18.42
1999	120.65	202.14	78.30	30.50	51.11	19.80
2000	130.99	215.07	83.70	34.24	56.24	21.89
2001	142.86	229.64	89.75	36.73	59.04	23.08
2002	156.59	246.72	96.79	40.42	63.69	24.99
2003	172.02	266.29	104.01	44.15	68.33	26.69
2004	190.22	290.50	110.44	47.07	71.88	27.33
2005	212.44	320.36	117.60	52.16	78.64	28.87
2006	249.33	370.75	136.36	59.77	88.88	32.69
2007	292.60	429.25	156.74	67.01	98.29	35.89
2008	344.60	498.19	178.56	74.73	108.02	38.72
2009	426.50	607.03	204.64	93.96	133.76	45.09
2010	536.10	757.82	233.02	114.44	161.81	49.75

Chapter 29 Human Capital for Sichuan

29.1 Total human capital

Table SC-1.1 gives the results of nominal and real total human capital and real physical capital for Sichuan.

Table SC-1.1 Real physical capital, Nominal and Real Human Capital for Sichuan

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	2154		2154		60
1986	2445		2335		66
1987	2780		2479		74
1988	3155		2343		82
1989	3563		2203		90
1990	4031		2401		100
1991	4511		2611		112
1992	5054		2743		129
1993	5723		2655		156
1994	6421		2386		190
1995	7150		2236		232
1996	7780		2221		278
1997	8481		2303		329
1998	9241		2515		390
1999	10174		2804		449
2000	11428	11450	3138	3141	516
2001	12727	12763	3408	3415	590
2002	14122	14168	3784	3793	674
2003	15702	15767	4140	4154	770

2004	17363	17460	4358	4378	881
2005	18886	18988	4663	4682	1016
2006	21626	21731	5200	5221	1183
2007	24879	25028	5627	5656	1387
2008	28280	28501	6075	6116	1629
2009	32070	32330	6823	6873	1900
2010	36820	37170	7582	7647	2207

29.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table SC-2.1 presents human capital per capita for Sichuan by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 17.06 times from 31,320 Yuan to 565,710 Yuan. Real human capital per capita increases 2.72 times from 31,320 Yuan to 116,490 Yuan.

Figure SC-2.1 reports the results of human capital per capita by gender for Sichuan. [1]The real human capital per capita of male is similar to that of female for Sichuan from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

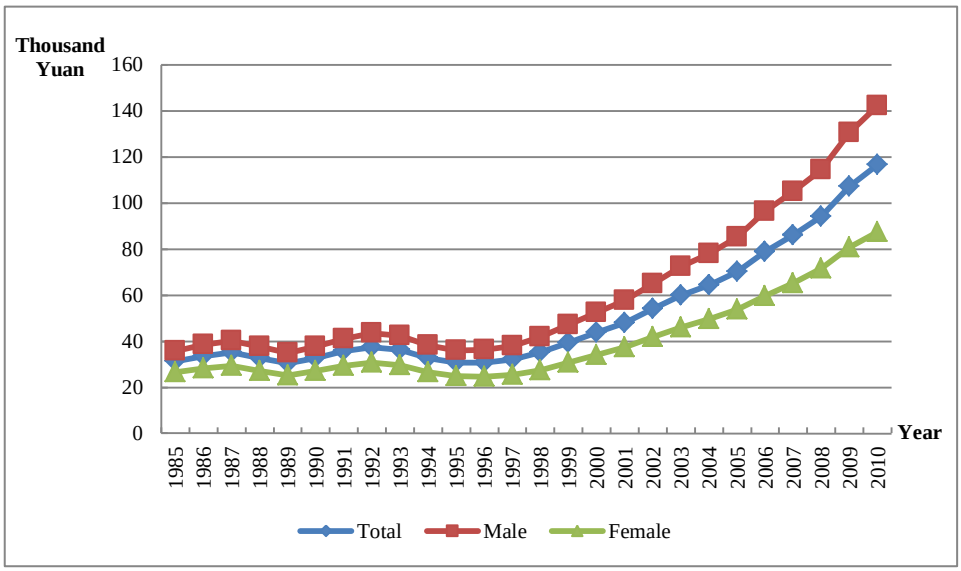


Figure SC-2.1 Human Capital Per Capita by Gender for Sichuan

Table SC-2.1 reports the results of human capital per capita by region for Sichuan. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 64,640 Yuan to 907,840 Yuan, the per capita rural human capital increases from 24,800 Yuan to 321770 Yuan. The real human capital per capita for urban increases from 64,640 Yuan to 179,880Yuan, the per capita rural human capital increases from 24,800Yuan to 71,260 Yuan.

Table SC-2.1 Nominal and Real Human Capital Per Capita by Region for Sichuan

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	31.32	64.64	24.80	31.32	64.64	24.80
1986	35.18	72.09	27.69	33.58	68.79	26.44
1987	39.31	80.11	30.83	35.05	69.43	27.88
1988	44.04	89.09	34.42	32.71	62.83	26.27

1989	49.15	97.88	38.43	30.39	58.59	24.18
1990	54.90	109.03	42.75	32.70	64.31	25.62
1991	61.49	121.41	47.21	35.59	68.65	27.71
1992	68.95	135.86	52.01	37.42	69.97	29.18
1993	78.34	154.66	57.70	36.34	68.14	27.74
1994	88.03	172.74	63.92	32.71	59.50	25.09
1995	98.54	191.47	70.51	30.82	55.42	23.39
1996	107.65	205.01	76.83	30.74	54.04	23.36
1997	117.85	220.39	83.73	32.00	55.28	24.25
1998	128.87	237.67	91.09	35.07	59.73	26.52
1999	142.92	260.64	99.73	39.39	66.77	29.32
2000	159.23	293.07	109.14	43.72	75.31	31.90
2001	179.38	331.03	119.38	48.03	83.56	33.98
2002	201.46	370.46	131.32	53.98	93.98	37.37
2003	227.30	418.00	144.70	59.93	104.06	40.82
2004	256.32	467.44	160.65	64.33	111.25	43.07
2005	283.97	506.21	179.24	70.11	118.47	47.30
2006	327.34	570.87	200.94	78.71	130.47	51.84
2007	380.40	652.05	225.76	86.04	140.72	54.94
2008	437.90	733.80	253.12	94.07	151.25	58.33
2009	503.63	820.95	288.06	107.15	168.10	65.75
2010	565.71	907.84	321.77	116.49	179.88	71.26

Figure SC-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

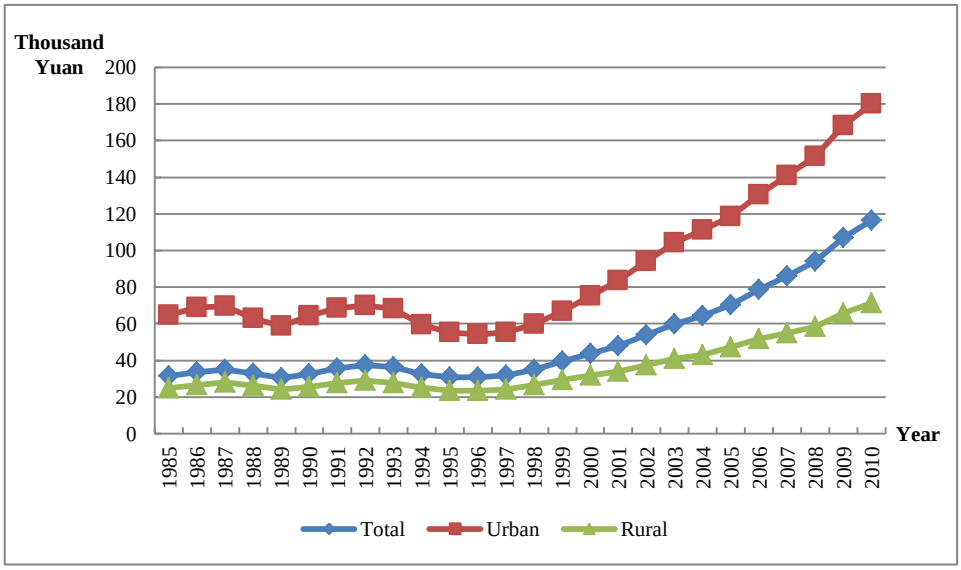


Figure SC-2.2 Real Human Capital Per Capita by Region for Sichuan

29.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

29.3.1 Total labor force human capital

The total labor force human capital for Sichuan is reported in Table SC-3.1. From 1985 to 2010, the nominal and real labor force human capital for Sichuan show differential increases. Nominal labor force human capital increases 14.67 times, from 999 billion Yuan to 15,659 billion Yuan. Real labor force human capital increases almost 2.26 times, from 999 billion Yuan to 3,252 billion Yuan.

Table SC-3.1 Nominal and Real Labor Force Human Capital for Sichuan

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	999		999	
1986	1127		1076	
1987	1303		1164	
1988	1546		1152	
1989	1801		1116	
1990	2110		1258	
1991	2410		1397	
1992	2710		1478	
1993	3022		1411	
1994	3306		1241	
1995	3601		1139	
1996	3860		1115	
1997	4164		1143	
1998	4512		1240	
1999	4846		1347	
2000	5354	5308	1480	1467
2001	5640	5603	1522	1512
2002	5991	5965	1619	1612
2003	6346	6338	1692	1688
2004	6669	6647	1691	1685
2005	7077	7058	1762	1757
2006	8244	8229	2004	1999
2007	9453	9442	2167	2163
2008	10900	10905	2370	2370
2009	12838	12858	2760	2762
2010	15659	15720	3252	3262

29.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table SC-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Sichuan show differential increases. Nominal average labor force human capital increases more than 13.98 times, from 23,180 Yuan to 347,150 Yuan. Real average labor force human capital increases more than 2.11 times, from 23,180 Yuan to 72,090 Yuan.

Table SC-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 41,860 Yuan to 522,170 Yuan in urban, and increases from 19,620 Yuan to 233,560 Yuan in rural. The real human capital increases from 41,860 Yuan to 103,460 Yuan in urban, and increases from 19,620 Yuan to 51,730 Yuan in rural.

Table SC-3.2 Nominal and Real Average Labor Force Human Capital by Region for Sichuan

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	23.18	41.86	19.62	23.18	41.86	19.62
1986	25.97	46.70	21.82	24.80	44.56	20.84
1987	29.37	52.82	24.49	26.22	45.77	22.15
1988	33.28	59.49	27.69	24.80	41.95	21.13
1989	37.50	66.62	31.09	23.23	39.88	19.57
1990	42.33	75.17	34.97	25.24	44.33	20.96
1991	47.29	82.88	38.99	27.42	46.86	22.89
1992	52.53	91.73	43.16	28.65	47.24	24.22
1993	58.47	101.88	47.65	27.29	44.88	22.91
1994	64.41	112.11	52.20	24.18	38.62	20.49

1995	71.02	122.93	57.05	22.47	35.58	18.93
1996	76.92	132.93	61.22	22.21	35.04	18.62
1997	83.70	143.95	65.91	22.97	36.11	19.09
1998	91.01	155.80	70.99	25.02	39.16	20.66
1999	98.82	167.58	75.89	27.47	42.93	22.31
2000	108.31	182.38	81.30	29.93	46.86	23.76
2001	117.28	195.94	87.40	31.64	49.46	24.87
2002	126.96	210.75	94.38	34.31	53.47	26.86
2003	137.16	225.83	101.97	36.56	56.22	28.76
2004	148.62	241.93	109.31	37.69	57.58	29.31
2005	161.93	260.49	117.61	40.32	60.96	31.04
2006	188.63	297.46	137.18	45.85	67.98	35.39
2007	217.81	337.38	158.63	49.93	72.81	38.60
2008	252.90	385.66	181.09	54.99	79.49	41.73
2009	297.57	449.18	206.87	63.97	91.97	47.22
2010	347.15	522.17	233.56	72.09	103.46	51.73

Chapter 30 Human Capital for Guizhou

30.1 Total human capital

Table GZ-1.1 gives the results of nominal and real total human capital and real physical capital for Guizhou.

Table GZ-1.1 Real physical capital, Nominal and Real Human Capital for Guizhou

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	764		764		23
1986	862		817		25
1987	972		853		26
1988	1105		811		28
1989	1246		772		30
1990	1419		863		31
1991	1650		961		33
1992	1898		1023		34
1993	2164		1005		36
1994	2491		942		38
1995	2835		883		41
1996	3164		899		45
1997	3473		955		49
1998	3784		1038		55
1999	4128		1141		61
2000	4553	4575	1264	1271	68
2001	5240	5262	1426	1432	79
2002	5966	6002	1639	1649	90
2003	6417	6450	1741	1750	103

2004	7088	7127	1849	1858	118
2005	7866	7917	2031	2044	134
2006	8665	8664	2199	2199	153
2007	9794	9791	2339	2339	176
2008	10629	10632	2363	2364	202
2009	11512	11509	2594	2594	232
2010	12575	12640	2754	2769	272

30.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table GZ-2.1 presents human capital per capita for Guizhou by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.57 times from 27,290 Yuan to 425,010 Yuan. Real human capital per capita increases 2.41 times from 27,290 Yuan to 93,080 Yuan.

Figure GZ-2.1 reports the results of human capital per capita by gender for Guizhou. [1]The real human capital per capita of male is similar to that of female for Guizhou from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

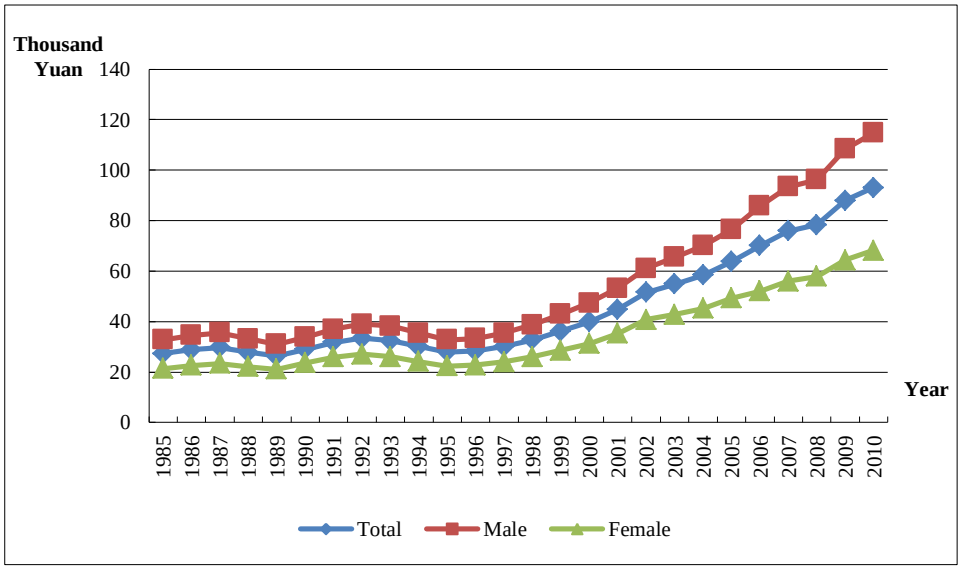


Figure GZ-2.1 Human Capital Per Capita by Gender for Guizhou

Table GZ-2.1 reports the results of human capital per capita by region for Guizhou. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 77,660 Yuan to 924,700 Yuan, the per capita rural human capital increases from 15,000 Yuan to 160,690 Yuan. The real human capital per capita for urban increases from 77,660 Yuan to 204,750 Yuan, the per capita rural human capital increases from 15,000 Yuan to 34,000 Yuan.

Table GZ-2.1 Nominal and Real Human Capital Per Capita by Region for Guizhou

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	27.29	77.66	15.00	27.29	77.66	15.00
1986	30.50	87.53	16.59	28.88	82.27	15.86
1987	33.87	97.91	18.36	29.71	83.88	16.59
1988	37.96	110.99	20.38	27.85	78.26	15.71

1989	42.36	124.83	22.56	26.26	74.66	14.64
1990	47.52	142.27	25.00	28.91	84.17	15.78
1991	54.54	159.97	27.92	31.75	91.08	16.77
1992	61.95	178.13	31.02	33.38	93.30	17.43
1993	69.86	196.40	34.57	32.45	88.84	16.71
1994	79.65	220.93	38.35	30.13	81.91	15.00
1995	89.55	243.43	42.48	27.89	75.53	13.33
1996	99.75	275.16	45.79	28.35	77.19	13.33
1997	109.53	304.35	49.49	30.11	82.57	13.93
1998	119.63	333.70	53.46	32.81	90.08	15.11
1999	130.90	366.81	57.72	36.19	100.12	16.36
2000	143.62	401.57	62.54	39.88	110.49	17.69
2001	164.63	460.25	68.36	44.81	123.67	19.13
2002	187.70	523.52	74.70	51.55	142.24	21.05
2003	202.13	548.82	81.64	54.85	147.78	22.55
2004	224.09	600.36	89.56	58.44	156.19	23.50
2005	246.76	652.43	98.06	63.70	168.73	25.20
2006	275.90	695.57	108.46	70.03	177.05	27.32
2007	317.97	775.03	119.97	75.93	186.29	28.14
2008	352.26	824.33	131.21	78.32	185.18	28.29
2009	390.14	877.06	145.44	87.90	199.83	31.66
2010	425.01	924.70	160.69	93.08	204.75	34.00

Figure GZ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

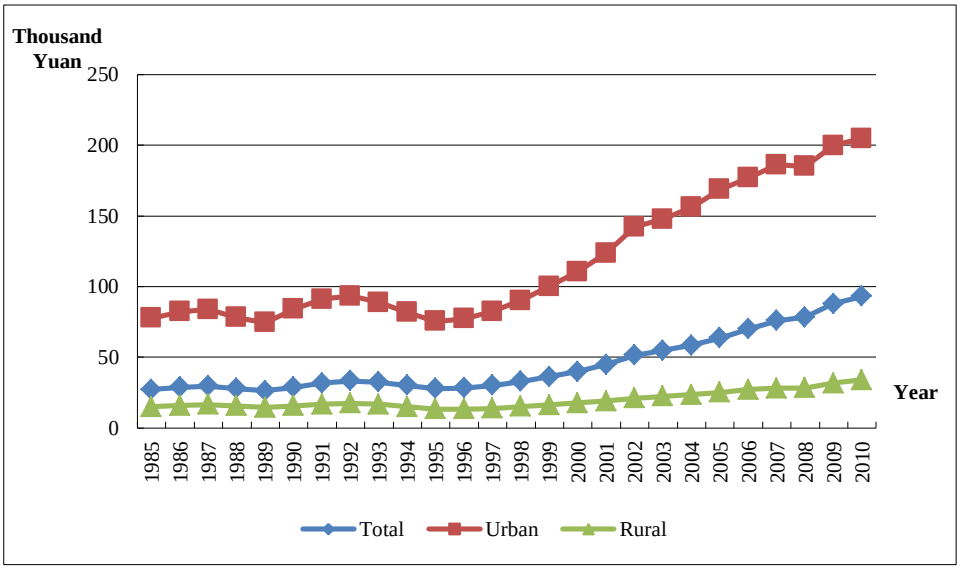


Figure GZ-2.2 Real Human Capital Per Capita by Region for Guizhou

30.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

30.3.1 Total labor force human capital

The total labor force human capital for Guizhou is reported in Table GZ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Guizhou show differential increases. Nominal labor force human capital increases 19.69 times, from 282 billion Yuan to 5,836 billion Yuan. Real labor force human capital increases almost 3.53 times, from 282 billion Yuan to 1,277 billion Yuan.

Table GZ-3.1 Nominal and Real Labor Force Human Capital for Guizhou

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	282		282	
1986	320		304	
1987	368		324	
1988	430		318	
1989	494		308	
1990	567		347	
1991	666		390	
1992	767		417	
1993	880		412	
1994	999		380	
1995	1138		355	
1996	1220		348	
1997	1315		363	
1998	1418		391	
1999	1521		423	
2000	1657	1653	462	461
2001	1783	1779	488	487
2002	1935	1928	535	533
2003	2106	2098	574	571
2004	2322	2312	606	604
2005	2591	2595	668	669
2006	2877	2864	729	726
2007	3218	3204	766	763
2008	3649	3634	807	804
2009	4567	4550	1026	1022
2010	5836	5892	1277	1289

30.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table GZ-3.3 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Guizhou show differential increases. Nominal average labor force human capital increases more than 14.38 times, from 19,850 Yuan to 305,320 Yuan. Real average labor force human capital increases more than 2.36 times, from 19,850 Yuan to 66,800 Yuan.

Table GZ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 46,600 Yuan to 629,560 Yuan in urban, and increases from 12,870 Yuan to 127,930 Yuan in rural. The real human capital increases from 46,600 Yuan to 139,400 Yuan in urban, and increases from 12,870 Yuan to 27,070 Yuan in rural.

Table GZ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Guizhou

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	19.85	46.60	12.87	19.85	46.60	12.87
1986	21.89	51.47	14.27	20.76	48.37	13.64
1987	24.26	57.58	15.89	21.38	49.33	14.36
1988	27.19	65.06	17.63	20.10	45.88	13.59
1989	30.33	73.17	19.50	18.93	43.76	12.65
1990	33.72	82.18	21.62	20.63	48.61	13.65
1991	37.91	91.53	24.22	22.19	52.11	14.55
1992	42.37	101.03	27.01	23.01	52.92	15.17
1993	47.64	112.08	30.09	22.29	50.70	14.55
1994	53.28	123.60	33.25	20.28	45.83	13.01

1995	59.72	136.10	36.65	18.63	42.23	11.50
1996	64.17	148.04	39.47	18.32	41.53	11.49
1997	69.11	161.52	42.58	19.09	43.82	11.98
1998	74.68	177.14	45.87	20.61	47.82	12.96
1999	80.73	194.10	49.04	22.44	52.98	13.90
2000	88.06	210.23	52.63	24.54	57.85	14.89
2001	95.63	230.36	57.06	26.19	61.90	15.97
2002	103.88	250.01	61.69	28.70	67.93	17.38
2003	112.82	270.09	66.70	30.74	72.73	18.43
2004	124.72	297.63	71.81	32.56	77.43	18.84
2005	137.60	326.13	77.28	35.49	84.34	19.86
2006	154.96	365.46	86.30	39.28	93.03	21.74
2007	176.65	411.60	95.61	42.05	98.93	22.43
2008	203.38	463.71	105.38	44.99	104.17	22.72
2009	250.53	543.54	116.39	56.28	123.84	25.34
2010	305.32	629.56	127.93	66.80	139.40	27.07

Chapter 31 Human Capital for Yunnan

31.1 Total human capital

Table YN-1.1 gives the results of nominal and real total human capital and real physical capital for Yunnan.

Table YN-1.1 Real physical capital, Nominal and Real Human Capital for Yunnan

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	637		637		54
1986	734		693		56
1987	853		754		58
1988	971		718		61
1989	1096		683		63
1990	1248		757		66
1991	1426		839		73
1992	1628		875		82
1993	1864		825		90
1994	2128		794		98
1995	2405		741		107
1996	2677		760		118
1997	2968		809		130
1998	3296		884		146
1999	3648		981		162
2000	4057	4074	1115	1120	176
2001	4719	4749	1310	1320	191
2002	5373	5410	1498	1510	208
2003	6192	6247	1712	1727	229

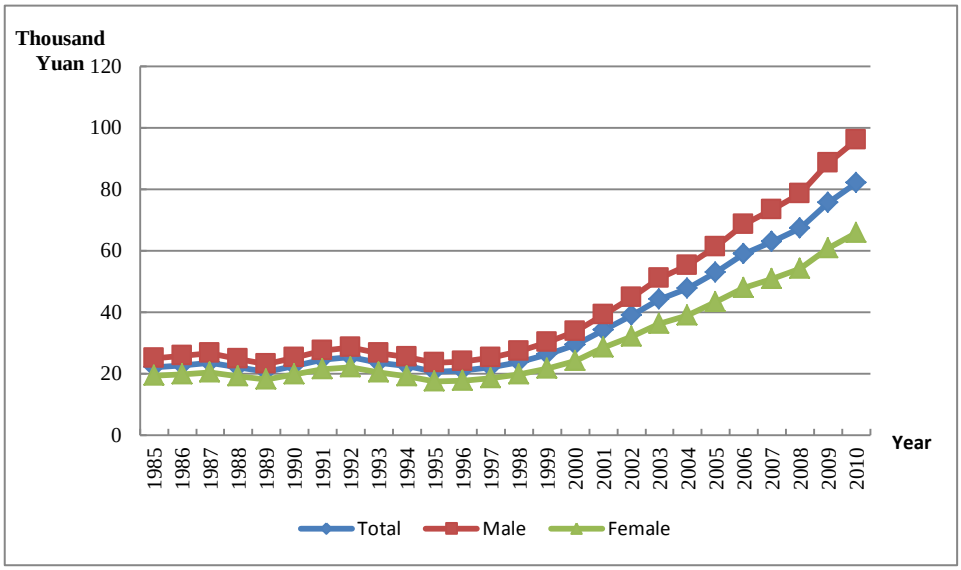
2004	7110	7185	1858	1878	255
2005	8063	8147	2080	2103	288
2006	9195	9299	2333	2360	330
2007	10423	10549	2500	2532	379
2008	11780	11940	2680	2718	420
2009	13339	13532	3025	3071	482
2010	15012	15257	3287	3341	579

31.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table YN-2.1 presents human capital per capita for Yunnan by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 16.04 times from 21,970 Yuan to 374,450 Yuan. Real human capital per capita increases 2.73 times from 21,970 Yuan to 81,980 Yuan.

Figure YN-2.1 reports the results of human capital per capita by gender for Beijing. [1]The real human capital per capita of male is similar to that of female for Yunnan from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.



.Figure YN-2.1 Real Human Capital Per Capita by Gender for Yunnan

Table YN-2.1 reports the results of human capital per capita by region for Yunnan. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 54,340 Yuan to 752,120 Yuan, the per capita rural human capital increases from 16,630 Yuan to 173,400 Yuan. The real human capital per capita for urban increases from 54,340 Yuan to 169,330 Yuan, the per capita rural human capital increases from 16,630 Yuan to 35,420 Yuan.

Table YN-2.1 Nominal and Real Human Capital Per Capita by Region for Yunnan

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	21.97	54.34	16.63	21.97	54.34	16.63
1986	24.02	59.93	18.19	22.69	57.18	17.09
1987	26.54	67.46	20.01	23.46	59.93	17.64
1988	29.70	74.35	22.34	21.95	54.55	16.58

1989	32.97	80.66	24.88	20.54	50.19	15.52
1990	36.95	90.45	27.65	22.41	55.40	16.68
1991	41.73	100.06	30.77	24.55	59.04	18.07
1992	47.01	110.99	34.09	25.27	59.32	18.40
1993	53.17	123.90	37.90	23.54	55.74	16.59
1994	59.96	137.92	42.05	22.36	52.90	15.35
1995	66.88	151.36	46.36	20.61	48.25	13.90
1996	73.52	164.94	50.13	20.87	48.47	13.81
1997	80.64	178.66	54.28	21.98	50.19	14.39
1998	88.52	195.32	58.59	23.74	53.58	15.37
1999	97.04	212.65	63.15	26.10	59.04	16.45
2000	106.67	232.35	68.36	29.31	66.10	18.10
2001	123.16	269.94	74.95	34.20	78.28	19.72
2002	139.42	301.25	82.25	38.88	87.98	21.54
2003	159.60	344.03	90.20	44.12	99.18	23.38
2004	182.21	389.74	99.21	47.61	105.90	24.29
2005	205.00	434.26	108.47	52.89	116.03	26.29
2006	232.23	486.88	119.16	58.92	127.66	28.37
2007	262.11	542.79	130.91	62.87	134.39	29.43
2008	295.53	605.11	143.34	67.23	142.14	30.40
2009	333.33	676.72	157.70	75.60	158.15	33.37
2010	374.45	752.12	173.40	81.98	169.33	35.42

Figure YN-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

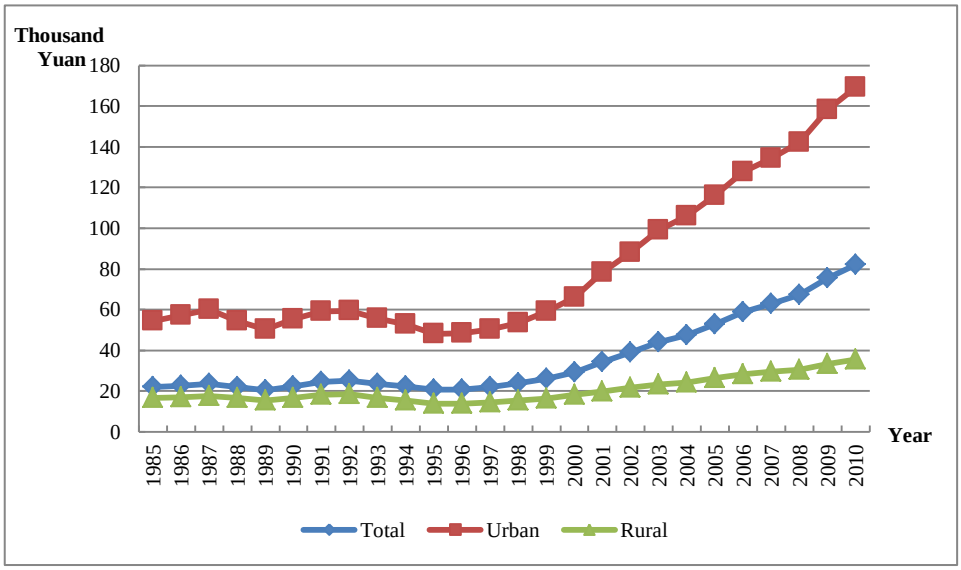


Figure YN-2.2 Real Human Capital Per Capita by Region for Yunnan

31.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

31.3.1 Total labor force human capital

The total labor force human capital for Yunnan is reported in Table YN-3.1. From 1985 to 2010, the nominal and real labor force human capital

for Yunnan show differential increases. Nominal labor force human capital increases 24.44 times, from 273 billion Yuan to 6,945 billion Yuan. Real labor force human capital increases almost 4.52 times, from 273 billion Yuan to 1,507 billion Yuan.

Table YN-3.1 Nominal and Real Labor Force Human Capital for Yunnan

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	273		273	
1986	325		307	
1987	390		345	
1988	459		339	
1989	535		333	
1990	626		380	
1991	730		430	
1992	837		450	
1993	963		426	
1994	1106		412	
1995	1270		391	
1996	1430		405	
1997	1599		435	
1998	1797		481	
1999	2000		538	
2000	2222	2209	610	606
2001	2454	2434	679	673
2002	2735	2718	758	754
2003	3051	3041	836	834
2004	3386	3391	876	877
2005	3799	3809	971	974

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	4273	4285	1073	1077
2007	4751	4767	1128	1132
2008	5334	5358	1201	1207
2009	6096	6128	1369	1377
2010	6945	6993	1507	1518

31.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table YN-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Yunnan show differential increases. Nominal average labor force human capital increases more than 12.67 times, from 18,530 Yuan to 253,320 Yuan. Real average labor force human capital increases more than 1.97 times, from 18,530 Yuan to 54,980 Yuan.

Table YN-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 41,800 Yuan to 473,900 Yuan in urban, and increases from 14,290 Yuan to 146,330 Yuan in rural. The real human capital increases from 41,800 Yuan to 106,700 Yuan in urban, and increases from 14,290 Yuan to 29,890 Yuan in rural.

Table YN-3.2 Nominal and Real Average Labor Force Human Capital by Region for Yunnan

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	18.53	41.80	14.29	18.53	41.80	14.29
1986	20.52	47.67	15.64	19.39	45.48	14.70
1987	23.05	54.25	17.17	20.38	48.20	15.14
1988	25.81	58.40	19.41	19.07	42.84	14.41
1989	28.72	63.01	21.83	17.89	39.21	13.61
1990	32.13	69.22	24.54	19.48	42.40	14.80
1991	36.08	76.85	27.35	21.22	45.35	16.06
1992	40.14	84.75	30.37	21.58	45.29	16.39
1993	44.83	93.93	33.83	19.84	42.26	14.81
1994	50.01	104.10	37.42	18.62	39.93	13.66
1995	55.93	115.80	41.25	17.21	36.92	12.37
1996	61.45	126.77	44.53	17.41	37.25	12.27
1997	67.66	138.61	48.06	18.42	38.94	12.74
1998	74.26	150.84	51.87	19.89	41.38	13.61
1999	81.03	162.77	55.64	21.78	45.20	14.49
2000	88.27	175.24	59.80	24.23	49.85	15.83
2001	97.61	192.90	65.44	26.99	55.94	17.22
2002	108.00	212.78	71.68	29.93	62.14	18.77
2003	118.84	232.88	78.67	32.56	67.14	20.39
2004	131.01	255.18	86.10	33.89	69.34	21.08
2005	144.86	282.19	93.96	37.01	75.40	22.77
2006	161.24	312.60	103.01	40.48	81.96	24.52
2007	178.82	343.87	112.32	42.45	85.14	25.25
2008	199.37	379.44	122.37	44.88	89.13	25.95
2009	224.51	424.36	134.00	50.43	99.17	28.36
2010	253.32	473.90	146.33	54.98	106.70	29.89

Chapter 32 Human Capital for Tibet

32.1 Total human capital

Table XZ-1.1 gives the results of nominal and real total human capital and real physical capital for Tibet.

Table XZ-1.1 Real physical capital, Nominal and Real Human Capital for Tibet

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	64		64		4.7
1986	74		69		5.0
1987	83		73		5.3
1988	94		71		5.5
1989	106		69		5.7
1990	121		75		6.0
1991	135		76		6.3
1992	153		79		6.6
1993	172		79		6.8
1994	191		68		7.0
1995	216		65		7.3
1996	255		70		7.7
1997	296		78		8.1
1998	341		89		8.7
1999	385		100		9.5
2000	432	433	112	112	10.3
2001	516	516	134	134	11.4
2002	612	611	158	158	13.5
2003	702	702	179	179	16.6

2004	810	810	202	202	21.9
2005	909	909	223	223	27.8
2006	1035	1037	249	249	34.4
2007	1118	1119	261	261	41.6
2008	1232	1235	272	272	48.4
2009	1358	1362	295	296	56.9
2010	1480	1486	315	316	70.5

32.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table XZ-2.1 presents human capital per capita for Tibet by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 14.39 times from 35,040 Yuan to 539,570 Yuan. Real human capital per capita increases 2.28 times from 35,040 Yuan to 114,970 Yuan.

Figure XZ-2.1 reports the results of human capital per capita by gender for Tibet. [1]The real human capital per capita of male is similar to that of female for Tibet from 1985 to 2010. Starting from 1997, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

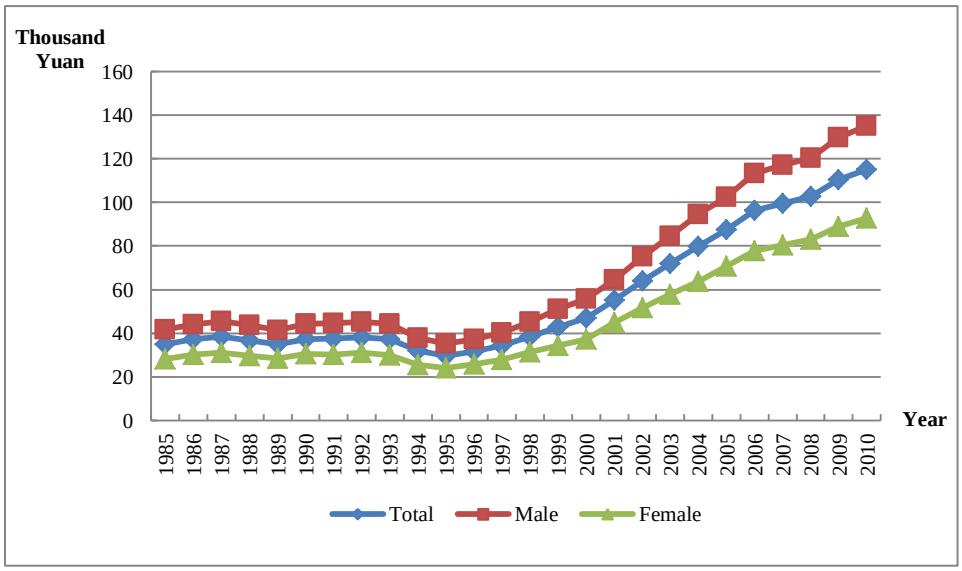


Figure XZ-2.1 Human Capital Per Capita by Gender for Tibet

Table XZ-2.1 reports the results of human capital per capita by region for Tibet. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 181,020 Yuan to 1,660,990 Yuan, the per capita rural human capital increases from 17,860 Yuan to 200,360 Yuan. The real human capital per capita for urban increases from 181,020 Yuan to 347,240 Yuan, the per capita rural human capital increases from 17,860 Yuan to 44,660 Yuan.

Table XZ-2.1 Nominal and Real Human Capital Per Capita by Region for Tibet

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	35.04	181.02	17.86	35.04	181.02	17.86
1986	39.69	204.11	19.65	37.21	190.76	18.50
1987	43.80	221.43	21.65	38.45	191.00	19.43
1988	48.51	238.60	24.02	36.71	174.71	18.93

1989	54.02	261.17	26.64	34.96	165.00	17.77
1990	60.61	289.91	29.55	37.35	174.11	18.83
1991	66.41	307.19	33.02	37.50	168.63	19.32
1992	73.66	335.54	36.86	38.24	168.98	19.88
1993	81.41	362.26	41.37	37.26	158.37	19.99
1994	89.05	386.40	46.03	31.88	134.60	17.03
1995	98.88	414.61	51.52	29.64	119.06	16.22
1996	114.46	454.92	56.28	31.67	119.31	16.70
1997	130.47	490.30	61.60	34.24	122.70	17.31
1998	148.10	530.39	67.00	38.58	132.99	18.55
1999	164.72	561.29	72.66	42.93	141.59	20.02
2000	180.31	589.07	78.90	46.87	148.01	21.78
2001	212.31	701.67	86.68	55.17	177.72	23.71
2002	247.84	827.08	95.05	63.88	207.41	26.03
2003	281.51	934.82	104.53	71.90	232.57	28.37
2004	320.74	1061.18	115.07	79.90	258.83	30.20
2005	355.71	1163.99	126.07	87.41	279.71	32.79
2006	400.31	1303.26	138.70	96.38	307.34	35.24
2007	426.92	1357.90	152.45	99.57	311.20	37.17
2008	465.09	1461.06	167.05	102.61	316.78	38.53
2009	507.49	1577.41	183.10	110.41	337.02	41.71
2010	539.57	1660.99	200.36	114.97	347.24	44.66

Figure XZ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

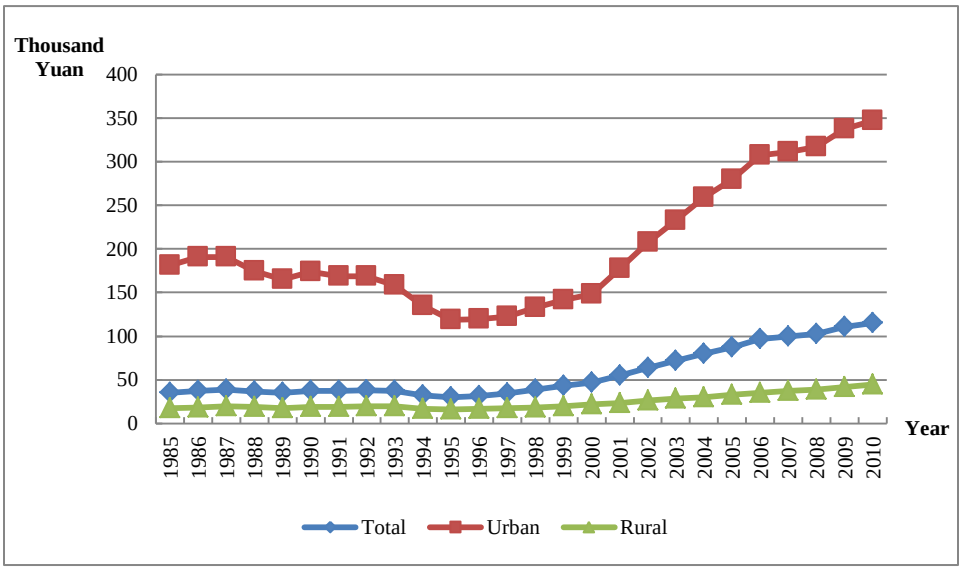


Figure XZ-2.2 Real Human Capital Per Capita by Region for Tibet

32.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

32.3.1 Total labor force human capital

The total labor force human capital for Tibet is reported in Table XZ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Tibet show differential increases. Nominal labor force human capital increases 24.55 times, from 22 billion Yuan to 562 billion Yuan. Real labor force human capital increases almost 4.50 times, from 22 billion Yuan to 121 billion Yuan.

Table XZ-3.1 Nominal and Real Labor Force Human Capital for Tibet

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	22		22	
1986	26		24	
1987	30		26	
1988	33		25	
1989	38		24	
1990	43		27	
1991	49		28	
1992	56		29	
1993	64		30	
1994	74		27	
1995	85		25	
1996	97		27	
1997	112		30	
1998	130		34	
1999	151		40	
2000	174	173	45	45
2001	184	182	48	48
2002	198	196	52	51
2003	218	217	57	56
2004	241	242	61	61
2005	271	273	68	68
2006	306	308	75	75
2007	342	346	81	82
2008	392	397	88	89
2009	458	463	101	102
2010	562	570	121	123

32.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table XZ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Tibet show differential increases. Nominal average labor force human capital increases more than 13.77 times, from 21,470 Yuan to 317,190 Yuan. Real average labor force human capital increases more than 2.17 times, from 21,470 Yuan to 68,160 Yuan.

Table XZ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 94,830 Yuan to 913,180 Yuan in urban, and increases from 15,040 Yuan to 167,690 Yuan in rural. The real human capital increases from 94,830 Yuan to 190,910 Yuan in urban, and increases from 15,040 Yuan to 37,380 Yuan in rural.

Table XZ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Tibet

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	21.47	94.83	15.04	21.47	94.83	15.04
1986	24.61	107.67	16.50	23.10	100.63	15.53
1987	27.53	118.90	18.16	24.32	102.56	16.30
1988	30.42	128.64	20.07	23.28	94.19	15.82
1989	33.95	140.00	22.15	22.16	88.45	14.78
1990	38.06	153.57	24.49	23.66	92.22	15.60
1991	43.15	170.89	27.10	24.56	93.81	15.85
1992	49.02	190.34	29.98	25.62	95.86	16.17
1993	55.72	211.42	33.29	25.69	92.43	16.08

1994	62.75	231.29	36.79	22.55	80.57	13.61
1995	70.90	250.32	40.74	21.32	71.88	12.83
1996	79.38	262.60	44.60	22.11	68.87	13.24
1997	89.44	278.66	49.00	23.62	69.73	13.77
1998	100.98	298.36	53.71	26.45	74.81	14.87
1999	112.72	317.15	58.57	29.51	80.00	16.13
2000	124.22	334.83	64.00	32.44	84.13	17.67
2001	130.55	366.07	70.63	34.22	92.72	19.32
2002	137.93	399.92	77.99	36.06	100.29	21.36
2003	149.28	440.74	86.04	38.74	109.65	23.35
2004	161.93	489.51	94.95	40.96	119.39	24.92
2005	178.73	551.78	104.27	44.68	132.59	27.13
2006	197.43	610.45	115.06	48.30	143.96	29.23
2007	217.35	669.16	126.48	51.36	153.36	30.84
2008	243.31	741.42	138.85	54.34	160.75	32.03
2009	275.43	825.72	152.72	60.61	176.42	34.79
2010	317.19	913.18	167.69	68.16	190.91	37.38

Chapter 33 Human Capital for Shaanxi

33.1 Total human capital

Table SaX-1.1 gives the results of nominal and real total human capital and real physical capital for Shaanxi.

Table SaX-1.1 Real physical capital, Nominal and Real Human Capital for Shaanxi

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	837		837		32
1986	946		893		38
1987	1079		945		44
1988	1223		904		49
1989	1385		858		53
1990	1591		963		57
1991	1836		1044		60
1992	2110		1095		64
1993	2442		1114		68
1994	2790		1001		73
1995	3148		950		78
1996	3504		960		83
1997	3895		1017		90
1998	4331		1149		98
1999	4872		1322		107
2000	5584	5663	1515	1535	118
2001	6399	6514	1714	1744	131
2002	7170	7298	1939	1973	145

2003	8194	8360	2180	2224	164
2004	9190	9386	2371	2421	184
2005	10100	10304	2576	2627	210
2006	11962	12210	2998	3059	244
2007	14035	14333	3342	3412	288
2008	16322	16689	3655	3736	348
2009	18779	19228	4189	4287	418
2010	21709	22240	4659	4773	505

33.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table SaX-2.1 presents human capital per capita for Shaanxi by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 21.80 times from 30,030 Yuan to 684,770 Yuan. Real human capital per capita increases 3.89 times from 30,030 Yuan to 146,950 Yuan.

Figure SaX-2.1 reports the results of human capital per capita by gender for Shaanxi. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1] The gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

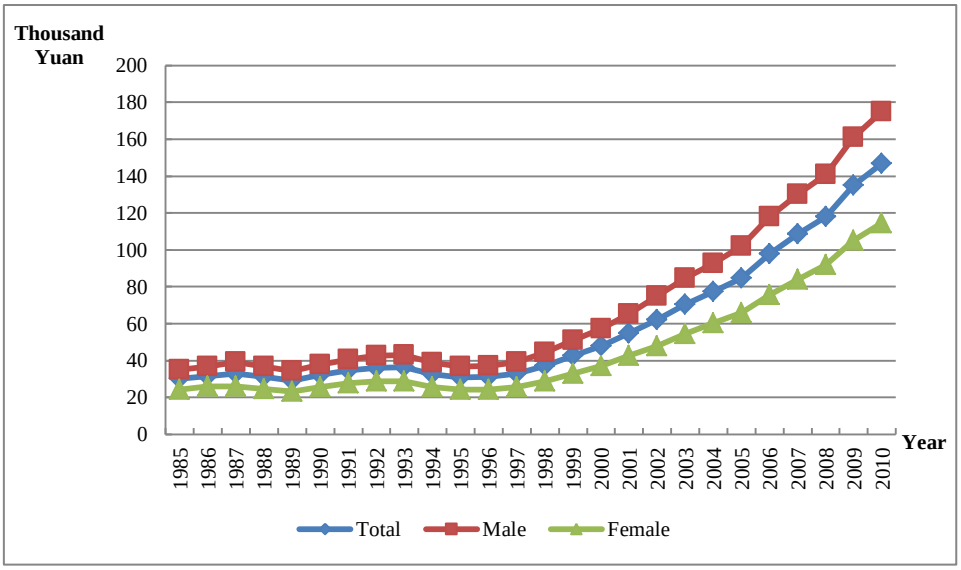


Figure SaX-2.1 Human Capital Per Capita by Gender for Shaanxi

Table SaX-2.1 reports the results of human capital per capita by region for Shaanxi. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 75,630 Yuan to 1,196,170 Yuan, the per capita rural human capital increases from 18,540 Yuan to 240,450 Yuan. The real human capital per capita for urban increases from 75,630 Yuan to 255,980 Yuan, the per capita rural human capital increases from 18,540 Yuan to 52,260 Yuan.

Table SaX-2.1 Nominal and Real Human Capital Per Capita by Region for Shaanxi

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	30.03	75.63	18.54	30.03	75.63	18.54
1986	33.50	83.46	20.70	31.62	78.29	19.66
1987	37.67	93.33	23.09	32.99	80.18	20.63
1988	42.06	103.63	25.75	31.09	74.13	19.69
1989	46.94	114.49	28.73	29.09	69.64	18.16

1990	53.08	129.22	32.01	32.12	76.61	19.82
1991	60.77	146.65	35.64	34.56	81.02	20.96
1992	69.36	165.71	39.56	36.01	82.33	21.68
1993	79.85	189.59	44.02	36.43	82.63	21.35
1994	90.91	212.86	48.84	32.63	72.36	18.92
1995	102.21	235.59	54.09	30.84	67.87	17.47
1996	113.54	257.05	59.17	31.10	67.14	17.44
1997	125.85	280.36	64.61	32.87	69.61	18.31
1998	139.65	307.43	70.21	37.05	78.13	20.04
1999	156.88	342.25	76.80	42.56	89.48	22.28
2000	176.41	382.76	83.86	47.85	99.77	24.57
2001	203.97	436.77	92.32	54.64	113.74	26.29
2002	229.69	476.49	101.32	62.12	126.36	28.73
2003	264.17	537.23	111.16	70.27	141.33	30.46
2004	299.32	594.10	122.32	77.22	151.74	32.48
2005	332.35	640.69	135.09	84.77	162.18	35.23
2006	390.47	737.07	151.88	97.86	182.74	39.45
2007	455.66	842.71	170.12	108.51	198.60	42.05
2008	527.56	956.50	190.11	118.12	212.26	44.04
2009	605.54	1075.90	214.41	135.07	238.76	48.79
2010	684.77	1196.17	240.45	146.95	255.98	52.26

Figure SaX-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

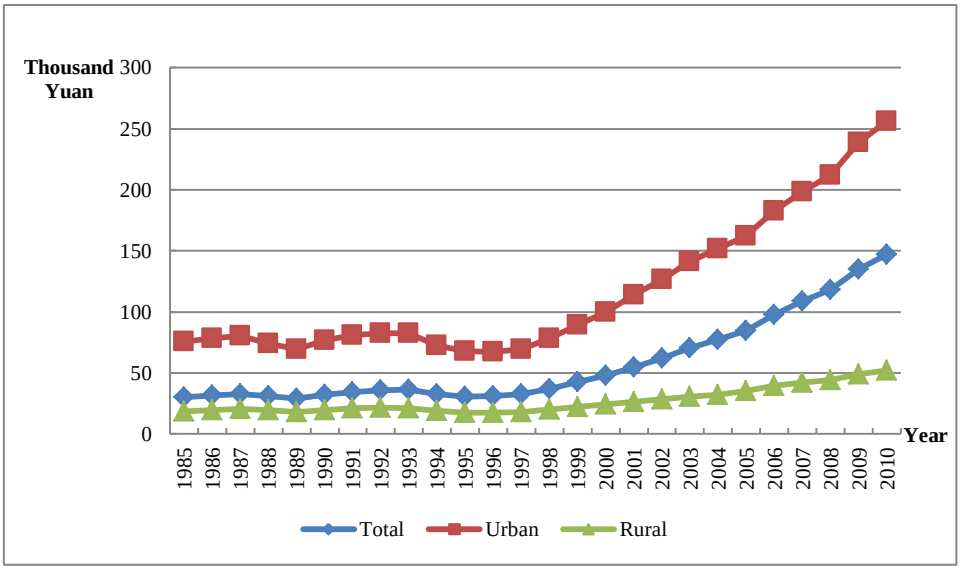


Figure SaX-2.2 Real Human Capital Per Capita by Region for Shaanxi

33.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

33.3.1 Total labor force human capital

The total labor force human capital for Shaanxi is reported in Table SaX-3.1. From 1985 to 2010, the nominal and real labor force human capital for Shaanxi show differential increases. Nominal labor force human capital increases 23.62 times, from 351 billion Yuan to 8,643 billion Yuan. Real labor force human capital increases almost 4.23 times, from 351 billion Yuan to 1,858 billion Yuan.

Table SaX-3.1 Nominal and Real Labor Force Human Capital for Shaanxi

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	351		351	
1986	402		379	
1987	470		413	
1988	552		410	
1989	641		398	
1990	749		454	
1991	837		478	
1992	924		484	
1993	1028		474	
1994	1136		413	
1995	1266		387	
1996	1391		386	
1997	1548		410	
1998	1738		466	
1999	1934		530	
2000	2256	2182	618	598
2001	2388	2327	646	630
2002	2630	2589	717	706
2003	2891	2873	773	768
2004	3156	3163	819	820
2005	3549	3559	909	911
2006	4160	4176	1050	1053
2007	4835	4857	1159	1165
2008	5674	5710	1278	1286
2009	6848	6903	1532	1545
2010	8643	8734	1858	1878

33.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables SaX-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Shaanxi show differential increases. Nominal average labor force human capital increases more than 17.04 times, from 21,480 Yuan to 387,510 Yuan. Real average labor force human capital increases more than 2.87 times, from 21,480 Yuan to 83,300 Yuan.

Table SaX-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 46,290 Yuan to 653,280 Yuan in urban, and increases from 15,390 Yuan to 195,690 Yuan in rural. The real human capital increases from 46,290 Yuan to 139,800 Yuan in urban, and increases from 15,390 Yuan to 42,530 Yuan in rural.

Table SaX-3.2 Nominal and Real Average Labor Force Human Capital by Region for Shaanxi

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	21.48	46.29	15.39	21.48	46.29	15.39
1986	24.08	51.54	17.19	22.75	48.35	16.32
1987	27.45	58.27	19.24	24.10	50.06	17.19
1988	31.08	65.85	21.55	23.07	47.10	16.49
1989	34.97	73.64	24.04	21.72	44.79	15.20
1990	39.71	83.18	26.81	24.08	49.31	16.60
1991	44.07	91.08	29.75	25.16	50.32	17.49
1992	48.65	99.64	32.90	25.46	49.51	18.03
1993	53.86	109.73	36.33	24.83	47.82	17.62

1994	59.54	120.84	39.93	21.67	41.08	15.47
1995	66.20	134.02	43.82	20.23	38.61	14.16
1996	72.69	146.63	47.25	20.16	38.30	13.93
1997	80.34	161.70	51.01	21.26	40.15	14.46
1998	88.91	177.42	55.23	23.85	45.09	15.76
1999	97.82	193.00	59.61	26.79	50.46	17.29
2000	110.52	215.05	64.78	30.26	56.06	18.98
2001	118.75	226.76	71.10	32.12	59.05	20.24
2002	130.25	243.42	77.85	35.52	64.55	22.08
2003	142.51	259.96	85.31	38.12	68.39	23.37
2004	155.70	276.71	93.14	40.38	70.68	24.73
2005	174.15	302.78	102.03	44.59	76.64	26.61
2006	202.67	350.42	117.50	51.13	86.88	30.52
2007	233.96	403.47	134.43	56.10	95.09	33.23
2008	271.78	465.61	152.35	61.23	103.33	35.29
2009	322.17	547.36	173.17	72.08	121.47	39.40
2010	387.51	653.28	195.69	83.30	139.80	42.53

Chapter 34 Human Capital for Gansu

34.1 Total human capital

Table GS-1.1 gives the results of nominal and real total human capital and real physical capital for Gansu.

Table GS-1.1 Real physical capital, Nominal and Real Human Capital for Gansu

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	427		427		28
1986	484		454		30
1987	540		472		33
1988	616		455		36
1989	701		439		38
1990	771		467		40
1991	878		506		43
1992	975		526		44
1993	1099		514		46
1994	1230		464		47
1995	1377		434		49
1996	1536		440		52
1997	1745		485		56
1998	1940		545		60
1999	2169		624		66
2000	2422	2523	699	728	73
2001	2799	2894	776	802	82
2002	3241	3290	898	912	92
2003	3742	3841	1026	1053	103

2004	4286	4400	1148	1180	117
2005	4780	4909	1259	1294	132
2006	5323	5423	1385	1412	149
2007	5959	6054	1470	1495	169
2008	6603	6714	1506	1533	197
2009	7339	7466	1654	1683	225
2010	8150	8294	1763	1795	257

34.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table GS-2.1 presents human capital per capita for Gansu by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 17.86 times from 19,710 Yuan to 371,790 Yuan. Real human capital per capita increases 3.08 times from 19,710 Yuan to 80,430 Yuan.

Figure GS-2.1 reports the results of human capital per capita by gender for Gansu. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1] The gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

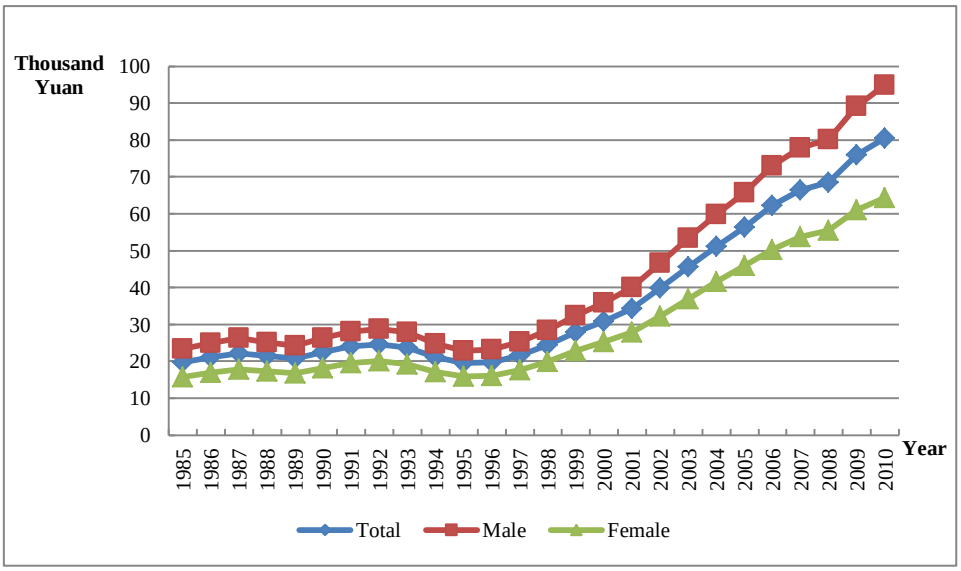


Figure GS-2.1 Human Capital Per Capita by Gender for Gansu

Table GS-2.1 reports the results of human capital per capita by region for Gansu. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 51,670 Yuan to 708,710 Yuan, the per capita rural human capital increases from 12,730 Yuan to 178,060 Yuan. The real human capital per capita for urban increases from 51,670 Yuan to 156,690 Yuan, the per capita rural human capital increases from 12,730 Yuan to 36,570 Yuan.

Table GS-2.1 Nominal and Real Human Capital Per Capita by Region for Gansu

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	19.71	51.67	12.73	19.71	51.67	12.73
1986	22.46	58.02	14.34	21.09	54.22	13.52
1987	25.43	63.95	16.08	22.23	55.14	14.24
1988	28.98	72.26	18.07	21.42	51.66	13.80
1989	33.19	80.21	20.21	20.78	48.52	13.12

1990	37.16	88.27	22.58	22.52	52.39	14.00
1991	41.69	99.33	25.19	24.03	55.78	14.95
1992	45.70	107.22	27.92	24.66	56.11	15.57
1993	50.85	118.10	31.27	23.76	53.65	15.06
1994	56.26	129.14	34.86	21.20	47.08	13.60
1995	62.16	140.43	38.97	19.59	43.06	12.63
1996	69.05	156.38	42.83	19.77	43.47	12.66
1997	78.09	180.37	47.10	21.72	48.78	13.53
1998	86.85	201.74	51.60	24.40	55.11	14.99
1999	96.95	227.79	56.42	27.88	64.02	16.69
2000	107.06	251.10	62.05	30.91	71.14	18.33
2001	123.88	285.59	69.12	34.33	78.55	19.36
2002	143.77	326.93	76.73	39.85	90.55	21.30
2003	166.38	372.48	85.23	45.62	102.25	23.33
2004	191.13	419.14	95.00	51.21	113.58	24.93
2005	214.14	458.07	105.22	56.40	122.66	26.81
2006	239.56	496.41	116.98	62.33	131.35	29.39
2007	269.49	545.39	129.74	66.48	137.18	30.67
2008	300.64	594.28	143.58	68.56	138.40	31.22
2009	336.87	651.87	160.00	75.92	150.46	34.04
2010	371.79	708.71	178.06	80.43	156.69	36.57

Figure GS-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

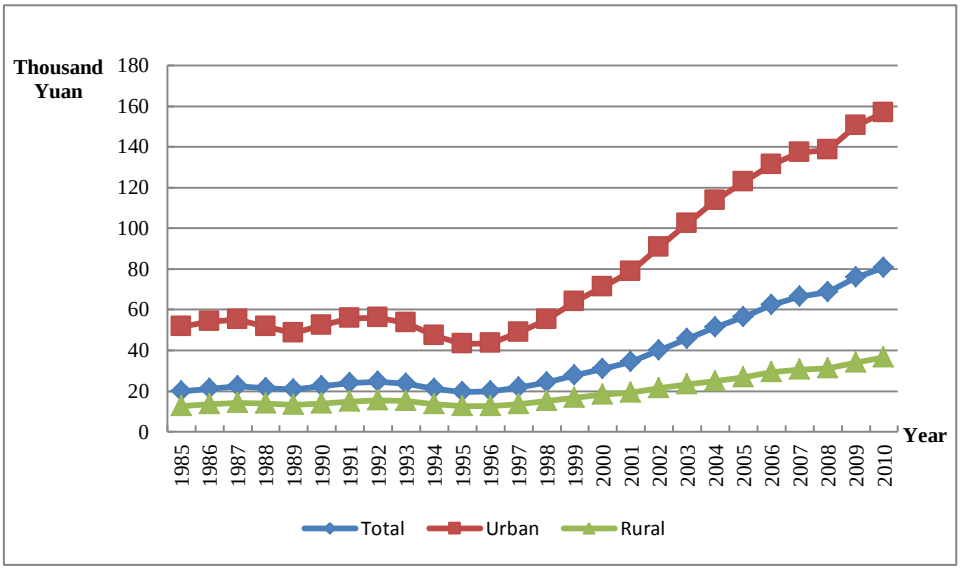


Figure GS-2.2 Real Human Capital Per Capita by Region for Gansu

34.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

34.3.1 Total labor force human capital

The total labor force human capital for Gansu is reported in Table GS-3.1. From 1985 to 2010, the nominal and real labor force human capital for Gansu show differential increases. Nominal labor force human capital increases 15.51 times, from 211 billion Yuan to 3,483 billion Yuan. Real labor force human capital increases almost 2.54 times, from 211 billion Yuan to 747 billion Yuan.

Table GS-3.1 Nominal and Real Labor Force Human Capital for Gansu

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	211		211	
1986	238		224	
1987	271		237	
1988	319		236	
1989	386		242	
1990	425		258	
1991	470		271	
1992	524		283	
1993	586		274	
1994	662		250	
1995	736		232	
1996	789		226	
1997	859		240	
1998	939		265	
1999	1024		296	
2000	1131	1122	327	325
2001	1219	1213	338	337
2002	1340	1337	372	371
2003	1477	1478	405	405
2004	1638	1637	437	436
2005	1838	1838	480	480
2006	2038	2042	526	527
2007	2283	2288	558	559
2008	2574	2583	581	583
2009	2990	3002	667	670
2010	3483	3500	747	751

34.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables GS-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Gansu show differential increases. Nominal average labor force human capital increases more than 13.27 times, from 16,630 Yuan to 237,360 Yuan. Real average labor force human capital increases more than 2.06 times, from 16,630 Yuan to 50,890 Yuan.

Table GS-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 40,210 Yuan to 426,870 Yuan in urban, and increases from 11,260 Yuan to 148,050 Yuan in rural. The real human capital increases from 40,210 Yuan to 94,380 Yuan in urban, and increases from 11,260 Yuan to 30,410 Yuan in rural.

Table GS-3.2 Nominal and Real Average Labor Force Human Capital by Region for Gansu

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	16.63	40.21	11.26	16.63	40.21	11.26
1986	18.75	44.47	12.65	17.60	41.56	11.93
1987	21.30	49.25	14.22	18.64	42.46	12.60
1988	24.44	55.96	16.04	18.08	40.00	12.25
1989	28.98	65.01	18.00	18.14	39.32	11.69
1990	32.20	70.99	20.16	19.52	42.13	12.51
1991	35.08	77.34	22.38	20.26	43.43	13.28
1992	38.39	83.61	24.77	20.75	43.75	13.81
1993	42.30	91.19	27.48	19.79	41.42	13.24

1994	46.94	99.69	30.45	17.70	36.35	11.88
1995	51.56	107.84	33.70	16.26	33.07	10.93
1996	55.68	116.90	36.86	15.97	32.50	10.89
1997	60.59	127.52	40.39	16.90	34.49	11.60
1998	66.10	138.95	44.15	18.64	37.96	12.82
1999	71.78	150.79	47.99	20.71	42.38	14.19
2000	78.22	163.62	52.38	22.64	46.35	15.48
2001	85.52	177.44	58.05	23.75	48.80	16.26
2002	94.19	194.26	64.33	26.11	53.81	17.85
2003	104.18	211.88	71.47	28.55	58.16	19.56
2004	116.15	232.37	79.23	30.96	62.97	20.79
2005	130.41	258.48	87.69	34.07	69.22	22.34
2006	145.56	283.63	97.61	37.55	75.05	24.52
2007	163.18	312.01	107.85	39.86	78.48	25.49
2008	183.27	342.67	119.26	41.37	79.81	25.93
2009	209.82	383.99	132.89	46.77	88.63	28.27
2010	237.36	426.87	148.05	50.89	94.38	30.41

Chapter 35 Human Capital for Qinghai

35.1 Total human capital

Table QH-1.1 gives the results of nominal and real total human capital and real physical capital for Qinghai.

Table QH-1.1 Real physical capital, Nominal and Real Human Capital for Qinghai

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	90		90		11
1986	102		96		12
1987	116		103		13
1988	133		100		14
1989	152		97		15
1990	173		104		16
1991	198		111		16
1992	225		117		17
1993	255		118		19
1994	289		109		20
1995	326		105		21
1996	361		105		24
1997	403		112		27
1998	447		123		30
1999	497		137		34
2000	557	560	154	155	39
2001	648	653	175	176	45
2002	727	733	191	193	53
2003	816	824	210	212	61

2004	912	921	227	229	70
2005	1033	1044	255	257	81
2006	1177	1191	285	288	91
2007	1344	1360	305	308	104
2008	1531	1550	316	320	117
2009	1744	1768	350	354	137
2010	1982	2010	377	382	162

35.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table QH-2.1 presents human capital per capita for Qinghai by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 15.91 times from 23,400 Yuan to 395,780 Yuan. Real human capital per capita increases 2.22 times from 23,400 Yuan to 75,330 Yuan.

Figure QH-2.1 reports the results of human capital per capita by gender for Qinghai. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1] The gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

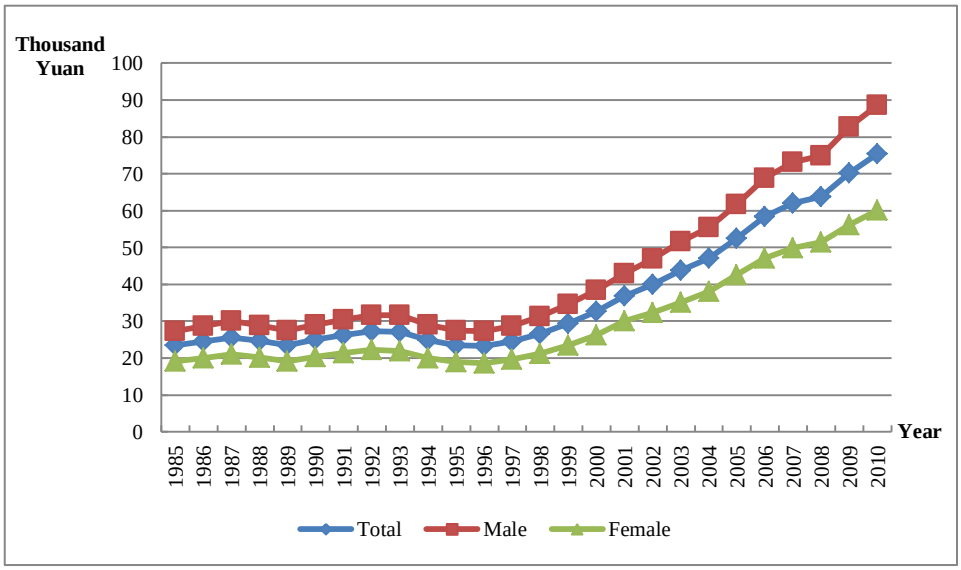


Figure QH-2.1 Human Capital Per Capita by Gender for Qinghai

Table QH-2.2 reports the results of human capital per capita by region for Qinghai. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 54,640 Yuan to 662,230 Yuan, the per capita rural human capital increases from 13,440 Yuan to 182.650 Yuan. The real human capital per capita for urban increases from 54,640 Yuan to 122,850 Yuan, the per capita rural human capital increases from 13,440 Yuan to 37,290 Yuan.

Table QH-2.1 Nominal and Real Human Capital Per Capita by Region for Qinghai

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	23.40	54.64	13.44	23.40	54.64	13.44
1986	26.02	60.07	14.86	24.53	56.46	14.06
1987	29.03	66.42	16.45	25.65	57.91	14.80
1988	32.80	74.27	18.54	24.65	54.60	14.35

1989	36.82	82.24	20.87	23.53	51.54	13.69
1990	41.46	91.70	23.48	25.00	54.89	14.31
1991	46.63	100.95	26.23	26.22	55.59	15.20
1992	52.34	111.19	29.21	27.31	56.38	15.87
1993	58.48	121.44	32.65	27.11	54.01	16.06
1994	65.49	133.52	36.42	24.84	48.21	14.84
1995	73.07	146.36	40.50	23.46	44.14	14.27
1996	79.96	157.50	44.31	23.26	42.64	14.34
1997	88.20	171.65	48.53	24.47	44.22	15.08
1998	96.74	185.86	53.02	26.61	47.59	16.31
1999	106.49	202.62	57.83	29.38	52.14	17.86
2000	118.17	223.58	63.30	32.71	57.77	19.67
2001	136.56	260.44	70.02	36.82	65.33	21.50
2002	152.15	287.35	77.35	40.00	70.60	23.08
2003	169.94	317.93	85.63	43.73	76.73	24.93
2004	189.20	350.44	94.86	47.09	82.84	26.17
2005	213.24	392.70	105.43	52.56	93.11	28.22
2006	241.26	433.92	117.80	58.47	101.07	31.19
2007	273.53	481.94	131.51	62.09	105.60	32.44
2008	309.55	535.58	146.28	63.82	107.76	32.14
2009	350.42	596.63	163.46	70.29	116.32	35.31
2010	395.78	662.23	182.65	75.33	122.85	37.29

Figure QH-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

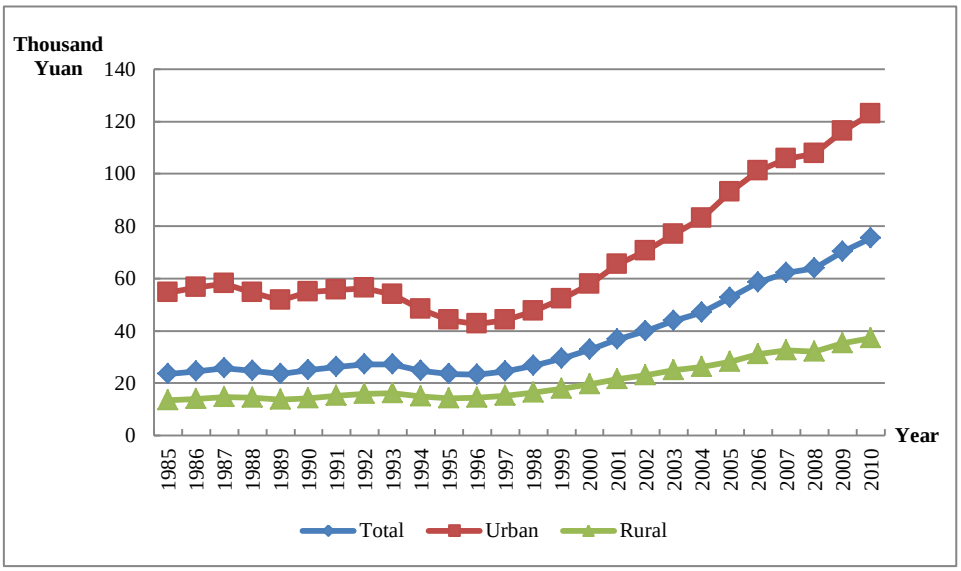


Figure QH-2.2 Real Human Capital Per Capita by Region for Qinghai

35.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

35.3.1 Total labor force human capital

The total labor force human capital for Qinghai is reported in Table QH-3.1. From 1985 to 2010, the nominal and real labor force human capital for Qinghai show differential increases. Nominal labor force human capital increases24.56 times, from 39 billion Yuan to 997 billion Yuan. Real labor force human capital increases almost 3.90 times, from 39 billion Yuan to 191 billion Yuan.

Table QH-3.1 Nominal and Real Labor Force Human Capital for Qinghai

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	39		39	
1986	44		42	
1987	51		45	
1988	62		47	
1989	75		48	
1990	91		55	
1991	105		59	
1992	120		63	
1993	137		64	
1994	156		59	
1995	177		57	
1996	198		58	
1997	222		62	
1998	249		69	
1999	276		77	
2000	306	305	85	85
2001	339	337	92	92
2002	374	373	99	99
2003	414	414	108	108
2004	459	461	115	116
2005	506	509	126	126
2006	571	575	140	140
2007	651	655	149	150
2008	743	749	154	155
2009	859	867	173	175
2010	997	1008	191	193

35.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables QH-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Qinghai show differential increases. Nominal average labor force human capital increases more than 14.25 times, from 19,190 Yuan to 292,580 Yuan. Real average labor force human capital increases more than 1.92 times, from 19,190 Yuan to 55,940 Yuan.

Table QH-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 40,110 Yuan to 462,410 Yuan in urban, and increases from 12,080 Yuan to 159,590 Yuan in rural. The real human capital increases from 40,110 Yuan to 85,780 Yuan in urban, and increases from 12,080 Yuan to 32,580 Yuan in rural.

Table QH-3.2Nominal and Real Average Labor Force Human Capital by Region for Qinghai

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	19.19	40.11	12.08	19.19	40.11	12.08
1986	21.43	44.52	13.34	20.20	41.84	12.62
1987	24.17	49.71	14.79	21.37	43.34	13.30
1988	27.66	56.53	16.94	20.81	41.56	13.11
1989	31.62	64.17	19.31	20.23	40.21	12.66
1990	36.23	73.11	21.97	21.86	43.76	13.39
1991	40.54	80.42	24.57	22.83	44.28	14.23
1992	45.06	88.00	27.39	23.56	44.62	14.89
1993	50.40	96.98	30.62	23.43	43.14	15.06

1994	56.08	106.33	34.05	21.34	38.39	13.88
1995	62.51	116.97	37.81	20.17	35.28	13.32
1996	68.63	126.92	41.24	20.06	34.36	13.35
1997	75.51	137.91	45.01	21.06	35.53	13.99
1998	82.87	149.15	49.06	22.90	38.19	15.09
1999	90.27	160.07	53.19	25.02	41.20	16.43
2000	98.48	171.91	57.79	27.39	44.42	17.96
2001	108.42	188.54	63.39	29.47	47.30	19.46
2002	118.61	205.25	69.55	31.48	50.43	20.75
2003	130.12	224.09	76.45	33.83	54.09	22.25
2004	142.89	244.58	83.91	35.87	57.82	23.15
2005	157.49	267.66	92.03	39.10	63.46	24.63
2006	176.57	295.36	103.00	43.15	68.79	27.27
2007	199.14	328.70	114.94	45.56	72.02	28.36
2008	224.71	365.66	127.98	46.62	73.57	28.11
2009	256.13	411.23	143.10	51.69	80.18	30.91
2010	292.58	462.41	159.59	55.94	85.78	32.58

Chapter 36 Human Capital for Ningxia

36.1 Total human capital

Table NX-1.1 gives the results of nominal and real total human capital and real physical capital for Ningxia.

Table NX-1.1 Real physical capital, Nominal and Real Human Capital for Ningxia

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	137		137		10
1986	157		149		12
1987	181		159		13
1988	209		157		13
1989	237		152		14
1990	271		162		15
1991	308		174		15
1992	348		182		16
1993	396		181		17
1994	445		164		18
1995	509		161		19
1996	566		167		20
1997	632		180		21
1998	730		208		22
1999	864		248		24
2000	980	1070	282	307	27
2001	1120	1137	317	321	30
2002	1293	1311	367	372	34
2003	1433	1450	400	404	39

2004	1629	1650	438	443	45
2005	1843	1868	488	494	53
2006	2007	2019	521	524	61
2007	2293	2307	564	568	71
2008	2533	2551	575	578	86
2009	2786	2808	628	632	105
2010	3168	3194	686	692	129

36.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table NX-2.1 presents human capital per capita for Ningxia by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 15.00 times from 35.52 thousand Yuan to 568,210 Yuan. Real human capital per capita increases 2.46 times from 35,520 Yuan to 123,030 Yuan.

Figure NX-2.1 reports the results of human capital per capita by gender for Ningxia. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1] The gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

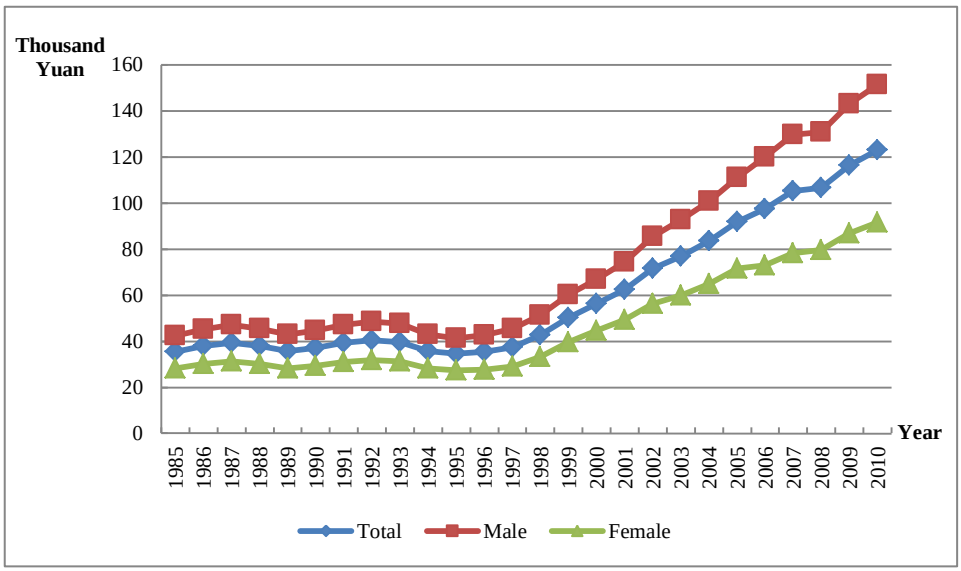


Figure NX-2.1 Human Capital Per Capita by Gender for Ningxia

Table NX-2.1 reports the results of human capital per capita by region for Ningxia. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 81,370 Yuan to 887,720 Yuan, the per capita rural human capital increases from 22,200 Yuan to 274,410 Yuan. The real human capital per capita for urban increases from 81,370 Yuan to 190,000 Yuan, the per capita rural human capital increases from 22,200 Yuan to 61,480 Yuan.

Table NX-2.1 Nominal and Real Human Capital Per Capita by Region for Ningxia

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	35.52	81.37	22.20	35.52	81.37	22.20
1986	39.95	90.26	24.73	37.84	85.15	23.53
1987	44.68	99.28	27.53	39.30	85.22	24.87
1988	50.34	110.36	30.81	37.91	80.49	24.06

1989	55.77	119.99	34.10	35.81	75.31	22.47
1990	62.10	131.37	37.92	37.22	78.16	22.93
1991	69.54	145.22	42.31	39.26	80.82	24.29
1992	77.46	159.47	47.07	40.47	81.20	25.38
1993	87.08	178.03	52.48	39.69	78.69	24.86
1994	96.67	194.92	58.38	35.72	69.03	22.74
1995	109.33	220.36	64.94	34.53	66.53	21.74
1996	119.56	236.61	70.78	35.36	67.02	22.16
1997	131.50	256.25	77.51	37.47	69.85	23.45
1998	149.82	295.21	84.58	42.63	80.48	25.64
1999	174.88	352.30	92.22	50.23	96.91	28.49
2000	195.13	391.47	100.70	56.19	108.01	31.27
2001	220.11	429.91	110.81	62.24	117.09	33.67
2002	250.95	478.74	123.21	71.21	131.05	37.67
2003	274.93	507.41	135.29	76.68	136.84	40.55
2004	310.03	560.76	149.25	83.31	146.40	42.81
2005	347.38	613.99	166.26	91.90	157.77	47.12
2006	374.34	634.98	184.30	97.16	160.44	51.04
2007	424.60	706.42	204.45	104.50	169.83	53.47
2008	466.24	759.31	222.52	105.75	169.19	52.96
2009	510.61	810.84	246.37	115.01	180.05	57.76
2010	568.21	887.72	274.41	123.03	190.00	61.48

Figure NX-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

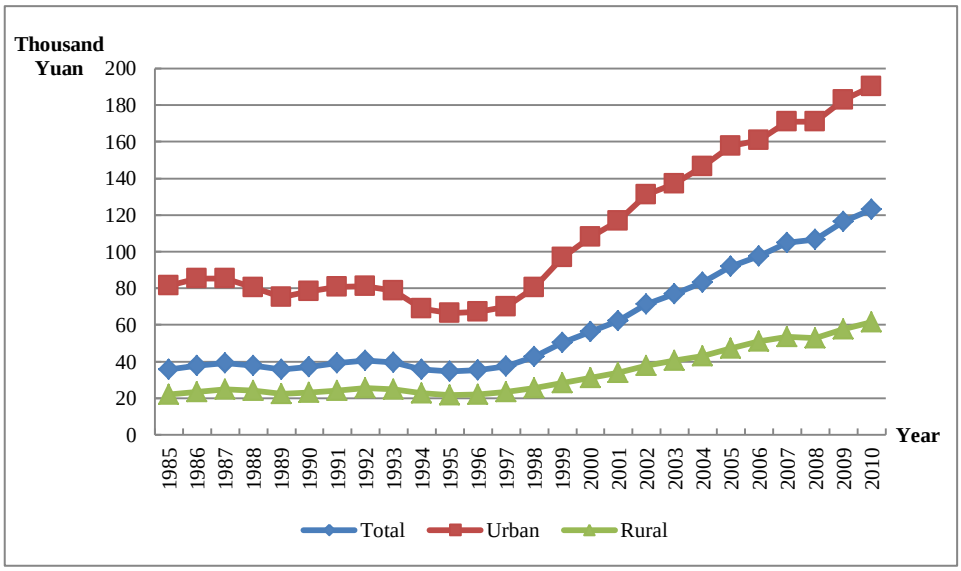


Figure NX-2.2 Real Human Capital Per Capita by Region for Ningxia

36.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

36.3.1 Total labor force human capital

The total labor force human capital for Ningxia is reported in Table NX-3.1. From 1985 to 2010, the nominal and real labor force human capital for Ningxia show differential increases. Nominal labor force human capital increases 32.94 times, from 51 billion Yuan to 1,731 billion Yuan. Real labor force human capital increases almost 6.35 times, from 51 billion Yuan to 375 billion Yuan.

Table NX-3.1 Nominal and Real Labor Force Human Capital for Ningxia

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	51		51	
1986	61		57	
1987	73		64	
1988	84		63	
1989	97		62	
1990	112		67	
1991	131		74	
1992	151		79	
1993	172		79	
1994	196		73	
1995	223		71	
1996	253		75	
1997	287		82	
1998	325		93	
1999	365		106	
2000	411	409	119	119
2001	456	457	130	130
2002	504	507	144	145
2003	559	562	157	158
2004	626	629	169	170
2005	712	715	190	190
2006	806	811	211	212
2007	909	915	225	227
2008	1039	1047	237	239
2009	1321	1333	298	301
2010	1731	1750	375	379

36.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables NX-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Ningxia show differential increases. Nominal average labor force human capital increases more than 16.24 times, from 25,630 Yuan to 441,940 Yuan. Real average labor force human capital increases more than 2.73 times, from 25,630 Yuan to 95,720 Yuan.

Table NX-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 51,250 Yuan to 668,010 Yuan in urban, and increases from 17,450 Yuan to 223,410 Yuan in rural. The real human capital increases from 51,250 Yuan to 142,980 Yuan in urban, and increases from 17,450 Yuan to 50,060 Yuan in rural.

Table NX-3.2 Nominal and Real Average Labor Force Human Capital by Region for Ningxia

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	25.63	51.25	17.45	25.63	51.25	17.45
1986	29.33	58.09	19.51	27.78	54.80	18.56
1987	33.60	65.57	21.84	29.57	56.29	19.74
1988	37.45	71.90	24.43	28.23	52.44	19.08
1989	41.79	79.04	27.27	26.84	49.61	17.97
1990	46.80	87.54	30.48	28.05	52.08	18.43
1991	52.28	96.54	33.99	29.52	53.73	19.52

1992	58.12	106.02	37.83	30.39	53.98	20.39
1993	64.80	116.60	42.11	29.57	51.54	19.95
1994	71.89	127.57	46.63	26.60	45.18	18.17
1995	79.59	139.06	51.68	25.18	41.99	17.30
1996	87.75	153.70	56.49	26.00	43.53	17.69
1997	97.50	170.63	61.80	27.83	46.52	18.70
1998	107.93	188.40	67.50	30.79	51.36	20.46
1999	118.58	206.88	73.05	34.24	56.91	22.57
2000	129.95	223.27	79.32	37.64	61.60	24.63
2001	143.87	243.13	86.96	40.93	66.22	26.42
2002	158.14	265.09	95.23	45.21	72.56	29.11
2003	174.04	288.11	104.48	48.89	77.70	31.31
2004	192.51	313.94	114.70	52.04	81.96	32.90
2005	214.76	344.48	126.38	57.17	88.52	35.82
2006	241.00	382.26	142.52	62.92	96.59	39.47
2007	269.69	423.71	159.52	66.79	101.87	41.72
2008	305.16	475.21	177.40	69.54	105.89	42.22
2009	363.42	554.76	198.29	82.02	123.19	46.49
2010	441.94	668.01	223.41	95.72	142.98	50.06

Chapter 37 Human Capital for Xinjiang

37.1 Total human capital

Table XJ-1.1 gives the results of nominal and real total human capital and real physical capital for Xinjiang.

Table XJ-1.1 Real physical capital, Nominal and Real Human Capital for Xinjiang

Year	Nominal Human Capital (Billions of Yuan)		Real Human Capital (Billions of 1985 Yuan)		Real physical capital (Billions of Yuan)
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)	
1985	665		665		26
1986	753		703		29
1987	856		749		31
1988	960		736		35
1989	1073		707		38
1990	1209		756		42
1991	1358		782		48
1992	1535		816		55
1993	1745		826		63
1994	1982		741		75
1995	2229		692		84
1996	2466		692		94
1997	2739		741		103
1998	3026		815		115
1999	3329		922		126
2000	3713	3735	1039	1045	139
2001	4311	4365	1158	1172	154
2002	4813	4871	1294	1309	171
2003	5396	5462	1445	1461	194

2004	6069	6142	1574	1592	218
2005	6836	6909	1757	1775	246
2006	7856	7963	1990	2016	279
2007	9002	9121	2158	2186	317
2008	10280	10423	2279	2310	352
2009	11703	11869	2574	2611	392
2010	13279	13472	2799	2841	445

37.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table XJ-2.1 presents human capital per capita for Xinjiang by region. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases 12.39 times from 51,050 Yuan to 683,570 Yuan. Real human capital per capita increases 1.82 times from 51,050 Yuan to 144,090 Yuan.

Figure XJ-2.1 reports the results of human capital per capita by gender for Xinjiang. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1] The gender gap appears to be expanding, especially from 1997.

[1] All the discussion below is based on five-education category.

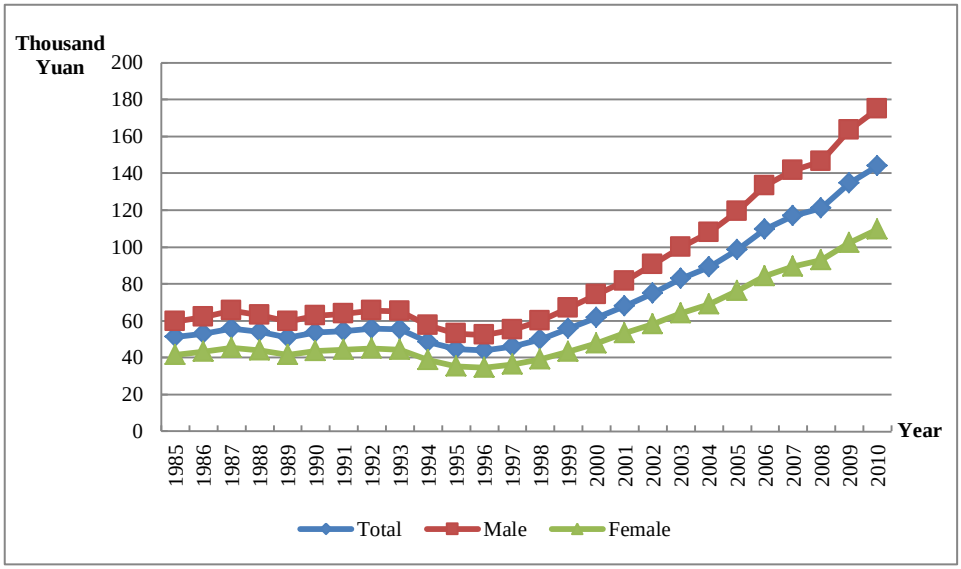


Figure XJ-2.1 Human Capital Per Capita by Gender for Xinjiang

Table XJ-2.1 reports the results of human capital per capita by region for Xinjiang. From 1985 to 2010, the human capital per capita in urban area is significantly larger than that for rural. The nominal human capital per capita for urban increases from 77,030 Yuan to 1,078,720 Yuan, the per capita rural human capital increases from 39,340 Yuan to 396,650 Yuan. The real human capital per capita for urban increases from 77,030 Yuan to 229,860 Yuan, the per capita rural human capital increases from 39,340 Yuan to 81,840 Yuan.

Table XJ-2.1 Nominal and Real Human Capital Per Capita by Region for Xinjiang

Year	Nominal Human Capital Per Capita (Thousands of Yuan)			Real Human Capital Per Capita (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	51.05	77.03	39.34	51.05	77.03	39.34
1986	56.94	85.81	43.43	53.13	79.75	40.67
1987	63.61	95.30	48.28	55.67	81.33	43.26
1988	70.35	105.56	53.27	53.95	77.00	42.77

1989	77.32	116.37	58.42	50.89	74.13	39.65
1990	85.59	129.70	64.38	53.53	79.07	41.26
1991	94.51	143.28	70.84	54.45	79.91	42.08
1992	104.63	159.19	78.05	55.58	81.23	43.08
1993	116.58	178.16	86.46	55.21	80.03	43.07
1994	129.83	199.02	95.91	48.55	70.01	38.04
1995	143.53	220.45	105.64	44.53	65.49	34.21
1996	156.21	242.07	113.81	43.85	65.14	33.32
1997	170.65	267.17	122.81	46.16	69.47	34.60
1998	185.54	293.81	131.79	49.99	76.47	36.84
1999	201.02	321.28	141.11	55.66	85.59	40.75
2000	220.80	356.18	153.05	61.79	94.79	45.29
2001	253.30	419.55	167.26	68.03	107.36	47.68
2002	278.90	459.23	183.09	75.00	118.82	51.72
2003	308.82	508.15	200.40	82.70	130.82	56.50
2004	343.63	566.04	219.95	89.14	142.73	59.34
2005	383.20	631.31	242.50	98.49	158.24	64.65
2006	433.14	707.62	267.73	109.71	175.61	69.98
2007	486.82	789.43	294.47	116.69	187.30	71.80
2008	546.06	879.56	323.50	121.07	194.48	72.03
2009	611.93	976.46	357.89	134.57	215.56	78.13
2010	683.57	1078.72	396.65	144.09	229.86	81.84

Figure XJ-2.2 shows the trend of real human capital per capita by region. From 1985 to 2010, the real human capital per capita in urban area remains larger than that in rural area. Since 1997, both the growths of human capital for rural and urban accelerate, and the growth rate is significantly higher in urban than in rural. The gap between urban and rural expands rapidly.

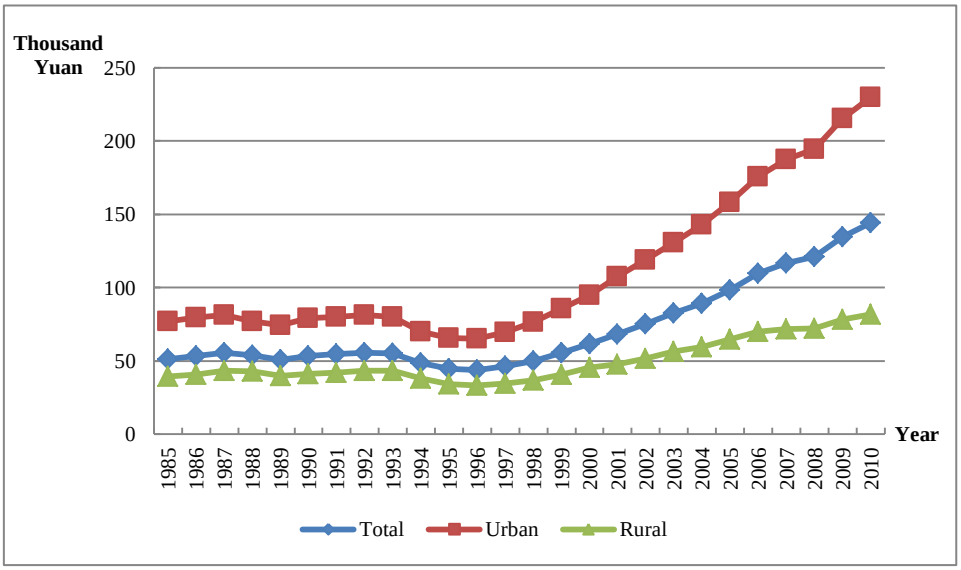


Figure XJ-2.2 Real Human Capital Per Capita by Region for Xinjiang

37.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

37.3.1 Total labor force human capital

The total labor force human capital for Xinjiang is reported in Table XJ-3.1. From 1985 to 2010, the nominal and real labor force human capital for Xinjiang show differential increases. Nominal labor force human capital increases 24.85 times, from 222 billion Yuan to 5,738 billion Yuan. Real labor force human capital increases almost 4.44 times, from 222 billion Yuan to 1,208 billion Yuan.

Table XJ-3.1 Nominal and Real Labor Force Human Capital for Xinjiang

Year	Nominal Labor Force Human Capital (Billions of Yuan)		Real Labor Force Human Capital (Billions of 1985 Yuan)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	222		222	
1986	259		241	
1987	308		269	
1988	362		276	
1989	426		279	
1990	502		313	
1991	579		332	
1992	656		347	
1993	749		353	
1994	847		315	
1995	950		294	
1996	1059		297	
1997	1171		316	
1998	1305		351	
1999	1448		401	
2000	1619	1599	453	447
2001	1802	1789	485	482
2002	2002	1992	540	537
2003	2246	2244	604	603
2004	2510	2522	653	656
2005	2831	2839	730	732
2006	3221	3243	819	824
2007	3691	3717	887	893
2008	4240	4274	941	948
2009	4933	4975	1084	1093
2010	5738	5794	1208	1220

37.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables XJ-3.2 reports the nominal and real average labor force human capital by region. From 1985 to 2010, the nominal and real average labor force human capital for Xinjiang show differential increases. Nominal average labor force human capital increases more than 11.58 times, from 34,090 Yuan to 428,730 Yuan. Real average labor force human capital increases more than 1.65 times, from 34,090 Yuan to 90,250 Yuan.

Table XJ-3.2 shows that the increase in average labor force human capital is greater in urban than in rural, and the gap between rural and urban expanded rapidly. From 1985 to 2010, the nominal human capital increases from 50,230 Yuan to 634,640 Yuan in urban, and increases from 25,260 Yuan to 282,030 Yuan in rural. The real human capital increases from 50,230 Yuan to 135,240 Yuan in urban, and increases from 25,260 Yuan to 58,190 Yuan in rural.

Table XJ-3.2 Nominal and Real Average Labor Force Human Capital by Region for Xinjiang

Year	Nominal Average Labor Force Human Capital (Thousands of Yuan)			Real Average Labor Force Human Capital (Thousands of 1985 Yuan)		
	Total	Urban	Rural	Total	Urban	Rural
1985	34.09	50.23	25.26	34.09	50.23	25.26
1986	38.41	56.65	28.19	35.84	52.65	26.39
1987	43.98	64.58	31.88	38.38	55.11	28.56
1988	49.34	72.56	35.51	37.62	52.93	28.51
1989	55.31	81.81	39.40	36.26	52.11	26.74
1990	62.56	92.65	44.15	38.98	56.48	28.29
1991	69.22	102.59	48.97	39.70	57.22	29.08

1992	75.95	112.76	53.99	40.16	57.54	29.80
1993	84.11	125.64	59.74	39.62	56.43	29.76
1994	92.47	138.45	65.87	34.40	48.70	26.13
1995	101.65	152.13	72.67	31.43	45.20	23.53
1996	110.11	165.74	78.73	30.82	44.60	23.05
1997	119.33	180.66	85.08	32.21	46.97	23.97
1998	129.33	196.38	92.00	34.79	51.11	25.72
1999	139.71	212.88	98.96	38.64	56.71	28.58
2000	152.11	231.99	107.45	42.53	61.74	31.79
2001	165.92	251.46	117.92	44.66	64.35	33.61
2002	180.45	272.42	129.08	48.66	70.49	36.46
2003	197.78	297.84	142.08	53.15	76.68	40.06
2004	216.68	325.49	156.51	56.40	82.07	42.23
2005	240.42	358.98	173.38	62.01	89.98	46.22
2006	267.38	395.52	192.72	67.97	98.16	50.37
2007	298.32	441.44	212.83	71.65	104.73	51.89
2008	333.71	493.77	233.88	74.02	109.18	52.08
2009	377.55	559.54	257.40	82.97	123.52	56.19
2010	428.73	634.64	282.03	90.25	135.24	58.19

Chapter 38 Human Capital for Hong Kong

38.1 Total human capital

Table HK-1.1 gives the results of nominal and real total human capital and real physical capital for Hong Kong.

Table HK-1.1 Real physical capital, Nominal and Real Human Capital for Hong Kong

Year	Nominal Human Capital (Billions of HKD)		Real Human Capital (Billions of 1985 HKD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	3936		3936	
1986	4671		4513	
1987	5380		4924	
1988	6253		5299	
1989	7193		5533	
1990	8306		5798	
1991	9572		6001	
1992	10670		6105	
1993	12300		6472	
1994	14020		6782	
1995	15940		7068	
1996	18010		7510	
1997	19830		7815	
1998	21930		8401	
1999	24290		9695	
2000	26330		10910	
2001	28860		12170	
2002	30360		13200	
2003	31880		14220	

2004	33420	14970
2005	34800	15450
2006	35750	15540
2007	36970	15760
2008	38390	15700
2009	39980	16250
2010	41010	16290

38.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table HK-2.1 presents human capital per capita for Hong Kong by gender. From 1985 to 2010, nominal and real human capital per capita show differential increases. Nominal human capital per capita increases7.44 times from 815,910 HKD to 6,885,590 HKD. Real human capital per capita increases 2.35 times from 815,910 HKD to 2,735,100 HKD.

Figure HK-2.1 reports the results of human capital per capita by gender for Hong Kong. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1]Nominal human capital per capita for male increases 7.24 times, from 1,206,260 HKD to 9,944,140 HKD. For female, it increases almost 10.05 times, from 359,750 HKD to 3,974,190 HKD. Real human capital per capita for male increases 2.27 times, from 1,206,260 HKD to 3,950,130 HKD. For female, it increases almost 3.39 times, from 359,750 HKD to 1,578,530 HKD.

[1] All the discussion below is based on five-education category.

TableHK-2.1 Nominal and Real Human Capital Per Capita by Gender for Hong Kong

Year	Nominal Human Capital Per Capita (Thousands of HKD)			Real Human Capital Per Capita (Thousands of 1985 HKD)		
	Total	Male	Female	Total	Male	Female
1985	815.91	1206.26	359.75	815.91	1206.26	359.75
1986	955.80	1412.87	427.34	923.47	1365.17	412.92
1987	1099.18	1620.21	497.79	1006.02	1482.94	455.97
1988	1276.92	1871.42	590.18	1082.10	1585.68	500.40
1989	1468.21	2134.16	699.57	1129.38	1641.96	538.20
1990	1694.56	2448.98	824.11	1182.89	1709.60	575.47
1991	1942.32	2811.32	949.49	1217.71	1762.59	595.17
1992	2113.41	3054.60	1050.97	1209.22	1748.10	601.16
1993	2381.90	3440.22	1198.92	1253.31	1810.78	631.23
1994	2657.20	3828.67	1363.03	1285.38	1852.57	659.18
1995	2958.29	4249.59	1541.52	1311.75	1885.16	683.65
1996	3294.09	4756.75	1718.25	1373.60	1984.21	716.54
1997	3574.29	5138.72	1906.52	1408.63	2024.42	751.28
1998	3905.04	5551.65	2155.35	1495.95	2126.63	825.93
1999	4272.71	6036.25	2414.42	1705.39	2410.04	963.82
2000	4573.22	6417.69	2647.79	1894.94	2659.53	1097.47
2001	4938.32	6963.51	2883.62	2082.44	2935.20	1215.44
2002	5183.22	7337.23	3017.86	2253.58	3190.25	1312.20
2003	5424.47	7713.58	3147.43	2419.57	3440.39	1403.38
2004	5672.12	8099.19	3284.77	2540.74	3627.02	1471.31
2005	5890.71	8434.09	3408.38	2615.27	3745.82	1513.20
2006	6064.00	8740.54	3488.98	2635.93	3800.83	1517.66
2007	6245.96	9004.68	3607.29	2662.60	3841.86	1538.72
2008	6466.46	9323.30	3739.80	2644.53	3814.86	1529.17
2009	6721.57	9700.05	3881.85	2732.00	3944.09	1578.03
2010	6885.59	9944.14	3974.19	2735.10	3950.13	1578.53

Figure HK-2.1 shows the trend of human capital per capita by gender for Hong Kong. The real human capital per capita of male is similar to that of female for Hong Kong from 1985 to 2010. Starting from 1997, both the

growths of human capital for male and female accelerate, with male significantly higher than female. Since 1985, the gender gap appears to be expanding, especially from 1997.

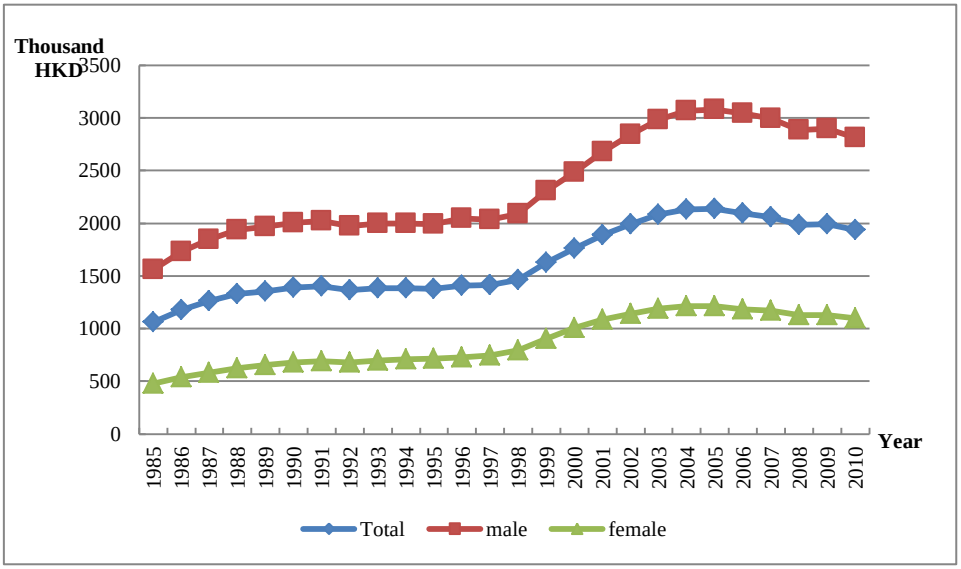


Figure HK-2.1 Human Capital Per Capita by Gender for Hong Kong

38.3 Labor force human capital

The labor force refers to the population that is over 15 years old, non-retired and out of school.

38.3.1 Total labor force human capital

The total labor force human capital for Hong Kong is reported in Table HK-3.1. From 1985 to 2010, the nominal and real labor force human capital for Hong Kong show differential increases. Nominal labor force human capital increases 11.77 times, from 2581 billion HKD to 32960 billion HKD. Real labor force human capital increases almost 4.07 times, from 2581 billion HKD to 13090 billion HKD.

TableHK-3.1 Nominal and Real Labor Force Human Capital for Hong Kong

Year	Nominal Labor Force Human Capital (Billions of HKD)		Real Labor Force Human Capital (Billions of 1985 HKD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	2581		2581	
1986	3128		3022	
1987	3624		3317	
1988	4197		3557	
1989	4872		3748	
1990	5654		3947	
1991	6650		4169	
1992	7601		4350	
1993	8733		4596	
1994	9991		4832	
1995	11350		5032	
1996	12870		5367	
1997	14290		5630	
1998	15910		6095	
1999	17720		7073	
2000	19410		8044	
2001	21780		9182	
2002	23100		10040	
2003	24450		10910	
2004	25830		11570	
2005	26900		11940	
2006	28080		12210	
2007	29340		12510	
2008	30640		12530	
2009	31920		12980	
2010	32960		13090	

38.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Table HK-3.2 reports the nominal and real average labor force human capital by gender. From 1985 to 2010, the nominal and real average labor force human capital for Hong Kong show differential increases. Nominal average labor force human capital increases more than 7.67 times, from 812,200 HKD to 7,044,280 HKD. Real average labor force human capital increases more than 2.44 times, from 81,220 HKD to 279,762 HKD.

Table HK-3.2 shows that in both nominal and real terms, the average labor force human capital for both genders increase, and the average level for male remains higher than that for female. The nominal human capital increases from 1,223,420 HKD to 7,044,280 HKD for male, and increases from 331,730 HKD to 4,079,170 HKD for female. The real human capital increases from 1,223,420 HKD to 4,079,170 HKD for male, and increases from 331,730 HKD to1,617,570 HKD for female.

TableHK-3.2 Nominal and Real Average Labor Force Human Capital by Gender for Hong Kong

Year	Nominal Average Labor Force Human Capital (Thousands of HKD)			Real Average Labor Force Human Capital (Thousands of 1985 HKD)		
	Total	Male	Female	Total	Male	Female
1985	812.21	1223.42	331.73	812.21	1223.42	331.73
1986	962.57	1450.55	402.28	929.95	1401.05	388.73
1987	1113.54	1669.21	476.14	1019.21	1527.72	435.84
1988	1283.97	1914.50	562.00	1088.17	1622.25	476.28
1989	1482.42	2192.53	668.64	1140.42	1686.56	514.48
1990	1704.18	2502.81	787.06	1189.67	1746.89	549.32
1991	1969.66	2898.13	920.04	1234.81	1816.91	576.70

Year	Nominal Average Labor Force Human Capital (Thousands of HKD)			Real Average Labor Force Human Capital (Thousands of 1985 HKD)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
1992	2213.30	3255.52	1055.42	1266.66	1862.90	603.81
1993	2470.81	3628.47	1195.28	1300.34	1909.49	629.16
1994	2732.34	4004.12	1346.08	1321.46	1937.04	651.03
1995	3001.59	4386.50	1499.30	1330.75	1945.09	665.07
1996	3304.31	4857.95	1653.49	1377.95	2026.35	689.66
1997	3616.89	5279.27	1867.60	1424.99	2080.10	736.24
1998	3941.62	5688.40	2111.46	1510.00	2179.91	809.10
1999	4287.95	6133.04	2372.85	1711.55	2447.99	946.97
2000	4609.51	6536.60	2626.26	1910.30	2708.76	1088.57
2001	5040.55	7191.29	2910.03	2124.99	3031.31	1226.88
2002	5309.23	7602.74	3060.87	2307.56	3306.29	1330.91
2003	5558.03	7986.05	3208.12	2480.08	3560.70	1430.61
2004	5815.39	8392.20	3346.68	2604.88	3759.01	1498.98
2005	5992.08	8678.97	3445.62	2659.68	3852.44	1529.94
2006	6179.10	9015.79	3536.91	2686.85	3919.93	1537.97
2007	6415.29	9355.27	3696.94	2735.35	3989.31	1576.47
2008	6645.70	9686.39	3838.84	2717.71	3961.79	1569.98
2009	6862.18	10002.55	3967.52	2790.45	4066.45	1612.71
2010	7044.28	10268.11	4072.88	2797.62	4079.17	1617.57

Chapter 39 Human Capital for Taiwan

39.1 Total human capital

Table TW-1.1 gives the results of nominal and real total human capital.

Table TW-1.1 Nominal and Real Human Capital for Taiwan

Year	Nominal Human Capital (Billions of NTD)		Real Human Capital (Billions of 1985 NTD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	57420		57420	
1986	60750		60340	
1987	66260		65470	
1988	76120		74250	
1989	88600		82770	
1990	101300		90870	
1991	113700		98470	
1992	128100		106200	
1993	137700		110800	
1994	146300		113100	
1995	158400		118200	
1996	164400		119000	
1997	184100		132100	
1998	186600		131600	
1999	194600		137000	
2000	195400	196500	135900	136700
2001	188400	188400	131000	131000
2002	184100	183800	128300	128100
2003	192000	187400	134100	131000
2004	190300	187300	130900	128800
2005	182100	182100	122400	122500

Year	Nominal Human Capital (Billions of NTD)		Real Human Capital (Billions of 1985 NTD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	180300	182000	120500	121600
2007	185100	188800	121500	123900
2008	184100	189300	116800	120000
2009	179000	186400	114500	119300
2010	178200	185500	112900	117600

39.2 Human capital per capita

To obtain further information on the dynamics of human capital, we calculate human capital per capita, defined as the ratio of human capital to non-retired population. Table TW-2.1 presents human capital per capita for Taiwan by gender. Both nominal and real human capital per capita show differential increases. From 1985 to 2000, nominal human capital per capita increases 2.08 times from 3,238,030 NTD to 9,976,090 NTD. Real human capital per capita increases 1.14 times from 3,238,030 NTD to 6,938,330 NTD. From 2000 to 2010, nominal human capital per capita decreases to 9,079,110 NTD, only 90.9% of the amount in 2000; real human capital per capita decreases to 5,746,440, only 82.8% of the amount in 2000.

Figure TW-2.1 reports the results of human capital per capita by gender for Taiwan. From 1985 to 2010, human capital per capita of male remains larger than that of female. [1]Nominal human capital per capita for male increases 1.73 times, from 4,179,950 NTD to 11,392,420 NTD. For female, it increases almost 2 times, from 2,229,890 NTD to 6,685,260 NTD. Real

[1] All the discussion below is based on five-education category.

human capital per capita for male increases 0.73 times, from 4,179,950 NTD to 7,219,220 NTD. For female, it increases almost 0.9 times, from 2,229,890 NTD to 4,236,060 NTD.

Table TW-2.1 Nominal and Real Human Capital Per Capita by Gender for Taiwan

Year	Nominal Human Capital Per Capita (Thousands of NTD)			Real Human Capital Per Capita (Thousands of 1985 NTD)		
	Total	Male	Female	Total	Male	Female
1985	3238.03	4179.95	2229.89	3238.03	4179.95	2229.89
1986	3400.62	4331.74	2402.79	3377.67	4302.53	2386.56
1987	3691.55	4735.46	2581.16	3647.53	4678.18	2550.11
1988	4214.50	5313.26	3047.87	4110.96	5183.17	2972.53
1989	4856.02	6146.84	3492.09	4536.49	5742.53	3262.14
1990	5501.25	6898.34	4020.10	4934.83	6188.65	3607.58
1991	6143.76	7704.55	4497.52	5320.81	6671.52	3894.22
1992	6872.45	8616.22	5037.49	5697.53	7142.20	4174.58
1993	7352.50	9182.29	5426.67	5916.18	7392.93	4368.93
1994	7777.68	9689.64	5774.76	6012.68	7493.88	4467.06
1995	8403.98	10395.10	6319.79	6271.15	7758.42	4714.35
1996	8689.94	10724.41	6561.86	6290.16	7764.60	4749.76
1997	9552.63	11589.47	7422.27	6854.44	8315.77	5324.05
1998	9624.66	11707.34	7454.74	6787.81	8256.75	5258.27
1999	9990.02	12156.91	7730.51	7033.06	8564.18	5443.95
2000	9976.09	12132.67	7733.44	6938.33	8435.81	5378.61
2001	9591.11	11512.45	7597.68	6668.98	8004.80	5284.62
2002	9349.90	11366.31	7255.78	6515.98	7920.55	5057.18
2003	9555.29	11477.83	7553.00	6673.77	8018.87	5278.36
2004	9464.12	11503.28	7346.11	6510.00	7909.85	5052.61
2005	9208.80	11214.45	7124.97	6189.77	7538.49	4790.54
2006	9061.82	11134.73	6916.72	6056.29	7438.94	4622.07
2007	9301.86	11796.39	6721.55	6105.76	7743.73	4412.17
2008	9267.29	11746.14	6711.27	5879.52	7445.83	4256.48
2009	9037.31	11366.62	6634.34	5780.85	7271.85	4243.93
2010	9070.11	11392.42	6685.26	5746.44	7219.22	4236.06

Figure TW-2.1 shows the trend of human capital per capita by gender for Taiwan. The real human capital per capita of male is similar to that of female for Taiwan from 1985 to 2010. From 1985 to 2000, both the growths of human capital for male and female accelerate, with male significantly higher than female. Since 2000, the growth tends to slow down and even decease.

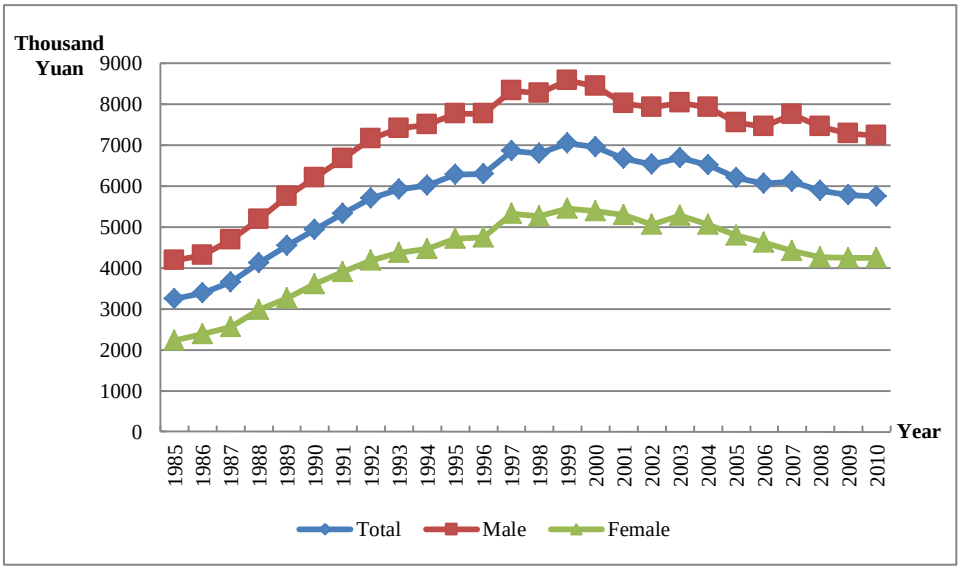


Figure TW-2.1 Human Capital Per Capita by Gender for Taiwan

39.3 Labor force human capital

The labor force refers to the population that is over 16 years old, non-retired and out of school.

39.3.1 Total labor force human capital

The total labor force human capital for Taiwan is reported in Table TW-3.1. From 1985 to 2000, the nominal and real labor force human capital

for Taiwan show differential increases. Since 2000, both tend to decrease. Nominal labor force human capital increases 2.6 times, from 29,340 billion NTD to 105,600 billion NTD. Real labor force human capital increases almost 1.28 times, from 29340 billion NTD to 66,890 billion NTD.

Table TW-3.1 Nominal and Real Labor Force Human Capital for Taiwan

Year	Nominal Labor Force Human Capital (Billions of NTD)		Real Labor Force Human Capital (Billions of 1985 NTD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
1985	29340		29340	
1986	32340		32120	
1987	35430		35000	
1988	40210		39220	
1989	47030		43930	
1990	55080		49420	
1991	62240		53890	
1992	69820		57870	
1993	75770		61000	
1994	80360		62150	
1995	86240		64340	
1996	87780		63530	
1997	100400		72020	
1998	102500		72330	
1999	109200		76930	
2000	110600	110500	76950	76820
2001	108000	107600	75120	74830
2002	107400	107100	74860	74630
2003	114600	112900	80070	78920
2004	114700	113800	78860	78240
2005	108800	109100	73130	73360

Year	Nominal Labor Force Human Capital (Billions of NTD)		Real Labor Force Human Capital (Billions of 1985 NTD)	
	Five-education Category (1)	Six-education Category (2)	Five-education Category (3)	Six-education Category (4)
2006	107000	108200	71490	72330
2007	110300	112800	72380	74030
2008	109200	113000	69280	71650
2009	105700	111100	67620	71090
2010	105600	111800	66890	70840

39.3.2 Average labor force human capital

The average labor force human capital means the ratio of the labor force human capital divided by the labor force population. Tables TW-3.2 reports the nominal and real average labor force human capital by gender. From 1985 to 2010, nominal average labor force human capital increases more than 1.8 times, from 3,412,220 NTD to 9,566,620 NTD. Real average labor force human capital increases more than 0.77 times, from 3,412,220 NTD to 6,060,540 NTD.

Table TW-3.2 shows that in both nominal and real terms, the average labor force human capital for both genders increase, and the average level for male remains higher than that for female. The nominal human capital increases from 4,056,480 NTD to 12,172,241 NTD for male, and increases from 2,241,830 NTD to 6,964,750 NTD for female. The real human capital increases from 4,056,480 NTD to 7,712,980 NTD for male, and increases from 2,241,830 NTD to 4,412,920 NTD for female.

Table TW-3.2 Nominal and Real Average Labor Force Human Capital by Gender for Taiwan

Year	Nominal Average Labor Force Human Capital (Thousands of NTD)			Real Average Labor Force Human Capital (Thousands of 1985 NTD)		
	Total	Male	Female	Total	Male	Female
1985	3412.22	4506.48	2241.83	3412.22	4506.48	2241.83
1986	3702.13	4825.01	2508.34	3677.14	4791.44	2490.50
1987	4005.06	5251.15	2690.31	3957.63	5188.33	2657.17
1988	4516.66	5826.27	3144.04	4406.33	5684.39	3066.79
1989	5152.05	6678.52	3559.35	4812.50	6238.81	3324.31
1990	6043.57	7739.46	4271.35	5421.80	6943.74	3831.35
1991	6816.10	8737.76	4815.21	5901.94	7566.59	4168.64
1992	7626.31	9755.76	5412.24	6320.92	8086.83	4484.85
1993	8143.76	10366.69	5836.74	6556.41	8346.29	4698.81
1994	8550.22	10845.75	6175.54	6612.43	8387.54	4776.12
1995	9155.36	11518.24	6717.77	6830.07	8594.01	5013.36
1996	9335.98	11693.21	6905.29	6756.14	8463.19	4998.38
1997	10262.34	12611.05	7854.31	7364.07	9044.92	5634.83
1998	10265.19	12619.31	7855.14	7243.11	8901.91	5540.33
1999	10692.87	13138.83	8183.62	7529.76	9252.39	5762.08
2000	10696.91	13130.10	8203.50	7438.05	9132.91	5706.10
2001	10321.25	12495.64	8096.73	7177.05	8690.16	5631.22
2002	10081.07	12346.46	7765.20	7024.70	8604.61	5411.73
2003	10383.81	12549.91	8163.50	7254.36	8770.93	5705.17
2004	10319.93	12635.74	7969.37	7099.91	8691.42	5480.83
2005	9858.83	12120.84	7563.47	6628.07	8148.65	5085.06
2006	9644.17	11975.60	7292.85	6446.25	8002.63	4873.65
2007	9915.48	12747.04	7065.14	6509.35	8368.19	4638.18
2008	9837.60	12635.48	7023.27	6236.50	8012.42	4453.82
2009	9548.93	12170.93	6928.09	6108.58	7784.79	4431.68
2010	9566.62	12172.41	6964.75	6060.54	7712.98	4412.92

Appendix A Population imputation

1. Data collection

When estimating population by age, gender and education in urban and rural areas, we use the following data sources:

Table1. 1 data sources for normal provinces

Data	Sources	Notes
National, urban and rural population aged 6 years and over, by age, sex and education level: 1982,1987, 1990,1995, 2000,2005,2010	• 1982,*China Demographic Statistics Yearbook* 1988 edited by Department of Demographic Statistics of National Bureau of Statistics • 1987,*China 1987 1% Demographic Sampling* Survey edited by Department of Demographic Statistics of National Bureau of Statistics • 1990,*China 1990 Census* edited by Census Office of State Council, and Department of Demographic Statistics of National Bureau of Statistics • 1995,*China Demographic Statistics Yearbook*.1998 edited by Department of Demographic and Employment Statistics of National Bureau of Statistics • 2000,http://www.stats.gov.cn/tjsj/ndsj /renkoupucha /2000pucha/pucha.htm	

Data	Sources	Notes
	• 2005,http://www.stats.gov.cn/tjsj/ndsj /renkou/2005 /renkou.htm • 2010,*China 2010 Census*	
National, urban and rural population aged 0-5 years, by age and sex: 1982,1987, 1990,1995, 2000,2005,2010	• 1982,*China 1982 Census* edited by State Department Census Office, Department of Demographic Statistics of National Bureau of Statistics • 1987,*China Demographic Statistics Yearbook.1989* edited by Department of Demographic Statistics of National Bureau of Statistics • 1990,*China 1990 Census* edited by State Department Census Office, Department of Demographic Statistics of National Bureau of Statistics • 1995,*China Demographic Statistics Yearbook.1996* edited by Department of Demographic and Employment Statistics of National Bureau of Statistics • 2000,http://www.stats.gov.cn/tjsj/ndsj /renkoupucha /2000pucha /pucha.htm • 2005,http://www.stats.gov.cn/tjsj/ndsj /renkou/2005 /renkou.htm • 2010,*China 2010 Census and China Demographic Statistics Yearbook* 2012	We assume that the population aged 0-5 years receive no schooling
National, urban and rural	• *China Demographic Statistics Yearbook.1988-1993* edited by	

Data	Sources	Notes
population by age and sex: 1982-2010	Department of Demographic Statistics of National Bureau of Statistics • *China Demographic Statistics Yearbook.1994-1998*,2006 edited by Department of Demographic and Employment Statistics of National Bureau of Statistics • *China Demographic Statistics Yearbook.1999-2005* edited by Department of Demographic and Social Science Statistics of National Bureau of Statistics • *China Demographic and Employment Statistics Yearbook 2007-2010* edited by Department of Demographic and Employment Statistics of National Bureau of Statistics	
Mortality rate by age and sex: 1986,1989-1990, 1994-2010	• *China Demographic Statistics Yearbook：1988-2010*	In the yearbooks of 1988 and 1989, only the mortality rate for 1986 is available. In the yearbooks of 1992 and 1993, the mortality rate is not separated by age and sex.
Enrollment by education level: 1980-2010	• *Educational Statistics yearbook of China.1987* edited by the Plan and Finance Bureau of National Educational Committee • *Educational Statistics yearbook of*	*Educational Statistics Yearbook of China. 1980-1986,1988, 1992* are downloaded from

Data	Sources	Notes
	China.1989-1992 edited by the Plan and Development Department of National Educational Committee • *Educational Statistics yearbook of China 1993-1996* edited by the Plan and Development Department of National Educational Committee • *Educational Statistics yearbook of China 1997* edited by the Plan and Development Department of National Educational Ministry • *Educational Statistics yearbook of China.1998-2010* edited by the Plan and Development Department of National Educational Ministry	http://www.pinggu.org/bbs/thread-140641-2-1.html
National, urban and rural population and birth rate for each year	• *China Statistics Yearbook 2011.* • *Statistics Summary for 55 years in China.* China Statistics Press	
Students by age, grade of primary and junior school: 2003-2010	• *Educational Statistics yearbook of China.2003-2010* edited by the Plan and Development Department of National Educational Ministry	

Table HK.A.2.1 Data Sources of Hong Kong

Data	Sources	Notes
Population by age, sex and	1981, Hong Kong 1981 Population Census Main Tables	

Data	Sources	Notes
education level	1986, Hong Kong 1986 Population By-Census Main Tables 1991, Hong Kong 1991 Population Census Main Tables 1996,Hong Kong 1996 Population By-Census Main Tables 2001, Hong Kong 2001 Population Census Thematic Report 2006 Hong Kong 2006 Population By-Census Thematic Report 2011,Hong Kong 2011 Population Census Thematic Report	
Total population	1980-2010,Hong Kong *Statistics Yearbook*	It is the resident population.
Enrollment by education level	1985-2010,Hong Kong Education Bureau	
Mortality rate by age and sex	Hong Kong Mortality Table	
Birth by sex	1985-2010, Hong Kong *Statistics Yearbook*	
Employment rate by age, sex and education level	1985-2010, Hong Kong Census and Statistics Department	
Consumer Price Index (CPI)	1981-2010, Hong Kong *Statistics Yearbook*	
Enrollment rate	Hong Kong Education Bureau	
Nominal GDP by industry	Hong Kong *Statistics Yearbook*	
Real GDP Index by Industry	Hong Kong *Statistics Yearbook*	

Data	Sources	Notes
Employed population by Industry	Hong Kong *Statistics Yearbook*	
Average discount rate （based on the basic loan interest of Central Bank）	Monetary Policy Bureau of PBC http://www.pbc.gov.cn/publish/zhengcehuobisi/631/2012/20120706181352694274852/20120706181352694274852_.html	The data is not available for some years.
10-year treasury bond rate	*China Financial Statistics Yearbook* *China Financial Statistics Yearbook(English Version)*	The data is not available for 2009, 2005 and 1994.

Table TW.A.2.1 Data Sources of Taiwan

Data	Sources	Notes
Population age, sex and education level	Department of Household Registration, M.O.I Taiwan Population *Statistics Yearbook*	
Population aged 6 years and over, by age and sex gender	Department of Household Registration, M.O.I	
Total Population	Directorate-General of Budget, Accounting and Statistics, Executive Yuan	
Enrollment by education level	Not available.	
Mortality rate by age and sex	Department of Household Registration, M.O.I	Data is based on date of occurrence

Data	Sources	Notes
Birth by sex	Department of Household Registration, M.O.I	Data is based on the date of occurrence, which is before the end of May in the following year.
Employment rate by age, sex and education level	Directorate-General of Budget, Accounting and Statistics, Executive Yuan: Human Capital Survey	Before 1999 (included), "College" includes graduates
Consumer Price Index (CPI)	Directorate-General of Budget, Accounting and Statistics, Executive Yuan	
Enrollment rate	Taiwan Education Bureau	From 1988, Taiwan started to record enrollment rate of graduates from middle level professional school, so the table includes data from 1988.
Nominal GDP by industry	Directorate-General of Budget, Accounting and Statistics, Executive Yuan	
Real GDP by industry	Directorate-General of Budget, Accounting and Statistics, Executive Yuan	
Employed population by industry	Directorate-General of Budget, Accounting and Statistics, Executive Yuan: Human Capital Survey	Before 1998, based on " Standard industrial Classification (the sixth edition)"; In 1999-2000, based on "standard industrial classification (the seventh edition)"; In 2001-2011, based on "Standard industrial

Data	Sources	Notes
		Classification (the eighth edition)"; In 2012, based on "Standard industrial Classification (the ninth edition)";

2. Data processing

2.1 Basic population data

2.1.1 Census data

Due to direct registration and computer aggregation, the census data do not take into account the left-out population.[59] The total populations from the 1982, 1990, 2000 and 2010 census data published at that time are slightly different from the population released in *China Statistics Yearbook 2011*. Thus, some adjustments need to be made to the population data by age, sex and educational attainment. The adjustment is implemented by the following method. The adjusted urban population by age, sex and educational attainment equals the urban population by age, sex and educational attainment from the census data times the ratio of total urban population released in *China Statistics Yearbook 2010* to the total urban population in the census data. A similar formula is applied to the rural population.

2.1.2 1%-Sample data

We adjust the sample data to match the total rural and urban data. Urban

[59] See Zhang, Weimin and Hongyan Cui (2003),"The estimation accuracy of China Census 2000", *Population Research*, Vol.27, No.4 (July), pp.25-35.

population by age, sex and educational attainment is divided by urban sampling ratio, which is the ratio of urban sample population to urban total population released in *China Statistics Yearbook 2008*. The same method is applied to the rural data.

2.2 New enrollment

2.2.1 Educational category in China

There are six education levels in China: no schooling, primary school, junior middle school (including regular junior middle school and vocational junior middle school), senior middle school (including regular senior middle school, regular specialized middle school and vocational high school), college, and university and above. "College" and "university and above" were combined as "college and above" before 2000.

2.2.2 National enrollment data

The new enrollments by gender of primary school from 1985 to 1990 are not available, so it is assumed that the share of females in the new enrollments equals that in Grade 1.

From 1980 to 1983, we have no information about the share of females in the new enrollments, so we use female share in new enrollment of the closest year.

From 1983 to 2003, we only have the total new enrollment of college and university and the total females in college and university. To get the female enrollments in college and university, we assume that the proportion of female is the same as in college and university enrollments.

From 2004 to 2010, the female enrollment data for university and college is available in the statistic yearbooks.

2.2.3 New enrollment data of urban and rural areas

The new enrollments by gender in urban and rural areas in each educational level are not available. We assume that the proportions of female enrollment in urban and rural areas equal the corresponding proportions at the national level.

The new enrollments of specialized middle school are not separated by urban and rural. So we assume that the ratio of urban to rural new enrollments in specialized middle school is the same as that of regular senior middle school.

From 2003 to 2010, the new enrollments of vocational high school are not separated by urban and rural, thus the same processing method is applied as above.

3. Imputation method

We use the perpetual inventory method to impute the population data.

3.1 Perpetual inventory method

The perpetual inventory formula is:

$$L(y,e,a,s) = L(y-1,e,a,s)\cdot(1-\delta(y,a,s)) + IF(y,e,a,s) \\ -OF(y,e,a,s) + EX(e,a,s)$$

where $L(y,e,a,s)$ is the population in year y with education level e, age a and sex s. $\delta(y,a,s)$ is the mortality rate. $IF(y,e,a,s)$ is the inflow of population of age a, sex s and education level e in year y. $OF(y,e,a,s)$ represents the outflow of population of age a and sex s and education level e in year y. $EX(e,a,s)$ is a residual term.

$$IF(y,e,a,s) = \lambda(y,e,a,s) \cdot ERS(y,e,s)$$

$$OF(y,e,a,s) = \lambda(y,e+1,a,s) \cdot ERS(y,e+1,s)$$

ERS is the new enrollment of different education levels, λ is the age distribution of new enrollment of different education levels and

$$\sum_a \lambda(y,e,a,s) = 1$$

3.2 Estimate the age distribution λ

We use the data from the *China Educational Statistical Yearbook: 2003-2010* to estimate the age distribution (1982-2010) of new enrollments.

We have the data of new enrollment of primary school by age, region and sex, and the data of new enrollment of junior middle school by age, region, sex and grade from 2003 to 2010.

3.2.1 Estimate the age distribution λ: 2003-2010

For primary school, we assume that the sex ratio of enrollment equals to the sex ratio of entrants. We use rural_2003 as an example; Table A.1 is the raw data. First, we use total enrollments (second column) and total female enrollments (third column) to obtain the sex ratio. Next, we use this ratio to separate total entrants (first column). Finally, we calculate the age distribution in rural area in 2003 (Table A.2).

For junior middle school, we assume that the sex ratio of enrollment equals to the sex ratio in each grade, and we assume that the age distribution of Grade 1 students is the same as that of new enrollments. We use rural_2003 as an example; Table A.3 is the raw data. First, we use total enrollments (first column) and total female enrollments (second column) to obtain the sex ratio. Next, we use this ratio to separate Grade 1 (third column).

Finally, we calculate the age distribution in rural area in 2003 (Table A.4).

For senior middle school, we assume that students in Grade 3 and Grade 4 in junior middle school have the same age distribution as those of new entrants to senior middle school in the same year. For example, in 2003, the age distribution of new entrants to senior middle school is the same as that of Grade 3 and 4 students in junior middle school in 2003 (Table A.5).

For university, we assume that the age distribution of new entrants to university is the same as that of Grade 1 students in senior middle school three years ago. For example, in 2006, the age distribution of new entrants to university is the same as that of Grade 1 students of senior middle school in 2003.

Using the method above, we can get the age distribution of enrollment of each educational level. Table A.6 is the age distribution in rural areas in 2003, Table A.7 is the age distribution in urban areas in 2003 (keep three decimal fraction because of the space limitation).

3.2.1 Estimate the age distribution λ: before 2003

We use the data from *China Educational Statistical Yearbook: 2003* instead.

3.2.2.1 for primary school

1995: use the age distribution of Grade 3 in junior school instead. (Table A.3 Grade 3)

1996: use the age distribution of Grade 2 in junior school instead. (Table A.3 Grade 2)

1997: use the age distribution of Grade 1 in junior school instead. (Table A.3 Grade 1)

1998: use the age distribution of Grade 6 in primary school instead.

(Table A.1 Grade 6)

1999: use the age distribution of Grade 5 in primary school instead. (Table A.1 Grade 5)

2000: use the age distribution of Grade 4 in primary school instead. (Table A.1 Grade 4)

2001: use the age distribution of Grade 3 in primary school instead. (Table A.1 Grade 3)

2002: use the age distribution of Grade 2 in primary school instead. (Table A.1 Grade 2)

Before 1995: use the age distribution in 1995 instead.

3.2.2.2 for junior middle school

2002: use the age distribution of Grade 2 in junior middle school instead. (Table A.3 Grade 2)

2001: use the age distribution of Grade 3 in junior middle school instead. (Table A.3 Grade 3)

Before 2001: use the age distribution in 2001 instead.

3.2.2.3 for senior middle school

The age distribution of new entrants to senior is the same as that of junior middle school three years ago.

3.2.2.4 for university

The age distribution of new entrants to university is the same as that of senior middle school three years ago.

3.3 Method of imputing population data: 1985-2010

When adopting the perpetual inventory method to estimate the urban and rural population, we ignore migrants between urban and rural China. To

take these migrants into account, we make the following adjustments. For example, from 1982 to 1990, we get the estimated 1990 population data by gender, education and age using the perpetual inventory method. The actual 1990 population by gender, education and age subtracted the estimated 1990 population by gender, education and age gives the net migrants between urban and rural China in these eight years. We assume that the number of immigrants in each year is the same, and then we add the average difference to the estimated population data.

4. Some specific problems

4.1 National, rural and urban population at age zero: 1985-2010

4.1.1 National population at age zero

The total population at the end of the year and the birth rates for each year are obtained from Table 3-1 'Population and Its Composition' and Table 3-2 'Birth Rate, Death Rate and Natural Growth Rate of Population' in *China Statistic Yearbook 2011*. We assume that the population at the beginning of a given year equals that at the end of the previous year. Thus, the average of the population at the end of the given year and the previous year is the average population of the given year. The product of the average population and the corresponding birth rate gives the new-born population. Multiplying the new-born population by the survival rate of those aged zero at the corresponding year gives the population at age zero at the end of the year.

(Definition: birth rate, also called gross birth rate, refers to the ratio of the new-born population in a given region during a given period, usually one year, and the average population of the same period. The birth rate here is

yearly birth rate, which is calculated from the following equation: Birth rate = (new-born population/average population)* 1000‰, where new-born population is the number of the new-born babies who are alive when they are detached from the mothers no matter how long they have been in their mother's body. Average population is the average of the populations at the beginning and at the end of the year, or the population at the middle of the year.)

4.1.2 Rural and urban population at age zero

The data used include total national population for each year from 1983 to 2010, birth rate for each year from 1983 to 2010, national, rural and urban population by age and gender from the population sampling surveys for 1987 and each year from 1989 to 2010.

The share of urban population at age zero in the national population at age zero can be calculated from these sampling data, and this share is assumed to be the true share. In other words, multiplying it with the national population at age zero produces the urban population at age zero. Further, the gender ratio from the sampling data is also assumed to be true, thus we can divide the urban population at age zero into the two genders. Similar steps are used for the rural population at age zero.

Since there is no population sampling data for 1983-1986 and 1988, we assume the numbers of those aged 1, 3, 4, 5, 6 in 1989 equals the new-born population for 1988, 1986, 1985, 1984 and 1983 respectively with the sampling weights adjusted. Migration between urban and rural regions is neglected here.

4.2 The death rate of those aged 65 and over

When imputing the population by age, gender and education level with

perpetual inventory method, the number of those aged 65 and over should be multiplied by the death rate. The death rate is calculated in the following way. With the population and the death rate, both by age and gender, from the population sampling data for each year, the number of deaths of those aged 65 and over for each year can be calculated, and dividing it by the corresponding total population gives the death rate of those aged 65 and over. Since there is no population sampling data for 1983-1986 , 1988 and 1991-1993, the death rate of the closest year is used.

4.3 Application of the age distributions of every education level for each year

The age distributions are obtained from the macro- and micro-level data, and the enrollment numbers for each year are used with adjustments. They change over time, but do not vary between urban and rural regions.

Tables and figures of appendix A

Table A.1 Number on School-age Population in Primary School, Rural, 2003, China Education Statistical Yearbook

	Enrollment								
	Total	**Of which: new entrant**	**Of which: female**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**
Age	76891519	11924477	36322339	12159626	12862008	12985923	13295122	13951495	11637345
5	308950	297013	144660	302758	6052	125	8	6	1
6	5046575	4754352	2372386	4782290	257461	6647	165	10	2
7	11010378	6350637	5180829	6444175	4321918	237121	6945	204	15
8	11864959	410669	5605866	492215	7338813	3813008	213075	7553	295
9	12221282	74134	5796024	91262	711394	7682374	3514009	213151	9092
10	12995292	22398	6170350	27731	155006	927169	8067444	3604354	213588
11	13084959	8630	6211805	10868	43937	221535	1082185	8423636	3302798
12	8410789	4293	3979851	5476	17127	65676	295215	1234989	6792306
13	1468214	1616	654151	1948	7153	22371	84281	351020	1001441
14	368378	534	159283	630	2292	7181	23368	89514	245393
15	111743	201	47134	273	855	2716	8427	27058	72414

Table A.2 Age Distribution in Primary School, Rural, 2003

Age	male	female
5	0.025	0.025
6	0.400	0.397
7	0.534	0.530
8	0.034	0.034
9	0.006	0.006
10	0.002	0.002
11	0.001	0.001
12	0.000	0.000
13	0.000	0.000
14	0.000	0.000
15	0.000	0.000
Sum	1	1

Table A.3 Number of School – age Population and Enrollment in Junior Middle School, Rural, 2003, China Education Statistical Yearbook

Rural	Enrollment					
	Total	Of which: female	Grade 1	Grade 2	Grade 3	Grade 4
10	31217107	15243521	10846398	9888047	10008568	474094
11	14636	6715	14222	407	7	0
12	388359	182837	365232	22427	700	0
13	4523447	2172333	4000135	490469	32745	98
14	9974932	4777600	5128966	4317657	524854	3455
15	10015544	4776361	1063487	4758148	4119319	74590
16	5810306	2731587	225263	994786	4272665	317592
17	1169589	507334	38929	182266	883709	64685
18	198706	77478	7742	26440	152300	12224

Table A.4 Age Distribution of New Entrants in Junior Middle School, Rural, 2003

Age	male	female
10	0.001	0.001
11	0.036	0.032
12	0.393	0.363
13	0.505	0.464
14	0.105	0.096
15	0.023	0.020

Age	male	female
16	0.004	0.003
17	0.001	0.001
18	0.000	0.000
Sum	1	1

Table A.5 Age Distribution of New Entrants in Senior Middle School, Rural, 2003

Age	male	female
11	0.000	0.000
12	0.000	0.000
13	0.003	0.003
14	0.051	0.049
15	0.409	0.391
16	0.453	0.422
17	0.100	0.080
18	0.019	0.013
19	0.003	0.002
Sum	1	1

Table A.6 Age Distribution of New Enrollments by Educational Level, Rural,2003

Age	Illiterate to primary school		Primary school to junior middle school		Junior middle school to senior middle school		Senior middle school to college		Senior middle school to university	
	male	female	male	female	male	female	male	female	male	female
5	0.025	0.025								
6	0.400	0.397								
7	0.534	0.530								
8	0.034	0.034								
9	0.006	0.006								
10	0.002	0.002	0.001	0.001						
11	0.001	0.001	0.036	0.032						
12			0.393	0.363						
13			0.505	0.464	0.003	0.003				
14			0.105	0.096	0.051	0.049				
15			0.023	0.020	0.409	0.391				
16			0.004	0.003	0.453	0.422				
17			0.001	0.001	0.100	0.080	0.050	0.050	0.050	0.050
18					0.019	0.013	0.456	0.456	0.456	0.456
19					0.003	0.002	0.404	0.404	0.404	0.404
20							0.076	0.076	0.076	0.076
21							0.014	0.014	0.014	0.014
22										
Sum	1	1	1	1	1	1	1	1	1	1

Table A.7 Age Distribution of New Enrollments by Educational Level, urban_2003

Age	Illiterate to primary school		Primary school to junior middle school		Junior middle school to senior middle school		Senior middle school to college		Senior middle school to university	
	male	female	male	female	male	female	male	female	male	female
5	0.025	0.029								
6	0.558	0.568								
7	0.386	0.384								
8	0.021	0.021								
9	0.003	0.003								
10	0.001	0.001	0.002	0.002						
11			0.045	0.050						
12			0.358	0.387						
13			0.462	0.493	0.004	0.004				
14			0.084	0.089	0.066	0.062				
15			0.014	0.015	0.410	0.388				
16			0.002	0.002	0.446	0.436	0.004	0.004	0.004	0.004
17					0.075	0.086	0.065	0.068	0.065	0.068
18					0.009	0.013	0.401	0.414	0.401	0.414
19					0.001	0.002	0.432	0.432	0.432	0.432
20							0.084	0.071	0.084	0.071
21							0.012	0.008	0.012	0.008
22							0.002	0.001	0.002	0.001
Sum	1	1	1	1	1	1	1	1	1	1

Appendix B Mincer parameters

Main Equation:

$$\ln(inc) = \alpha + \beta \cdot Sch + \gamma \cdot Exp + \delta \cdot Exp^2 + u$$

where *inc* is income; *Sch* is years of schooling; *exp* is years of work experience; α, β, γ, δ are corresponding parameters; u is an error term.

1. Samples and methods

1.1 Surveys

(1) The annual Urban Household Survey (UHS);

(2) Chinese Health and Nutrition Survey (CHNS);

(3) Chinese Household Income Project (CHIP);

(4) China Household Finance Survey (CHFS);

(5) China Family Panel Studies (CFPS)

1.2 Components of income

(1) Main job and Secondary job salaries;

(2) Other cash income from work;

(3) Pension;

(4) Estimated market value of received items;

(5) Various subsidies;

(6) Individual's share of household income according to working-hour share.

1.3 Work experience

Exp = Age–Sch–6.

1.4 Selection of sample

(1) 16-60 years old for males, and 16-55 years old for females;

(2) Must have information on income and educational attainment;

(3) Students, retirees, people who are unemployed but looking for a job, the disabled, people who are waiting to enter school and housekeepers are excluded.

1.5 Imputation method

(1) To make all parameters comparable, we first use UHS, CHIP, CHNS, CHFS and CFPS to obtain all urban and rural parameters by gender and then compute the annual results by weighting the sample sizes of the available data sets for that year. When both UHS and CHNS are available for a given year, we drop CHNS estimates due to the relatively low quality of income measures.

(2) We use UHS to obtain urban parameters for 1986-1997.

(3) We use CHIP to obtain urban and rural parameters for 1988, 1995, 2002 and 2007, and urban parameters for 1999.

(4) We use CHNS to obtain urban parameters[59] for 2000, 2004, 2006, 2009, and rural parameters for 1989, 1991, 1993, 1997, 2000, 2004, 2006, 2009.

[59] We have urban datasets of UHS for 1989, 1991, 1993 and 1997, so we do not use the CHNS datasets of those years for urban parameter estimation

(5) We use CHFS to obtain urban and rural parameters for 2010.

(6) We use CFPS to obtain urban and rural parameters for 2009.

As an example, for the intercept term, we can obtain the urban intercept $\alpha^u 88$ (UHS), assuming the sample size is $n^u 88$ (UHS).

We estimate the urban intercept $\alpha^u 88$ (UHS) using UHS 1988, with the sample size of $n^u 88$ (UHS). We also could obtain the urban and rural intercepts $\alpha^u 88$ (CHIP), $\alpha^r 88$ (CHIP), with the sample size of $n^u 88$(CHIP), $n^r 88$(CHIP) respectively. The annual urban and rural intercepts are:

$$\alpha^u 88 = \frac{\alpha^u 88(UHS) \times n^u 88(UHS)}{n^u 88(UHS) + n^u 88(CHIP)} + \frac{\alpha^u 88(CHIP) \times n^u 88(CHIP)}{n^u 88(UHS) + n^u 88(CHIP)}$$

$$\alpha^r 88 = \alpha^r 88(CHIP)$$

The same principle is applied to estimate other parameters for urban and rural areas.

1.6 Parameter α

$$\ln(inc) = \alpha + \beta \cdot Sch + \gamma \cdot Exp + \delta \cdot Exp^2$$

$\hat{y} = \alpha \times e^{\hat{\ln y}}$, where α is an adjustment factor. We estimate it as follows:

(1) Obtain $\hat{\ln y}$ from the regression of $\ln(y_i)$ on all right-hand-side variables.

(2) Obtain $\hat{m}_i = e^{\hat{\ln y}}$.

(3) Regress y_i on $\hat{m}_i$ without the intercept: $\hat{y} = \alpha \times \hat{m}_i$ and keep α.

(4) For given values *Sch*, *Exp*, *Exp*^2, obtain $\hat{\ln y}$.

(5) $\hat{y} = \alpha \times e^{\hat{\ln y}}$.

2. Data

We use four well-known household surveys in China. The first one is the annual Urban Household Survey (UHS) conducted by the National Statistical Bureau of China from 1986 to 1997. It records household information about income and consumption expenditure, demographic characteristics, work and employment, accommodation and other details. UHS covers 103 cities and 80 counties.

The second one is the China Health and Nutrition Survey (CHNS), which covers nine provinces-Guangxi, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Liaoning, Shandong. Four counties are sampled in each province. In addition, the provincial capital and a lower-income city are selected when feasible. CHNS is conducted in 1988, 1991, 1993, 1997, 2000, 2004, 2006, and 2009. Numbers of households participating in the first five waves are 3,795, 3,616, 3,441, 3,875, and 4,403 respectively.

The CHIP (Chinese Household Income Project) data include 9,009 urban households and 10,258 rural households. Basic information is collected for the sample households and their members, focusing on income, wage, sources of income and household expenditure. For rural households, information on assets, debts, sales and consumption of products and purchase of production means are also collected. The rural survey covers 28 provinces, excluding Xinjiang and Tibet; and the urban survey covers 10 provinces (Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Henan, Hubei, Guangdong, Yunan and Gansu). The years surveyed include 1988, 1995, 2002, and 2007.

China Household Finance Survey (CHFS) is a national survey administered by the China Household Finance Survey and Research center

of Southwestern University of Finance and Economics, its main purpose is to collect information concerning household finance on microcosmic level, including information on household income, consumption and production, etc. in the year of 2010. This dataset consists of both urban and rural households, covering 22 provinces. Among the samples provinces, only rural households are sampled in Guangxi, Guizhou and Shanxi; there exist only urban samples for Beijing, Tianjin and Qinghai. There are 5194 urban households with 16755 individuals; and 3244 rural households with 12569 individuals.

China Family Panel Studies (CFPS) is a nationally representative, annual longitudinal survey of Chinese communities, families, and individuals launched in 2010 by the Institute of Social Science Survey (ISSS) of Peking University, China. The CFPS is designed to collect individual, family, and community-level longitudinal data in contemporary China. The CFPS collects information biennially and focuses on the economic, as well as the non-economic, wellbeing of Chinese children and adults. A range of domains are covered including economic activities, education outcomes, family dynamics and relationships, migration, and health. In the 2010 baseline survey, CFPS interviewed around 15,000 families and over 40,000 individuals within these families. During the follow up survey in 2012, 85% of the families are interviewed with an individual level follow up rate of 82%.

Table B.1 shows the distribution of the four datasets across years.

3. Key variables

3.1. UHS

3.1.1 Definition of income

1) Salaries from working in the state-owned, collective or other institutions;

2) Other income from working units;

3) Private employment income;

4) Income from re-employment after retirement;

5) Other employment income;

6) Other working income;

7) Pension;

8) Price subsidies;

9) Household avocation production income.

3.1.2 Years of schooling

(1)**1986-1991**

LEVEL	Sch
College	16
Professional school	11
Senior middle school	12
Junior middle school	9
Primary school	6
Others	0

(2)1992-1997

LEVEL	Sch
College	16

Community college	15
Professional school	11
Senior middle school	12
Junior middle school	9
Primary school	6
Others	0

3.1.3 Selection of samples

(1) Include male individuals from 16 to 60 years old and female individuals from 16 to 55 years old;

(2) Discard individuals whose value of regular wage is missing, and individuals who did not to report education information;

(3) Discard individuals who are self-employed, short term contract workers, the retired, job seekers, the disabled, homemakers, students in school, workers waiting for job assignment, students waiting to enter school, etc.

3.2 CHIP

3.2.1 Definition of income

Urban income definitions:

In 1988 it includes: employment salary and subsidies, other income from work units, pension;

In 1995 it includes: employment salary and subsidies, other income from work units, other goods from work units, pension;

The same principle is applied in CHIP 2002 and CHIP 2007.

Rural income definitions:

Sum of individual income and household income;

In 1988, individual income includes: regular income, pension, other cash income and other goods from work units; household income is net household income from agriculture.

In 1995, individual income includes: regular income (such as salary, bonus, and subsidies), pension, other cash income and received goods from work units; household income is net household income from agriculture.

In 1999, the data set does not include rural information.

In 2002, individual income includes: wages, pensions, subsidies, received goods from work units; household income is net household income from agriculture.

In 2007, it only has the total household income, including both non-rural income and rural income.

3.2.2 Years of schooling

(1)1988

LEVEL	Sch
College and above	16
Professional school	15
Middle level professional, technical or vocational school	11
Upper middle school	12
Lower middle school	9
Junior middle school	6
4 or more years of elementary school	4
1-3 years of elementary school	2
Illiterate or semi-illiterate	0

(2)1995

LEVEL	Sch
College and above	16
Professional school	15
Middle level professional school	11
Upper middle school	12
Lower middle school	9
Elementary school	6
Illiterate or semi-illiterate	0

(3)1999

LEVEL	Sch
College and above	16
Professional school	15
Middle level professional school	11
Upper middle school	12
Lower middle school	9
Elementary school	6
Illiterate or semi-illiterate	0

(4)2002

LEVEL	Sch
College and above	16
Professional school	15
Middle level professional, technical or vocational school	11
Upper middle school	12
Lower middle school	9
Elementary school	6
Illiterate or semi-illiterate	0

(5)2007

LEVEL	Sch
Graduate school	18
College and above	16
Professional school	15

LEVEL	Sch
Middle level professional, technical or vocational school	11
Upper middle school	12
Lower middle school	9
Elementary school	6
Illiterate or semi-illiterate	0

3.2.3 Selection of samples

(1) Include male individuals from 16 to 60 years old and female individuals from 16 to 55 years old;

(2) Discard individuals whose value of years of schooling is missing, individuals who failed to report education level information;

(3) Keep individuals whose current status is working or employed, or re-employed after retirement;

(4) Discard individuals who are self-employed, private enterprise owners or managers;

(5) Discard individuals whose reported income is 0 or below.

3.3 CHNS

3.3.1 Income variables

Income includes wages, subsidies, other job-related income and household agricultural income. For CHNS, we use the sum of INDINC (Total net individual income, nominal), INDSUB (Individual subsidies) and individual share of HHSUB (Household subsidies) to generate the variable of final individual income.

3.3.1.1 Total net individual income, nominal (INDINC)

Variable: INDINC - Total net individual income, nominal

Data files: INDBUSN - business income

INDFARM - farming income

INDFISH - fishing income

INDGARD - gardening income

INDLVST - livestock income

INDRETIRE - retirement income

INDWAGE - non-retirement wages

a) Non-Retirement Wages

Variable: INDWAGE - Total individual income from all non-retirement wages earned by individuals. Annual wage is calculated for each job record in the wage file.

Generally, annual wage income is Months Worked times Average Monthly non-Retirement Wage, plus Bonuses and Other Cash or In-Kind Income. For 1989, annualized income from piece work is calculated.

Source:

C3, months worked last year (job level), 1991 - 2006

C8, average monthly wages (job level), 1991 - 2006

C6, wages per piece of completed work, 1989

C7, average number of pieces completed/work, 1989

I19, value of bonuses received last year (job level), 1989-2006

I101, other cash income (job level), 2006

I103, value of other non-cash income (job level), 2006

B2, B3B, B4, B5, B9, B10, filter questions (person level)

b) Retirement Income

Variable: INDRET - Total Individual Retirement Income

Source:

J5, retirement pensions/salaries (individual), 1989 - 2000

B2D, retirement wage from this job (job level), 2004 - 2006

c) Business Income

Variable: INDBUS - Total individual net income from all businesses operated by household that the individual participat in.

Source:

Individual proportion of net income from household businesses:

H6, Months worked in household business last year

H7, Days per week worked in household business last year

H8, Hours per day worked in household business last year

Total household net income from all household businesses:

H2, Business type

H3, Revenue from this business

H4, Expenses

d) Farming Income

Variable: INDFARM - Total individual net income from farming.

Source:

Individual proportion of net income from household farming:

E4A, months worked on farm last year

E4B, days worked on farm per week last year

E4C, hours worked on farm per day last year

E2A, worked on HH farm/orchard last year (from 2004 on)

E4, 12-month average hours worked on farm per week (1989 only)

Total household net income from farming:

E7, cash for collective farming (individual level), 1989 - 2006

E9, in-kind for collective farming (individual level), 1989 - 2006

E13B, expenses to raise crop (crop level), 1989

E15B, receipts from sale of crop (crop level), 1989

E17B, receipts if crop kept had been sold (crop level), 1989

E19B, receipts if crop given away had been sold (crop level), 1989

E13, kg of crop grown (crop level), 1991-1997

E14, kg of crop sold to government (crop level), 1991-1997

E15, government price for crop (crop level), 1991-1997

E16, kg of crop sold to free market (crop level), 1991-1997

E17, free-market price for crop (crop level), 1991-1997

E12, expenses to raise all crops (household level), 1991-2006

E14A, receipts from sale of all crops (household level), 1991-2006

E16A, value of all crops consumed (household level), 1991-2006

e) Fishing Income

Variable: INDFISH - Individual income from fishing.

Source:

Individual proportion of net income from household farming:

G4A, months worked on fishing last year

G4B, days worked on fishing per week last year

G4C, hours worked on fishing per day last year

G2, filter: worked on fishing last year (from 2004 on)

G4, 12-month average hours worked on fishing per week (1989 only)

Total household net income from farming:

G7, wages received from collective fishing (individual)

G9, market value of fish received in-kind from the collective (individual)

G11, revenue from fish sales (household)

G13, value of fish consumed at home (household)

G15, value of fish given as gift (household)

G16, expenses of fishing business (household)

f) Gardening Income

Variable: INDGARD - Total individual net income from gardening

Source:

Individual proportion of net income from household gardening:

D3A, months worked on gardening last year

D3B, days worked on gardening per week last year

D3C, hours worked on gardening per day last year

D2A, worked in HH garden last year (from 2004 on)

D3, 12-month average hours worked on gardening per week (1989 only)

Total household net income from household garden or orchard

D5, revenue from sale of home garden produce, 1989 - 2006

D6, market value of consumed produce, 1989 - 2006

D7, expenses to grow produce, 1991-2006

g) Livestock Income

Variable: INDLVST - Total individual net income from raising livestock.

Source:

Individual proportion of net HH income (HHLVST) from household livestock business:

F4A, months worked on raising livestock last year

F4B, days worked on raising livestock per week last year

F4C, hours worked on raising livestock per day last year

F2A, raising livestock last year (from 2004 on)

F4, 12-month average hours worked on raising livestock per week (1989 only)

Total household net income from all livestock activities:

F7, wages received from collective animal husbandry (individual)

F9, market value of livestock received in-kind from collective (individual)

F14, expenses to raise livestock (livestock level)

F15, expenses from using home-grown feed (livestock level)

F17, revenue from sale of livestock products (livestock level)

F19, value of livestock products consumed at home (livestock level)

F21, value of livestock products given as gifts (livestock level)

3.3.1.2 Subsidies

The subsidies include INDSUB (Individual subsidies) and individual share of HHSUB (Household subsidies). We allocate household subsidies equally among household individuals; the household subsidies are divided by the number of members in a household.

INDSUB=(I9+I11+I12+I13+I13A+I14+I14A+I14B)*12

HHSUB=I10A+I15A+I16A+I17A+I21+K47

Source:

ANNUAL subsidies for the following items, at the Household level:

I10A, one-child subsidy, 1991 - 2006

I15A, gas subsidy, 1993 - 2006

I16A, coal subsidy, 1993 - 2006

I17A, electricity subsidy, 1993 - 2006

I21, food/gift/discounts from work unit, 1989 - 2006

K47, childcare subsidy, 1989 - 2006

MONTHLY subsidies for the following items, at the Individual level:

I9, food subsidy, 1989 - 1997

I11, health subsidy, 1989 - 1997

I12, bath/haircut subsidy, 1989 - 1997

I13, book/newspaper subsidy, 1989 - 1997

I13A, housing subsidy, 1989 - 1997

I14, other subsidy, 1989 - 1997

I14A, average monthly subsidy from job 1, 2000 - 2006

I14B, average monthly subsidy from job 2, 2004 – 2006

3.3.2 Imputing individual share of household income

Agricultural income includes incomes from five sources: gardening, farming, livestock raising, fishing, and small handicraft and commercial household businesses. These incomes come from either collective or household businesses or both.

We assume each individual's contribution to the household income is proportional to his or her share of time allocated to five activities: gardening, farming, raising livestock, fishing and small handicraft and commercial household business. First, we add up all working hours of all family members in each of these activities. Second, we calculate the working hour share of each member in the family's total hours. Third, we multiply the household income by the share to approximate individual income for each category. Finally, we add up individual income from the four categories for each family member.

3.3.3 Years of schooling

Level	Sch
None	0
Completed primary school	6
Junior middle school degree	9
Senior middle school degree	12
Middle technical, professional , or vocational degree	11
3- or 4- year college degree	16
Master's degree or above	18

3.3.4 Selection of sample

(1) Males from 16 to 60 years of age and females from 16 to 55 years of age;

(2) Exclude individuals who fail to provide information on wage and educational attainment, those who are self-employed or business owners;

3.4 CHFS

3.4.1 Definition of income

(1) The income divides into urban income and rural incomes. Urban income mainly includes wage income and social security income; rural income mainly includes wage income, household income from agriculture and social security income.

(2) Wage income mainly includes three components: wages, bonuses and allowances. Social Security income mainly includes three components: social endowment insurance, retirement and pensions.

3.4.2 Personal income distribution of agricultural production

In rural income, wage income and social security income are personal income, but the income of agricultural production is household income. Therefore, it is necessary to determine how the household income is allocated to individuals, and thus calculate the total personal income.

(1) Allocation method

Step 1: Statistics for each family on farming and agricultural production should be recorded as working as the family labor.

Step 2: Calculation of family practitioners produced income, and

apportioned to individual farming, sharing: Family net income of agricultural production / Labor force engaged in agricultural household production.

3.4.3 Years of schooling

2010

Level	Sch
No school	0
Primary school	6
Junior middle school	9
Senior middle school	12
Middle professional degree	11
Post-secondary professional degree	15
College	16
Master's degree	18
PhD degree	22

3.4.4 Selection of samples

(1) Include male individuals from 16 to 60 years old and female individuals from 16 to 55 years old.

(2) Discard individuals whose value of year of schooling is missing, individuals who did not report education level information.

(3) Keep individuals whose current status is working or employed, or re-employed after retirement.

(4) First Occupation:

In urban samples, we discard individuals, who work for businesses or private companies; self-employed individuals farmers at home, and other samples, and we delete samples without income data sample. In rural

sample, we delete the samples without income data.

(5) Second Occupation: Urban and rural samples without income data are deleted from the sample.

(6) Family agricultural production and management: Rural sample households engaged in agricultural production but we delete samples without income data.

(7) Social Security Income: Rural and urban samples were deleted with the relevant guaranteed income but without income data.

3.5 CFPS

3.5.1 Definition of income

(1) The income divides into urban income and rural incomes. Urban income mainly includes wage income and social security income; rural income mainly includes wage income, household income from agriculture and social security income.

(2) Wage income mainly includes three components: wages, bonuses and allowances. Social Security income mainly includes three components: social endowment insurance, retirement and pensions.

(3) Agriculture income refers to the net income from farming, gardening, livestock, fishing and side-line occupation.

3.5.2 Personal income distribution of agricultural production

In rural income, wage income and social security income are personal income, but the income of agricultural production is household income. Therefore, it is necessary to determine how the household income is

allocated to individuals, and thus calculate the total personal income.

(1) Allocation method

Step 1: statistics for each family on farming and agricultural production should be recorded as working as the family labor.

Step 2: Calculation of family practitioners produced income, and apportioned to individual farming, sharing: Family net income of agricultural production / Labor force engaged in agricultural household production.

3.5.3 Years of schooling

2009

Level	Sch
No school	0
Primary school	6
Junior middle school	9
Senior middle school/ Middle professional degree	12
College /Post-secondary professional degree	15
university	16
Master's degree	18
PhD degree	22

3.5.4 Selection of samples

(1) Include male individuals from 16 to 60 years old and female individuals from 16 to 55 years old.

(2) Discard individuals whose value of year of schooling is missing, individuals who did not report education level information.

(3) Keep individuals whose current status is working or employed, or

re-employed after retirement.

(4) First Occupation:

In urban samples, we discard individuals, who work for businesses or private companies; self-employed individuals farmers at home, and other samples, and we delete samples without income data. In rural sample, we delete the samples without income data.

(5) Second Occupation: Urban and rural samples without income data were deleted from the sample.

(6) Family agricultural production and management: Rural sample households engaged in agricultural production but we delete samples without income data.

(7) Social Security Income: Rural and urban samples were deleted with the relevant guaranteed income but without income data.

4. Imputing parameters

4.1. Imputation method of urban parameters

4.1.1 Parameter estimates based on UHS, CHIP, CHNS, CHFS

We use UHS, CHIP, CHNS, CHFS, CFPS data to estimate the earnings equation by gender and year. Table B.1.1-B.1.4 contain means and standard deviations of each variable for UHS, CHIP, CHNS,CHFS, CFPS.

4.1.2 General idea about imputation

We use UHS, CHIP, CHNS, CHFS and CFPS to estimate parameters of the basic Mincer equation, and obtain the fitted values for the intercept,

return to education, and experience related terms. They are weighted by respective sample size if more than one sample is available. Then we use the parameter estimates to fit a time trend model, and then obtain the fitted values of each parameter by gender for the years 1985-2010. These fitted values are the final urban imputed parameters.

4.1.3 Specifications

We treat $\alpha, \beta, \gamma, \delta$ separately and use the parameters for each group as the dependent variable and use time (i.e., year) as the independent variable.

For α, β, γ and δ, we use the linear time trend model. The regression equation is: $Y = a0 + a1 * time + u$.

For α, β, γ and δ, we assume that they increase or decrease at a constant rate each year. Taking the α_male as an example, we assume that the intercept increases at the growth rate of a1 per year.

Figure B.1- Figure B.8 show the parameter estimates for each group and the sample regression lines of the time trend models. The fitted values of the time trend models are the values of our imputed parameters for the period 1985 to 2010.

Tables and figures of appendix B

Table B.1 Micro Datasets

Year	UHS	CHIP	CHNS	CHFS	CFPS
1985					
1986	U				
1987	U				
1988	U	U/R			
1989	U		U/R		
1990	U				
1991	U		U/R		
1992	U				
1993	U		U/R		
1994	U				
1995	U	U/R			
1996	U				
1997	U		U/R		
1998					
1999		U			
2000			U/R		
2001					
2002		U/R			
2003					
2004			U/R		
2005					
2006			U/R		
2007		U/R			
2008					
2009			U/R		U/R
2010				U/R	

Note: CHIP: Chinese Household Income Project

Note: UHS: Urban Household Survey

CHNS: China Health and Nutrition Survey

CHFS: China Household Finance Survey

CFPS: China Family Panel Studies

Table B.1.1 Summary Statistics: UHS Samples

Year	Variables	Male		Female	
		Mean	**S.D.**	**Mean**	**S.D.**
1987	inc	1544.74	610.85	1295.60	493.33
	Sch	10.61	2.91	9.84	2.71
	Exp	21.04	10.89	18.44	9.46
	Exp^2	561.17	471.91	429.38	354.03
1988	inc	1989.98	846.68	1656.67	701.53
	Sch	10.77	2.93	9.94	2.76
	Exp	20.73	10.87	18.06	9.32
	Exp^2	547.81	472.69	413.17	347.26
1989	inc	2275.53	1008.54	1904.01	859.59
	Sch	10.93	2.97	10.11	2.69
	Exp	20.89	10.91	18.36	9.31
	Exp^2	555.67	472.23	423.67	347.56
1990	Inc	2500.75	1083.87	2102.95	919.32
	Sch	11.09	2.93	10.29	2.70
	Exp	21.23	10.78	18.56	9.29
	Exp^2	566.96	471.68	430.56	347.69
1991	inc	2744.34	1165.79	2336.65	1003.85
	Sch	11.26	2.95	10.50	2.65
	Exp	20.73	10.51	18.26	9.00
	Exp^2	540.11	458.11	414.57	336.81
1992	inc	3214.50	1672.14	2679.03	1281.81
	Sch	11.34	2.81	10.56	2.66
	Exp	21.70	10.94	19.68	9.60
	Exp^2	590.52	495.43	479.60	386.43

Year	Variables	Male		Female	
		Mean	S.D.	Mean	S.D.
1993	inc	3903.40	2465.01	3275.63	1962.20
	Sch	11.39	2.72	10.75	2.55
	Exp	21.42	10.54	19.12	9.07
	Exp^2	570.03	463.78	447.86	344.33
1994	inc	5454.89	3612.46	4494.99	2948.20
	Sch	11.51	2.77	10.93	2.49
	Exp	21.26	10.53	18.96	9.07
	Exp^2	562.79	465.25	441.93	346.46
1995	inc	6691.21	4181.29	5580.39	3473.61
	Sch	11.61	2.72	10.97	2.48
	Exp	21.49	10.26	19.23	8.94
	Exp^2	567.26	451.91	449.84	342.59
1996	inc	7384.58	5034.44	6174.62	4421.84
	Sch	11.64	2.69	11.07	2.43
	Exp	21.81	10.27	19.58	8.96
	Exp^2	581.19	454.01	463.63	345.10
1997	inc	8554.39	6037.77	7109.59	5311.46
	Sch	11.64	2.69	11.12	2.42
	Exp	22.03	10.10	19.76	8.96
	Exp^2	587.21	446.74	470.64	346.18

Table B.1.2 Summary Statistics: CHNS samples

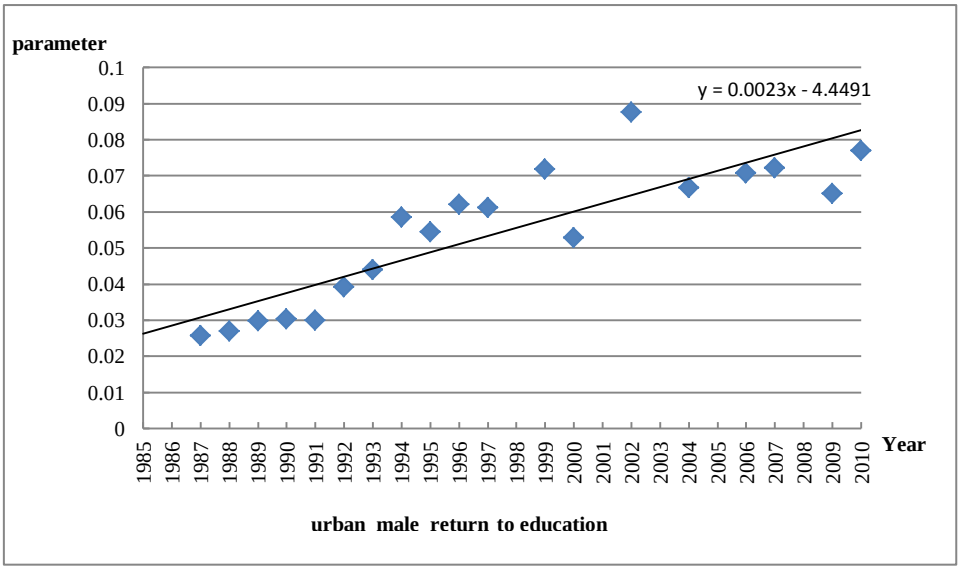
Year	Variables	Urban				Rural			
		Male		Female		Male		Female	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1989	inc	1820.46	2352.06	1552.90	1888.34	1441.81	1517.84	1207.12	1210.67
	Sch	8.97	4.01	8.53	4.01	6.32	4.07	4.63	4.35
	Exp	18.87	11.31	16.20	9.48	18.64	11.15	16.59	10.15
	Exp2	483.68	498.46	352.24	354.67	471.49	468.50	378.32	379.69

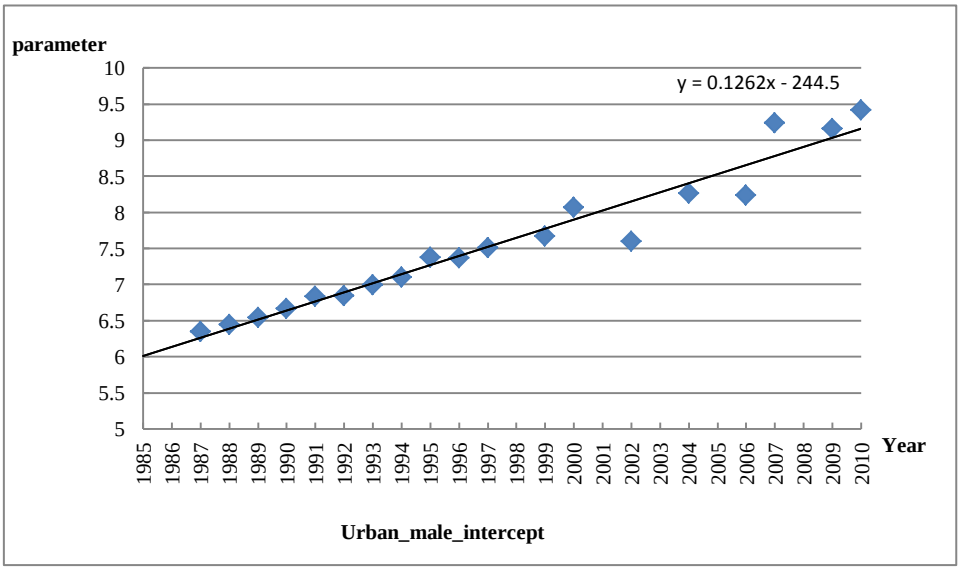
1991	inc	2013.74	1150.68	1685.14	1092.29	1503.47	1473.03	1238.76	1149.77
	Sch	9.06	4.01	8.44	4.06	6.69	3.94	4.90	4.31
	Exp	20.43	11.60	17.56	9.97	19.52	11.37	17.31	10.26
	Exp2	551.89	534.76	407.76	398.34	510.45	488.88	405.12	387.45
1993	inc	3032.90	2712.39	2625.33	2348.86	2091.26	2083.25	1758.72	1726.70
	Sch	9.49	3.68	8.88	3.74	7.07	3.73	5.28	4.28
	Exp	21.20	11.06	18.57	9.53	20.16	11.33	18.25	10.19
	Exp2	571.46	517.03	435.50	380.27	534.75	491.67	436.70	393.14
1997	inc	6824.82	5543.44	5590.67	4401.66	4520.24	4215.10	3555.43	3337.10
	Sch	10.21	3.33	9.70	3.45	7.34	3.54	5.58	4.18
	Exp	21.71	10.72	18.97	9.42	21.33	11.53	19.63	10.49
	Exp2	586.18	494.63	448.52	373.79	587.83	516.35	495.31	423.99
2000	Inc	9648.76	10011.97	7817.31	6970.82	5399.57	5345.96	4156.64	3858.77
	Sch	10.87	3.25	10.57	3.39	7.97	3.26	6.42	4.11
	Exp	22.66	10.65	20.06	9.70	22.18	11.61	20.95	10.43
	Exp2	626.88	498.19	496.28	394.35	626.61	526.58	547.50	432.50
2004	Inc	12895.86	10894.26	10813.88	9460.14	7151.50	7648.53	5698.16	6451.71
	Sch	11.12	3.02	10.77	3.08	8.30	3.20	6.80	4.04
	Exp	25.25	10.34	23.07	9.69	25.80	10.96	23.49	9.59
	Exp2	744.37	505.68	626.04	425.24	785.87	543.71	643.46	428.64
2006	inc	17789.37	22777.65	13521.59	14658.02	10668.79	10667.64	7556.52	7452.54
	Sch	11.35	3.21	10.99	3.45	8.42	3.63	6.97	4.34
	Exp	26.10	9.89	23.84	9.45	26.41	10.66	24.16	9.36
	Exp2	779.07	491.93	657.44	425.39	810.87	538.97	671.39	424.51
2009	inc	26066.48	31478.31	18637.45	17668.02	15339.22	14523.35	12158.07	10886.71
	Sch	11.13	3.22	11.09	3.34	8.28	3.38	7.30	4.13
	Exp	27.08	10.25	23.89	9.85	26.75	10.79	24.19	9.56
	Exp2	838.14	520.40	667.46	432.81	831.88	550.32	676.41	421.92

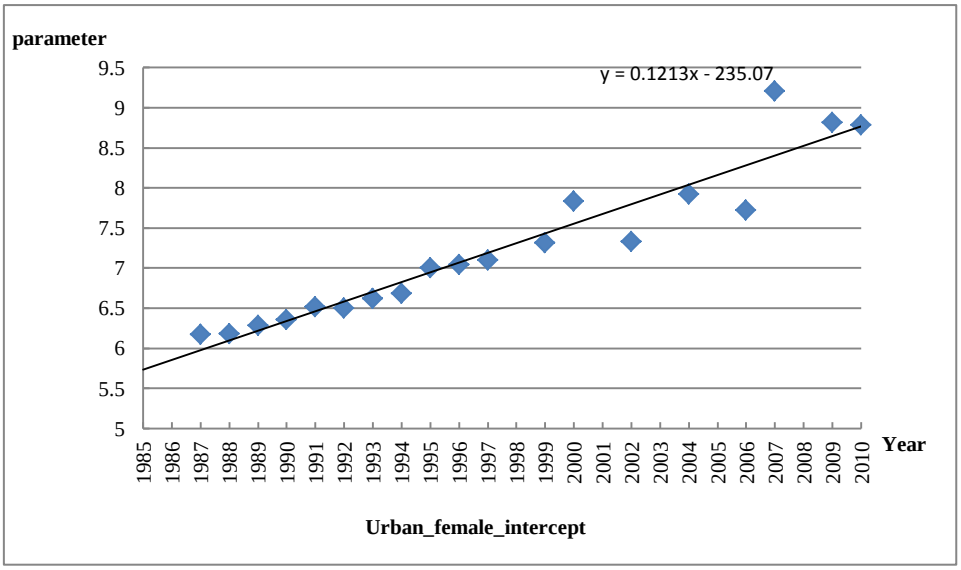
Table B.1.3 Summary Statistics: CHIP/CHFS/CFPS samples

Year	Variables	Urban				Rural			
		Male		Female		Male		Female	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1988	inc	1935.97	944.34	1642.17	942.41	967.08	965.16	862.57	810.87
	Sch	10.71	2.92	10.00	2.74	7.16	3.28	5.02	3.88
	Exp	20.96	10.97	18.24	9.42	18.35	12.40	15.40	10.87
	Exp2	559.66	480.01	421.58	354.35	490.38	516.81	355.42	390.56
1995	inc	6674.31	3702.17	5531.86	3041.36	4665.49	4391.55	4529.42	3982.85
	Sch	11.72	2.74	11.04	2.55	7.90	2.83	6.22	3.41
	Exp	22.53	10.75	20.69	9.61	21.43	11.95	20.19	11.17
	Exp2	623.23	491.87	520.32	393.67	602.00	543.46	532.31	472.15
1999	inc	9418.04	5572.83	7756.31	4923.76				
	Sch	11.98	2.77	11.50	2.64				
	Exp	23.58	10.39	22.19	9.63				
	Exp2	663.97	484.67	584.96	409.37				
2002	inc	12439.48	7984.14	9978.52	6863.79	5346.66	5395.65	3765.75	4009.96
	Sch	12.10	2.82	11.66	2.72	8.52	2.76	6.88	3.68
	Exp	24.41	10.28	22.84	9.72	21.88	12.04	19.89	11.03
	Exp2	701.72	489.07	615.96	422.51	623.84	542.97	517.29	441.77
2007	inc	34387.14	31291.01	24596.92	24984.14	14316.64	11105.48	10808.08	10300.37
	Sch	12.49	2.97	12.20	2.91	8.21	2.39	7.55	2.52
	Exp	22.66	11.49	20.83	10.93	22.40	12.78	19.42	11.35
	Exp2	645.45	525.68	553.17	455.57	665.21	579.10	505.87	447.98
2009	inc	31305.85	31872.66	23494.04	20228.66	11199.1	12209.2	6926.05	7618.99
	Sch	11.06	3.83	11.32	4.02	6.92	4.18	5.24	4.50
	Exp	21.79	12.27	18.04	10.99	28.57	12.75	27.90	11.65
	Exp2	625.36	586.50	446.06	444.46	978.70	723.67	913.98	620.50
2010	inc	37059.20	37748.73	30719.60	29662.54	16813.38	20499.11	13063.95	17374.53
	Sch	11.82	3.48	11.98	3.56	8.49	2.98	7.37	3.62
	Exp	21.71	10.22	18.38	8.91	27.81	9.83	25.19	8.88
	Exp2	575.72	459.24	417.11	332.42	869.87	524.53	713.36	416.69

Figures B.1-B.4 Parameter Estimates Against Time: Urban sample



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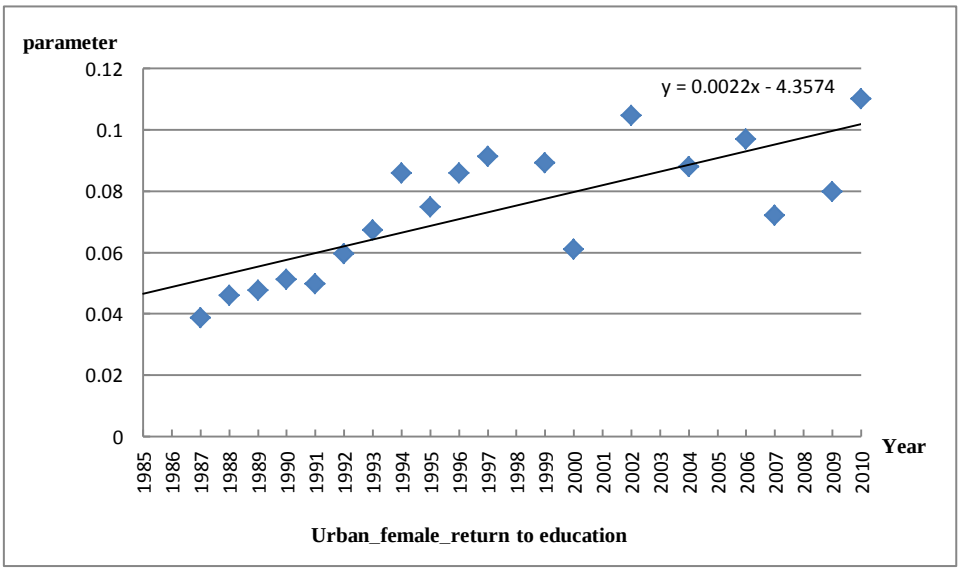
9
8.5
8
7.5
7
6.5
6
5.5
5
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Year
Urban_female_intercept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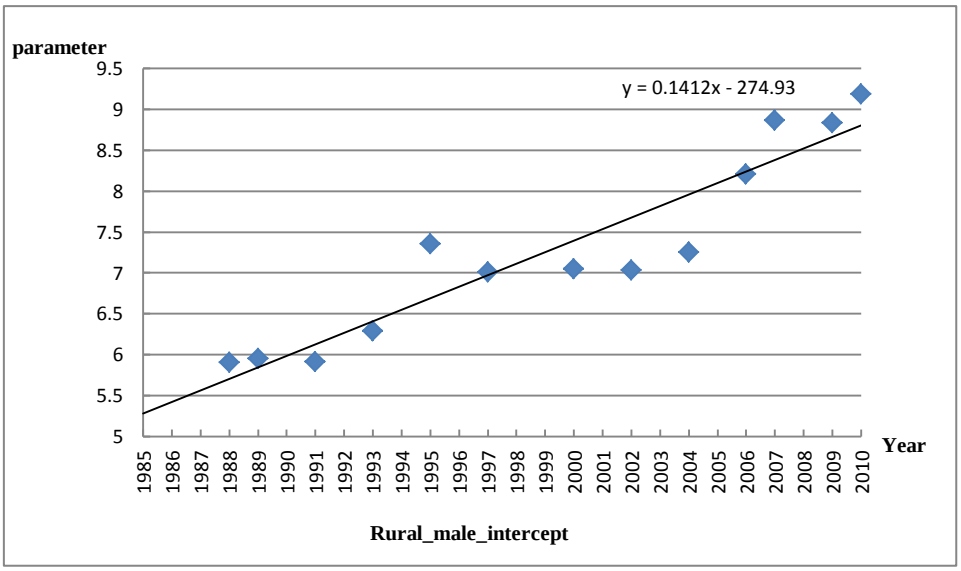
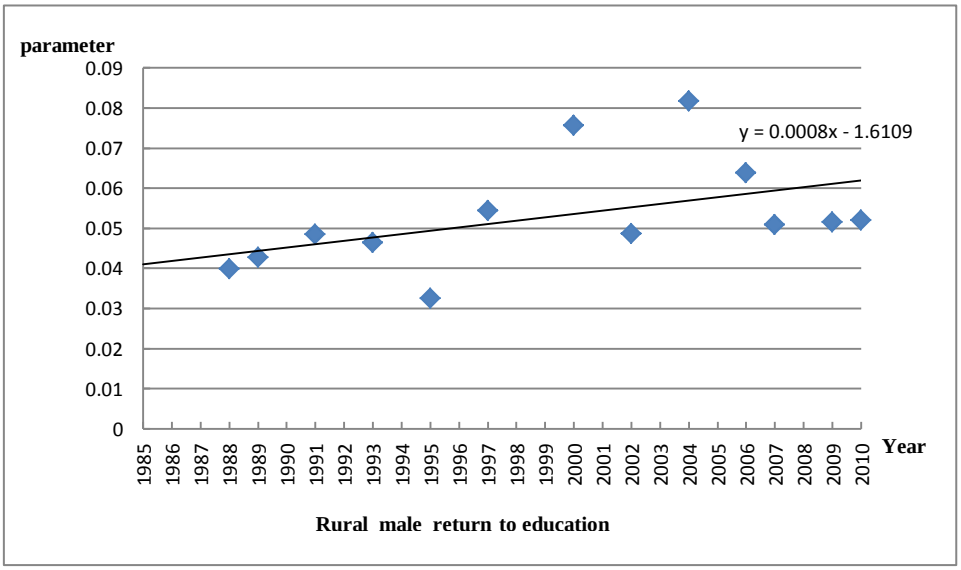
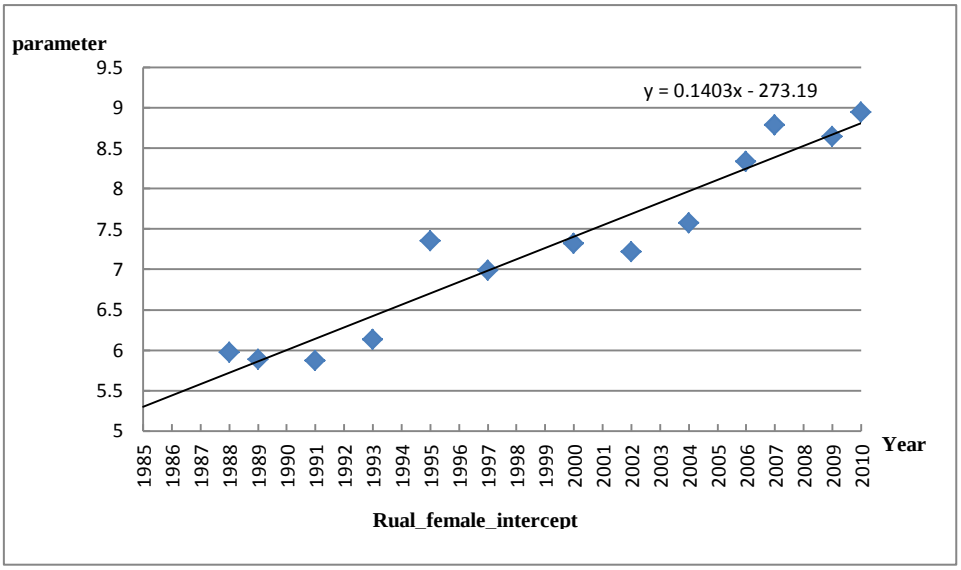
0.1
0.08
0.06
0.04
0.02
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Year
Urban_female_return to education

Figures B.5-B.8 Parameter Estimates Against Time: Rural Samples



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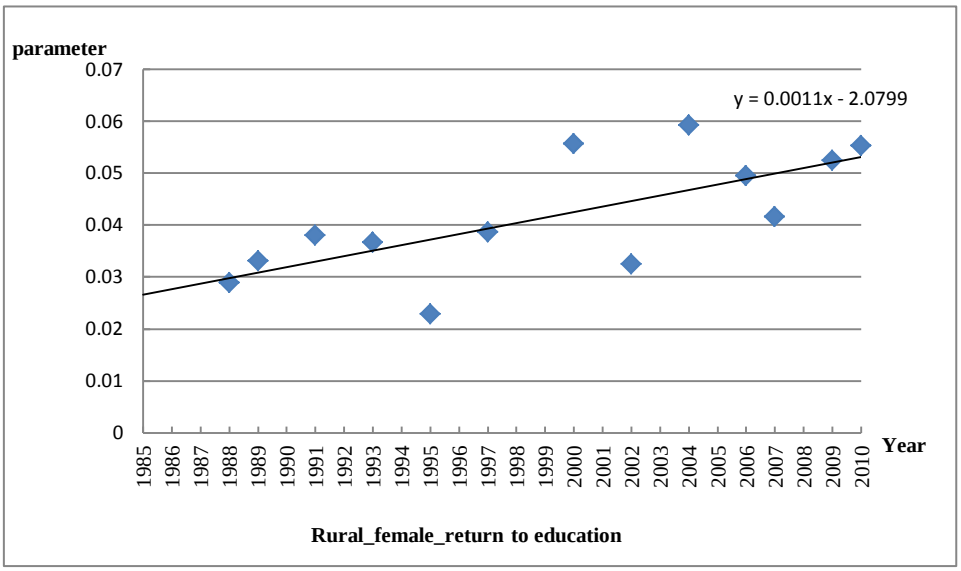
9
8.5
8
7.5
7
6.5
6
5.5
5
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Year
Rual_female_intercept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0.06
0.05
0.04
0.03
0.02
0.01
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Year
Rural_female_return to education

Appendix C Human capital stock calculation

This section summarizes the basic methods and procedures for estimating China's human capital stock from 1985 to 2010 based on the J-F approach. In particular, it explains estimations for necessary data of the J-F approach based on China's data. We use the following notations:

y indicates calendar years from 1980 to 2010. s indicates sex equaling to one and two for males and females, respectively. a indicates age from 0 to 60. e indicates the levels of education classified into five categories for years 1985-2010 including no schooling (ns), primary school (pri), junior middle school (jm), senior middle school (sm), and college (col). For years 2000-2010, the levels of education (e) are classified into six categories including no schooling (ns), primary school (pri), junior middle school (jm), senior middle school (sm), college (col) and university (uni).

Variables used for measuring the human capital stock:

whrs(y,s,a,e): annual market hours worked per employed person in year y with sex s, age a , and education level e;

empr(y,s,a,e): employment rate in year y for persons with sex s, age a, and education level e;

mhrs(y,s,a,e): market labor time per capita in year y for persons with sex s, age a, and education level e;

com(y,s,a,e): hourly compensation net of taxes on labor income for persons with sex s, age a, and education level e;

yinc(y,s,a,e): annual income of the employed in year y with sex s, age a, and education level e;

ymi(y,s,a,e): annual market income per capita net of tax on labor compensation in year y for persons with sex s, age a , and education level e;

sr(y,s,a): survival rate in year y for persons with sex s and age a;

employed(y,s,a,e): population employed in year y with sex s, age a, and education level e;

pop(y,s,a,e): population in year y with sex s, age a, and education level e;

newEnroll(y,s,a,e): population enrolled in education level e in year y, with sex s and age a;

pop_inschool(y,s,a,e-n): number of people in school in year y with sex s, age a, education level e, and grade n+1;

senr(y,s,a,e+1,e-n): share of people enrolled in the next education level e+1 and in school in year y with sex s, age a , education level e, and grade n+1;

mi(y,s,a,e): human capital of the population not in school in year y with sex s, age a , and education level e;

R = (1+real growth rate of income)/(1+discount rate);

pop_inschool(y,s,a,e): number of people in school in year y with sex s, age a, and education level e;

pop_nischool(y,s,a,e): number of people not in school in year y with sex s, age a, and education level e;

Le(y): total population with education level e in year y;

Ls(y): total population with sex s;

Mi(s): human capital for both sexes (nominal income);

v_e : share of the present value of human capital for the population with education level e;

$\overline{v}_e$: average share of the present value of human capital for the population with education level e;

$\overline{v}_s$: average share of the present value of human capital for the population with sex s;

ΔlnK: growth rate of the aggregate human capital stock;

Poplog(y,s): logarithmic growth rate of the population for sex s in year y;

Mitg (y): cumulated growth rate of the aggregate human capital stock;

MiQ(y): total human capital in year y measured in the base year's prices.

1. Schooling and work status by age for calculating human capital using the J-F approach

no school or work	0-5
school only	6-16
work and school	16-a
work only	a-59
Retirement	male：60+；female：55+

(1) When calculate human capital using the J-F approach, the retirement age is 60 for males and 55 for females. The legal retirement ages were set by the second meeting of the fifth NPC Standing Committee on May 24, 1978. Detailed regulations are described in "The Temporary Method of Settling the Old, Weak, Ill, and Disabled Cadre by the State Council" and "The Temporary Method of Settling the Retired Workers by the State Council "(1978, No.104). In general, the legal retirement age is 60 for males, 50 for female workers and 55 for female cadres. However, for workers who work in high temperature, high elevation, highly exhausting conditions, and harmful conditions, the legal retirement age is 55 for males and 45 for females. For people who become disabled due to illness and other reasons, the legal retirement age is 50 for males and 45 for females.

(2) *a* in the table is the upper bound of "work and school", and the lower bound of "work only". This age is determined according to the calculation of the lower bound of people in school in each year. The method of calculating people in school is discussed in section 3.2.

2. Estimation of annual market income ymi(y,s,a,e)

2.1 Estimation of annual income of the employed

2.1.1 Estimation of annual income of the employed using Mincer equation

Using data from CHIP (Chinese Household Income Project), CHNS (China Health and Nutrition Survey), UHS (Urban Household Survey), CHFS(China Household Finance Survey) and CFPS(Chinese Family Panel Studies), we regress the logarithm of annual income *ln yinc* on years of schooling *s*, work experience *exp* and work experience squared exp^2 by OLS.

$$\ln \text{yinc} = \alpha + \beta s + \gamma \exp + \delta \exp^2 + \text{u}$$

We use the fitted value of ln yinc from the equation above to obtain $\text{m}_\text{i} = e^{\ln \text{yinc}}$. We regress the annual income observed in the survey data on m_i by OLS (without the intercept) to obtain the coefficient on m_i, α[59]. Finally, we estimate the annual income of the employed as yinc= $\alpha \times e^{\ln \text{yinc}}$.

Note that the annual income used for estimating the Mincer equation is in real terms with 1985 as the based year.

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[59] Jeffrey M. Wooldridge (2005), Introductory Econometrics: A Modern Approach, 3rd edition.

2.1.2 Coding of schooling and work experience in the Mincer equation

(1) Coding of years of schooling:

	No schooling	Primary school	Junior middle school	Senior middle school	College	University
1985-1999	0	6	9	12	15	
2000-2010	0	6	9	12	15	16

(2) Coding of work experience:

For people younger than16, working experience is: *exp*=0;

For people older than16, if s<10, working experience is: *exp=age*-6;

For people older than16, if s≥10, working experience is: *exp=age-sch*-6.

2.2 Estimation of annual market income

When estimate the annual income of the employed using the Mincer equation, we obtain $\text{yinc}_{y,s,a,e} = \text{whrs}_{y,s,a,e} \times \text{com}_{y,s,a,e}$.

According to

$$\text{mhrs}_{y,s,a,e}=\text{whrs}_{y,s,a,e} \times \text{empr}_{y,s,a,e} \quad , \quad \text{ymi}_{y,s,a,e}=\text{whrs}_{y,s,a,e} \times \text{empr}_{y,s,a,e} \times \text{com}_{y,s,a,e}$$

The annual market income is given by:

$$\text{ymi}_{y,s,a,e}=\text{yinc}_{y,s,a,e} \times \text{empr}_{y,s,a,e}.$$

2.2.1 Calculation of employment rate empr(y,s,a,e)

To calculate employment rate empr(y,s,a,e) by age, sex and education level for people older than 16, we use the average of the employment rates in 1995 and 2000. We assume the employment rate for college is the same as that for university.

The formula used to calculate the employment rate is:

empr(y,s,a,e)=[employed(y,s, a, e)]/pop(y,s, a, e)

The data sources of employment rates are listed in the table below:

Data	Sources
The employed by age, sex and education Level in 1987	"China Population Census 1987"
Population by age, sex and education level in 1987	"China Population Census 1987"
The employed by age, sex and education level in 1995	"China Population Census 1995"
Population by age, sex and education level in 1995	"China Population Census 1995"
The employed by age, sex and education level in 2000	"China Population Census 2000"
Population by age, sex and education level in 2000	"China Population Census 2000"

Note: The 1% sample population in 1995 is converted to the total population by the actual sampling percentage of 1.04%.

The employed in "China Population Census 2000" for each province, autonomous region and municipality is aggregated to get the total population employed by the actual sampling percentage of 10%.

3. Calculation of enrollment rate

Enrollment rate is the share of people with education level *e* enrolled in a higher level of education *e*+1.

3.1 Calculation of enrollment by sex, age and education level

Based on the age distribution of the enrollment number for a certain education level and sex, the enrollment number of each year by sex, age and education level is given by:

$$\text{NewEnroll}(y,s,a,e) = \text{NewEnroll}(y,s,e)*\lambda(y,s,a,e)$$

$$\sum_{a} \lambda(y,s,a,e) = 1$$

Note that λ(y,s,a,e) refers to the age distribution of the enrollment number for each education level and sex.

There is no college or university in rural areas, so the enrollment number of college and university in rural areas is assumed to be 0.

3.2 In-school population of each education level and each grade

The in-school population of age *a*, sex *s*, education level *e*, and grade *n*+1 in year *y* is the enrolled population of age a-n, sex s , and education level e in year y-n:

$$\text{pop\_inschool}(y,s,a,e\text{-}n) = \text{NewEnroll}(y\text{-}n,s,a\text{-}n,e)$$

3.3 Enrollment rate of each education level and each grade

The probability of advancing to the next higher level of education is estimated by the average ratio of the sum of all students of any age in a year initially enrolled to the sum of all students of any age initially enrolled in the next higher level of education *X* years later, where *X* is the number of years it takes to complete an education level.

3.3.1 Enrollment rate from no schooling to primary school

The formula from no schooling to primary school is:

$$\text{senr}(y,s,a,\text{pri-ns}) = \text{Newenroll}(y+1,s,\text{pri})/\ \text{pop}(y,s,\text{ns})$$

The upper bound of people out of school in year y and enrolled into primary school in year y+1 is determined by the upper bound of the age distribution for enrollment of primary school in year y+1. For example, the age distribution for enrollment of primary school in year y+1 is from 6 to 12. The upper bound of people who have no schooling in year y and enrolled

into primary school in year y+1 is 11. The upper bound of people out of school in 2007 and enrolled into primary school in 2008 is the same as in 2006.

3.3.2 Enrollment rate from primary school to junior middle school

The steps of calculating this enrollment rate by sex and age in year y are as follows:

(1) The enrollment rate of the first grade of primary school in year y by age and sex is the average enrollment rate that the group in this grade can be enrolled in the first grade of junior middle school six years later, and the formula is:

senr(y,s,a,jm-pri) = newEnroll (y+6, s, jm)/ newEnroll (y, s, pri)

(2) The population of the second grade of primary school in year y by age and sex is the enrolled population of primary school in year y-1 by age and sex. The probability that the group in this grade can be enrolled in junior middle school 5 years later is the average enrollment rate that the group in this grade can be enrolled in the first grade of junior middle school five years later, and the formula is:

senr(y,s,a,jm-pri-1) = newEnroll (y+5,s,jm)/ newEnroll (y-1,s,pri)

(3) The population of the third grade of primary school in year y by age and sex is the enrolled population of primary school in year y-2 by age and sex. The probability that the group in this grade can be enrolled in junior middle school 4 years later is the average enrollment rate that the group in this grade can be enrolled in the first grade of junior middle school four years later, and the formula is:

senr(y,s,a,jm-pri-2) = newEnroll (y+4,s,jm)/ newEnroll (y-2,s,pri)

(4) Similarly, we can calculate the probability of the group of each grade in primary school being enrolled in junior middle school in year y.

3.3.3 Enrollment rate from junior middle school to senior middle school

The steps of calculating this enrollment rate by sex and age in year *y* are as follows:

(1) The enrollment rate of the first grade of junior middle school in year y by age is the average enrollment rate that the group in this grade can be enrolled in the first grade of senior middle school three years later, and the formula is:

senr(y,s,a,sm-jm) = newEnroll (y+3,s,sm)/ newEnroll (y,s,jm)

(2) The population of the second grade of junior middle school in year y by age and sex is the enrolled population of junior school in year y-1 by age and sex. The probability that the group in this grade can be enrolled in senior middle school two years later is the average enrollment rate that the group in this grade can be enrolled in the first grade of senior middle school two years later, and the formula is:

senr(y,s,a,sm-jm-1) = newEnroll (y+2,s,sm)/ newEnroll (y-1,s,jm)

(3) Similarly, we can calculate the probability of the group of each grade in junior middle school being enrolled in senior middle school in year y.

3.3.4 Enrollment rate from senior middle school to college or university

The steps of calculating the enrollment rate from senior middle school to college by sex and age in year *y* are as follows:

(1) The enrollment rate of the first grade of senior middle school in year *y* by age is the average enrollment rate that the group in this grade can be enrolled in the first grade of college three years later, and the formula is:

senr(y,s,a,col-sm) = newEnroll (y+3,s,col)/ newEnroll (y,s,sm)

(2) The population of the second grade of senior middle school in year y by age and sex is the enrolled population of senior school in year y-1 by

age and sex. The probability that the group in this grade can be enrolled in college two years later is the average enrollment rate that individuals in this grade can be enrolled in the first grade of college two years later, and the formula is:

senr(y,s,a,col-sm-1) = newEnroll (y+2,s,col)/ newEnroll (y-1,s,sm)

(3) Similarly, we can calculate the probability of the group of each grade in senior middle school being enrolled in college in year *y*.

The steps of calculating the enrollment rate from senior middle school to university by sex and age in year *y* are as follows:

(1) The enrollment rate of the first grade of senior middle school in year y by age is the average enrollment rate that the group in this grade can be enrolled in the first grade of university three years later, and the formula is:

senr(y,s,a,col-uni) =newEnroll (y+3,s,uni)/ newEnroll (y,s,sm)

(2) The population of the second grade of senior middle school in year y by age and sex is the enrolled population of senior school in year y-1 by age and sex. The probability that the group in this grade can be enrolled in university two years later is the average enrollment rate that the group in this grade can be enrolled in the first grade of university two years later, and the formula is:

senr(y,s,a,uni -sm-1) = newEnroll (y+2,s,uni)/ newEnroll (y-1,s,sm)

(3) Similarly, we can calculate the probability of the group of each grade in senior middle school being enrolled in university in year *y*.

Two points worth noting are as follows:

(1) By using the enrolled population in different years for calculating enrollment rates, an adjustment has already been made for the survival rate. Therefore, the survival rate is not included in the formula. We also assume

that no one drops out, skips a grade, repeats a grade, or takes leaves for a year or more within a certain education category.

(2) We could only calculate the enrollment rate of primary school till 2003 for lack of data. We use 2003 enrollment rates for years after 2003. Likewise, for enrollment rates of junior middle school and high school, we fix the enrollment rates for 2007 and 2008 at the 2006 levels.

4. Growth rate of real wage

We use the average labor productivity growth rate to approximate the real wage growth rate of urban and rural areas. Specifically, we use the labor productivity of the primary sector for the rural population and the labor productivity of the secondary and tertiary sectors for the urban population. The growth rates of real wage are 6.60% for the urban population and 4.72% for the rural population.

5. Discount rate

The discount rate we use is 4.58%, following Jorgenson and Yun (1990) and Jorgenson and Fraumeni (1992a). It is based on the rate of return on long-term investments in the private sector of the U.S. economy and also adopted by the OECD consortium (OECD 2010).

6. Calculation of human capital

6.1 Human capital of in-school population

The number of years discounted until they accumulate the higher level of human capital depends on the number of years it takes to complete the starting grade level and the current grade of enrollment within the starting grade level.

6.1.1 Human capital of population in primary school by age and sex

(1) If an individual in the first grade of primary school can advance to the next higher level of education, he could get human capital equal to that of someone who is currently six years older and whose educational attainment is junior middle school. We discount that income by 6 years to reflect the fact that it takes 6 years for him to reach junior middle school: $\{senr(y,s,a,jm\text{-}pri)*mi(y,s,a+6,jm)*R^6\}*sr(y,s,a)*sr(y+1,s,a+1)$ $*sr(y+2,s,a+2)$ $*sr(y+3,s,a+3)$ $*sr(y+4,s,a+4)$ $*sr(y+5,s,a+5)$.

(2) If an individual in the second grade of primary school can advance to the next higher level of education, his human capital is calculated as: $\{senr(y,s,a,jm\text{-}pri\text{-}1)*mi(y,s,a+5,jm)*R^5\}*sr(y,s,a)*sr(y+1,s,a+1)$ $*sr(y+2,s,a+2)*sr(y+3,s,a+3)*sr(y+4,s,a+4)$, discounted by 5 years as it takes him 5 years to reach junior middle school.

(3) Similarly, we can calculate the human capital of the group in each grade of primary school.

6.1.2 Human capital of the group in junior middle school and above by age and sex

Take junior middle school as an example.

(1) If an individual in the first grade of junior middle school can advance to the next higher level of education, he could get human capital equal to that of someone who is currently three years older and whose educational attainment is senior middle school. We discount that income by 3 years as it takes 3 years for him to reach senior middle school: $senr(y,s,a,sm\text{-}jm)*mi(y,s,a+3,sm)*R^3*sr(y,s,a)*sr(y+1,s,a+1)*sr(y+2,s,a+2)$.

(2) If an individual in the second grade of junior middle school can advance to the next higher level of education, his human capital is calculated as:

$$senr(y,s,a,sm\text{-}jm\text{-}1)*mi(y,s,a+2,sm)*R^2*sr(y,s,a)*sr(y+1,s,a+1),$$

discounted by 2 years as it takes 2 years for him to reach senior middle school.

(3) Similarly, we can calculate the human capital of the group in each grade of junior middle school.

For the years that we do not separate enrollments for university and college (there are five categories for education level, and the last level is college and above), we get the human capital of the group in the first grade of senior middle school as:

$$senr(y,s,a,col\text{-}sm)*mi(y,s,a+3,col)*R^3*sr(y,s,a)*sr(y+1,s,a+1)*sr(y+2,s,a+2)$$

For grade 2 and 3 students, the human capital is given by:

$$senr(y,s,a,col\text{-}sm\text{-}1)*mi(y,s,a+2,col)*R^2*sr(y,s,a)*sr(y+1,s,a+1)$$

and

$$senr(y,s,a,col\text{-}sm\text{-}1)*mi(y,s,a+2,col)*R*sr(y,s,a),$$

respectively.

For the years that separate university and college enrollments are available (there are six categories for education level, and the last level is university and above), we should use the human capital equation:

$$senr(y,s,a,col\text{-}sm)*mi(y,s,a+3,col)*R^3+senr(y,s,a,uni\text{-}sm)*mi(y,s,a+3,uni)*R^3,$$

as for senior middle school students, they can go to college or university after their graduation.

For grade 2 students, the human capital is calculated as: senr(y,s,a,col-sm-1)*mi(y,s, a+2,col)*R^2+senr(y,s,a,uni-sm-1)*mi(y,s,a+2,uni)*R^2 . Similarly, we can calculate the human capital of the group in each grade of senior middle school.

Note that by using the average ratio of the sum of all students of any age in a year initially enrolled to the sum of all students of any age initially enrolled in the next higher education level X years later, an adjustment has already been made for age-specific survival rates. Accordingly, the survival rate does not appear in the formula.

6.2 Human capital of -out-of-school population

6.2.1 Calculation of out-of-school population

In-school population of age a, sex s, and education level e in year y, pop_inschool(y,s,a,e), is the sum of population of each grade:

$$\text{pop\_nischool(y,s,a,e)} = \sum_{n=0}^{y(e)} \text{pop\_inschool}(y, s, a, e)$$

where y(e) is the number of years to achieve education level e. The formula for calculating out-of-school population of age a, sex s, and education level e in year y is:

$$\text{pop\_nischool(y,s,a,e)} = \text{pop(y, s, a,e)} - \text{pop\_inschool(y,s,a,e)}$$

Note that following adjustment is made for negative values in out-of-school population.

(1) Reset negative out-of-school population for certain gender, age and education level to 0. The negative out-of-school population mainly appears in primary school for students aged 5-10.

(2) Add the weighted negative out-of-school population for certain gender, age and education level to the in-school population by grades, where

the weights are the proportion of population in each grade by gender, age, and education level.

6.2.2 Human capital of -out-of-school population

The out-of-school population consists of people who are working. For people below the age of 60, the formula for human capital is:

$$mi(y,s,a,e) = ymi(y,s,a,e) + sr(y+1,s)*mi((y,s,a+1,e)*R$$

For those who are over 60, human capital is zero, i.e. ymi = 0.

7. Human capital stock in China: 1985-2010

The income estimated by the Mincer equation is the real yearly income (using 1985 as the based). We use CPI and real income to obtain the nominal yearly income.

Tables C.1- C.4 report the real human capital in China with 1985 as the baseline year. Table C.5-C.8 show the labor force human capital. We create a new human capital series starting from 2000, as the reported education categories separates college from university or above.

Tables and figures of appendix C

Table C.1 Real Human Capital by Region and Gender, 1985-2010

Unit: Billion Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
1985	9439	5438	11220	7492
1986	10260	5896	11850	7816
1987	10990	6253	12510	8164
1988	10590	6034	12000	7790
1989	10410	5935	11300	7307
1990	12010	6852	12190	7833
1991	13000	7434	13250	8464
1992	13690	7853	14020	8892
1993	13510	7741	13790	8641
1994	12310	6997	12410	7688
1995	11930	6849	11700	7194
1996	13000	7446	11700	7095
1997	14970	8512	12300	7347
1998	17730	10010	13350	7823
1999	21170	12030	14510	8340
2000	24730	14040	15890	8908
2001	28240	16210	16890	9496
2002	33400	18980	18260	10180
2003	38510	22270	19270	10650
2004	42720	25020	19760	10910
2005	49330	29960	21160	11360
2006	55750	31780	22810	12080
2007	64130	36680	23580	12320
2008	71100	40730	24180	12540
2009	83500	47420	26730	13570
2010	95160	53590	28510	14290

Note: The results are based on five education categories.

Table C.2 Real Human Capital by Region and Gender, 2000-2010

Unit: Billion Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
2000	25140	14330	15760	8833
2001	28730	16570	16760	9419
2002	34040	19390	18110	10100
2003	39310	22830	19100	10560
2004	43720	25710	19570	10800
2005	50730	30970	20930	11240
2006	56950	32600	22570	11950
2007	65640	37720	23320	12180
2008	72890	41970	23910	12400
2009	85700	48920	26400	13400
2010	97760	55360	28160	14110

Note: The results are based on six education categories.

Table C.3 Per Capita Real Human Capital by Region and Gender, 1985-2010

Unit: Thousand Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
1985	78.14	51.02	29.15	21.50
1986	81.44	52.69	30.68	22.39
1987	83.71	53.30	32.25	23.28
1988	77.27	50.00	30.65	22.06
1989	73.44	48.15	28.56	20.56
1990	81.90	54.49	30.43	21.82
1991	86.76	57.00	32.98	23.47
1992	89.42	58.45	34.83	24.59
1993	86.77	55.88	34.22	23.82

Year	Urban Male	Urban Female	Rural Male	Rural Female
1994	77.67	49.18	30.82	21.18
1995	74.22	46.82	29.12	19.80
1996	75.74	47.78	29.40	19.82
1997	82.19	51.30	31.38	20.90
1998	92.00	57.20	34.58	22.68
1999	104.25	65.56	38.23	24.73
2000	115.21	72.97	42.11	26.67
2001	126.56	80.40	45.86	28.97
2002	144.30	90.21	50.90	31.73
2003	161.49	101.66	55.34	34.00
2004	174.83	111.06	58.44	35.55
2005	197.19	129.94	63.78	38.10
2006	213.49	133.38	70.44	41.74
2007	234.76	148.67	74.98	44.24
2008	252.69	161.41	78.69	46.37
2009	287.25	183.57	89.43	51.93
2010	311.83	199.24	96.91	55.93

Note: The results are based on five education categories.

Table C.4 Per Capita Real Human Capital by Region and Gender, 2000-2010

Unit: Thousand Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
2000	117.12	74.50	42.12	26.67
2001	128.72	82.18	45.86	28.97
2002	147.02	92.22	50.90	31.73
2003	164.79	104.25	55.34	34.00
2004	178.90	114.11	58.44	35.55
2005	202.79	134.32	63.79	38.10

2006	218.06	136.84	70.45	41.75
2007	240.30	152.91	75.01	44.25
2008	259.08	166.30	78.73	46.38
2009	294.81	189.39	89.49	51.96
2010	320.36	205.83	96.99	55.97

Note: The results are based on six education categories.

Table C.5 Real Labor Force Human Capital by Region and Gender, 1985-2010

Unit: Billion Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
1985	4117	2330	5409	3472
1986	4547	2566	5774	3675
1987	4956	2783	6201	3912
1988	4948	2770	6112	3834
1989	5014	2802	5869	3669
1990	5810	3199	6400	3978
1991	6234	3473	7054	4375
1992	6378	3583	7536	4656
1993	6129	3446	7383	4522
1994	5498	3089	6578	4000
1995	5294	2984	6188	3743
1996	5701	3151	6215	3684
1997	6511	3549	6583	3825
1998	7826	4197	7248	4116
1999	9478	5005	7913	4393
2000	11430	5883	8691	4713
2001	12570	6545	9174	4970
2002	14110	7368	9899	5338
2003	15600	8263	10520	5659
2004	17090	9035	10730	5751

Year	Urban Male	Urban Female	Rural Male	Rural Female
2005	19340	10260	11270	6037
2006	22200	11490	12630	6575
2007	24960	12830	13380	6850
2008	27400	14010	13940	7042
2009	34150	17250	15430	7629
2010	41360	20780	16410	7985

Note: The results are based on five education categories.

Table C.6 Real Labor Force Human Capital by Region and Gender, 2000-2010

Unit: Billion Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
2000	11170	5745	8620	4674
2001	12380	6432	9101	4929
2002	13990	7287	9819	5294
2003	15600	8249	10430	5610
2004	17250	9128	10620	5696
2005	19530	10380	11150	5972
2006	22450	11650	12500	6506
2007	25280	13020	13230	6774
2008	27790	14260	13800	6965
2009	34690	17610	15240	7537
2010	42080	21260	16230	7892

Note: The results are based on six education categories.

Table C.7 Per Capita Real Labor Force Human Capital by Region and Gender, 1985-2010

Unit: Thousand Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
1985	54.34	34.77	24.30	17.41
1986	57.21	36.03	25.65	18.17
1987	59.46	36.84	27.12	18.98
1988	55.32	34.75	25.86	18.07
1989	53.18	33.96	24.13	16.89
1990	59.09	38.00	25.74	17.97
1991	61.82	39.40	27.86	19.32
1992	62.28	39.25	29.34	20.17
1993	59.27	36.69	28.58	19.38
1994	52.28	31.84	25.49	17.07
1995	49.20	29.63	23.87	15.82
1996	50.05	29.80	24.15	15.78
1997	53.96	31.84	25.76	16.58
1998	60.75	35.41	28.44	17.99
1999	68.42	39.54	31.28	19.50
2000	75.95	43.23	34.06	20.88
2001	81.85	46.47	36.99	22.44
2002	89.80	50.62	40.67	24.35
2003	97.34	55.05	43.91	26.03
2004	103.86	58.49	45.81	26.88
2005	113.26	63.88	49.16	28.62
2006	126.29	70.62	55.58	31.83
2007	136.95	77.20	59.74	34.07
2008	146.32	83.37	63.08	35.87
2009	172.18	98.40	71.45	40.18
2010	193.04	111.00	77.26	43.12

Note: The results are based on five education categories.

Table C.8 Per Capita Real Labor Force Human Capital by Region and Gender, 2000-2010

Unit: Thousand Yuan

Year	Urban Male	Urban Female	Rural Male	Rural Female
2000	75.11	42.61	34.07	20.88
2001	81.33	46.02	37.00	22.44
2002	89.66	50.37	40.68	24.35
2003	97.67	55.15	43.92	26.03
2004	104.84	59.09	45.83	26.88
2005	114.40	64.60	49.18	28.63
2006	127.74	71.57	55.61	31.84
2007	138.69	78.39	59.78	34.09
2008	148.39	84.86	63.14	35.89
2009	174.90	100.41	71.55	40.22
2010	196.42	113.59	77.39	43.18

Note: The results are based on six education categories.

Appendix D Physical Capital Estimation

1. Two measurements of physical capital in OECD

(1) Measured by quantity, we calculate the net wealth stock, which indicates the price of the total physical capital and it is a good indicator or reference for human capital estimation.

(2) Measured by quality, we calculate the capital service, which refers to the present value of future returns to physical capital and reflects productivity of physical capital.

Based on the two measurements of OECD, we use three methods to calculate the physical capital: net wealth stock, hyperbolic capital service and geometric capital service. The last two methods are mainly distinguished by estimating under different assumptions about existing efficiency and depreciation of physical capital.

2. Data sources and processing

The main data sources are *China Statistical Yearbook, Data of Gross Domestic Product of China, China Compendium of Statistics 1949-2008* and *Statistical Yearbook for provinces*.

We consider Gross Physical Capital Formation of each year as physical capital flow at current prices. As properties of physical capital vary, we divide physical capital into three categories: construction, machinery and others. Specific data processing method is shown as follows.

First, we have the data, Gross Physical Capital Formation (1952-2010), Capital Construction and Technological Updating and Transformation which are divided into three categories, that is, construction, machinery and others (1995-2002). Also, we have Total Investment in three categories, that is, construction, machinery and others (1995-2002). And then, we divide GFCF into three categories by using the percentages of each category occupying Total Investment in the period of 2003 to 2010. In order to divide GFCF during the period 1995 to 2002 into three categories, by using the data of Capital Construction and Technological Updating and Transformation, we add up the percentages of each category accounting for Capital Construction and Technological Updating and Transformation respectively. Finally, to classify GFCF in the period of 1952 to 1994, we use the average percentages of previous years.

We make assumptions for these three categories of physical capital as follows.

(1) Construction

Assume the average service life is 40 years, the depreciation coefficient b, which is used for forming age-efficiency profile, is equal to 0.75, and s, the standard deviation is m/2, which helps calculating retirement function (m is the average service life of physical capital).

(2) Machinery

Assume the average service life is 16 years, the depreciation coefficient b is 0.5 and the standard deviation s equals m/4.

(3) Others

Assume the average service life is 25 years, the depreciation coefficient b is 0.5 and standard deviation s equals m/4.

3. Fixed Assets Price Index

Fixed Assets Price Index can be attained from *China Statistical Yearbook (1991-2011, base year is previous year)*. However, the calculation of price index adopts the method presented in the paper written by Carsten A. Holz as follows.

$$\text{deflator} = \frac{\text{nominal data 1}}{\text{nominal data 0}} * \text{Real growth rate} * 10000$$

where the real growth rate is from the region chapter of Data of Gross Domestic Product of China (1952-1995), and then we can switch the base year to 1952.

For Sichuan and Chongqing, we calculate them respectively.

$$\text{Chongqing GFCF} = \frac{Sichuan\ GFCF}{\text{Sichuan GCF}} * Chongqing\ GCF$$

We use this to adjust and classify GFCF. All data are from *China Compendium of Statistics 1949-2008*, where GCF represents gross capital formation.

In addition, we use the mean of the previous year and the year after to replace the unreasonable extreme values.

4. Determination of the Initial Value

$$W^{to} = I^{to}/(\delta + \theta) \quad (1)$$

$$\theta = \left(\frac{GFCF_{1956}}{GFCF_{1952}}\right)^{\frac{1}{5}} - 1 \quad (2)$$

In these two formulas, I^{to} is GFCF of the initial year 1952. δ is the depreciation rate of physical capitals. θ is the average growth rate of physical capital. We use the geometric average growth rate of real physical

capital in the period of year 1952 to year 1956 as the estimated growth rate θ, and thus the initial value of physical capital stock W^{to} can be obtained. Although the growth rate of physical capital is not available before 1952, it is reasonable that we use the average growth rate of the years closest to 1952 as an appropriate estimator.

5. Three Specific Methods

5.1 Net wealth stock

Main formula is shown as follows,

$$W^{tE} = W^{tB} + I^{t} - \delta(\frac{I^{t}}{2} + W^{tB})$$

In this formula, δ is the rate of depreciation. We assume that the depreciation rate δ=2/average service life. The declining balance rate is 2. I^{t} is Gross Physical Capital Formation（GFCF）at constant prices. W^{tE} and W^{tB} are the wealth stock at current prices and at prices of last period, respectively.

5.2 Hyperbolic capital service

In the capital service measurement, we calculate the present value of future earnings to measure the value of physical capital stock. Specifically speaking, the total service life and the past service life of physical capital can affect the future earnings of physical capital through three following channels.

(1) Retirement function

It describes the survival probability of a particular capital goods or how

assets are withdrawn from service (scrapped or discarded). We assume that the age distribution of physical capital follows lognormal distribution. Formulas are presented as follows,

$$F_T = \frac{1}{T\sigma\sqrt{2\pi}} e^{-\frac{(\ln T - u)^2}{2\sigma^2}} \quad (1)$$

$$\sigma = \sqrt{\ln\left(1 + \left(\frac{m}{s}\right)^{-2}\right)} \quad (2)$$

$$\mu = \ln(m) - 0.5\sigma^2 \quad (3)$$

$$s = \frac{m}{2} \text{ or } s = \frac{m}{4} \quad (4)$$

In this formula, T is the past service life of physical capital. σ denotes the standard deviation of lognormal function. μ represents the expectation value of lognormal function. m is the average service life of physical capital. s is the standard deviation of normal distribution in lognormal function. Nevertheless, the probability of retirement in the equation will never equal 1, which contradicts with the assumption of maximum service life. So we adjust the probability of retirement at the maximum year of service life to be 1.

(2) Age-efficiency profile

It depicts the productive capacities or the market value, conditional on survival. Hyperbolic age-efficiency is shown as follows,

$$G(n)=(T-n)/(T-b*n)$$

where T denotes for the maximum service life, which is two times of average service life; and n represents the past service life.

(3) Age-price profile

It affects the current value and depreciation rates of physical capital.

In Hyperbolic capital service method, age-price profile is treated as endogeneity and can be derived from age-efficiency profile and the value of GFCF. Specific methods can be found in *OECD2009-Capital Manual*. Formulas of capital service method are shown as follows:

$$T_t = \prod_{i=1}^{3} Z_{it}^{(Share_{it}+Share_{it-1})/2} \quad (1)$$

$$Share_{it} = C_{it} / \sum_{i=1}^{3} C_{it} \quad (2)$$

$$Z_{it} = q_{it}K_{it} / q_{it-1}K_{it-1} \quad (3)$$

$$C_{it} = q_{it}K_{it} * \left(d_{it} + \frac{q_{it}-q_{it-1}}{q_{it}} + r_{it}\right) \quad (4)$$

$$r_{it} = (\mu_t K_t - \sum_{i=1}^{3} \left(d_{it} + \frac{q_{it}-q_{it-1}}{q_{it}}\right) q_{it}K_{it}) / \sum_{i=1}^{3} q_{it}K_{it}) \quad (5)$$

In these formulas, Z_{it} is the growth index of physical capital income for category i in year t. $Share_{it}$ is the share of physical capital revenue for physical capital category i in year t. C_{it} is the revenue of the physical capital category i in year t. $q_{it}K_{it}$ is the revenue of the physical capital for category i in year t at constant prices and q_{it} denotes the price index whose base year is 1952. d_{it} is the depreciation rate of physical capital for category i in year t and r_{it} is the net return rate of physical capital for category i in year t. $\mu_t K_t$ is capital income at current prices. In particular, d_{it} is calculated by the formula below,

$$d_{it} = (GFCF^{tE} - (W^{tE} - W^{tB}))/W^{tE}$$

In this formula, $GFCF^{tE}$ is the gross physical capital formation in year t. W^{tE} is the stock of physical capital in year t and W^{tB} is the physical capital stock in year t-1. The values are all at constant prices with 1952 as base year.

Below is the calculation method of capital income: GDP measured by income approach includes labor-remuneration, net taxes, depreciation and

operating surplus. We attain capital income by adding up depreciation and operating surplus. Therefore, we can directly calculate capital income in the period of 1978 to 2010 by using the data from *China Statistical Yearbook*. To calculate capital income in the period of 1952 to 1978, we use the value of GDP to multiply the average share of capital income accounting for GDP in the period of 1978 to 2010.

Through the above steps, we attain Tornqvist index for each year with 1952 as base year to represent the growth rate of capital service. Thus we can derive capital service for each year by using the initial stock of physical capital.

5.3 Geometric capital service

The principle of geometric capital service method is the same as that of hyperbolic capital service method. The distinction lies in the age-efficiency profile which depreciates in geometric way shown as follows,

$$g_n = (1 - \delta)^n$$

where δ is the depreciation rate of a certain kind of physical capital, and n is the years for which this kind of physical capital has been used. We assume that δ= declining balance rate /average service life, and the declining balance rate is equal to 2. The latter age-efficiency equation is hyperbolic decreasing. In addition, efficiency in the equation will never be 0, which contradicts with the assumption of maximum life. So we adjust the efficiency in the maximum life year to be 0.

When using geometric capital service method, some strong assumptions are put up to simplify calculation. The first assumption is that there exist no scraped assets, which implies it is no use considering

retirement function. The second assumption is that efficiency declines in geometric way. The third assumption is that d_{it}, the depreciation rate of physical capital for category i in year t, is exogenous, δ=2/average service life, and declining balance rate is 2. Other aspects of this method are the same as hyperbolic capital service.

Tables of appendix D

Table D.1 Net Wealth Stock at Constant Prices, 1985-2010

Unit: 100 millions of 1985 Yuan

Province	1985	1990	1995	2000	2005	2010
Beijing	374	1084	2454	4534	8690	15452
Tianjin	307	541	971	1769	3288	8316
Hebei	746	1157	1966	3953	7049	15343
Shanxi	426	634	859	1339	2539	5977
Inner Mongolia	249	399	752	1211	3323	11133
Liaoning	766	1286	2039	2857	5028	12277
Jilin	308	496	789	1195	2246	7697
Heilongjiang	548	842	1203	1914	3035	6264
Shanghai	570	1058	2071	4118	6813	11690
Jiangsu	791	1810	4012	7807	15841	34188
Zhejiang	115	228	423	1055	3786	13244
Anhui	367	651	1069	1842	3266	6962
Fujian	248	399	763	1621	2979	6907
Jiangxi	354	511	849	1468	3112	6859
Shandong	977	1710	2820	5048	10285	22488
Henan	782	1283	2066	3861	7294	20092
Hubei	546	824	1414	2881	5013	10463
Hunan	380	574	816	1335	2337	5310
Guangdong	871	1580	3767	7960	16282	33506
Guangxi	322	416	671	1141	2074	6048
Hainan	86	164	459	703	1070	2012
Chongqing	365	526	1023	2237	5153	11381
Sichuan	598	998	2320	5165	10165	22074
Guizhou	227	313	411	684	1339	2721
Yunnan	541	665	1074	1761	2885	5787
Tibet	47	60	73	103	278	705
Shaanxi	323	566	780	1185	2100	5051

Province	1985	1990	1995	2000	2005	2010
Gansu	277	404	490	727	1323	2572
Qinghai	111	156	213	389	807	1623
Ningxia	104	146	189	269	530	1287
Xinjiang	257	422	842	1391	2465	4450
National	**12963**	**21871**	**39586**	**73450**	**142076**	**319724**

Table D.2 Net Wealth Stock at Current Prices, 1985-2010

Unit: 100 millions of Yuan

Province	1985	1990	1995	2000	2005	2010
Beijing	374	892	4024	8302	17206	32429
Tianjin	307	697	2342	4210	8897	25421
Hebei	746	1451	4991	10522	21235	53317
Shanxi	426	1023	2544	4218	9076	26136
Inner Mongolia	249	517	1572	2821	8846	35142
Liaoning	766	1814	6458	9480	18571	52184
Jilin	308	708	2295	4051	8398	30717
Heilongjiang	548	1416	3669	6339	11214	27384
Shanghai	570	1611	5611	11422	21329	41686
Jiangsu	791	2053	8860	17344	41255	104383
Zhejiang	115	471	1346	3181	12879	53338
Anhui	367	920	3318	5869	11326	28468
Fujian	248	864	3087	6683	13041	35115
Jiangxi	354	609	1941	3797	9025	23394
Shandong	977	2771	9322	17359	41017	100692
Henan	782	1589	4721	9418	20674	64898
Hubei	546	1144	3590	7895	15573	39066
Hunan	380	1261	3732	6897	13841	38290
Guangdong	871	1889	7566	15753	35670	82990
Guangxi	322	824	2391	4143	8297	26308

Hainan	86	196	918	1378	2316	5582
Chongqing	365	597	1314	3165	8262	21823
Sichuan	598	1140	3028	7181	16470	43867
Guizhou	227	552	1518	2737	5635	12913
Yunnan	541	780	2643	5059	9814	22853
Tibet	47	74	159	249	751	2405
Shaanxi	323	936	2695	5040	10298	29789
Gansu	277	546	1400	2375	4875	11730
Qinghai	111	163	439	861	1984	4946
Ningxia	104	238	624	1050	2301	6238
Xinjiang	257	544	2187	4166	8354	18250
National	**12964**	**30244**	**100121**	**192821**	**418336**	**1101790**

Table D.3 Hyperbolic Capital Service, 1985-2010

Unit: 100 millions of 1985 Yuan

Province	1985	1990	1995	2000	2005	2010
Beijing	1836	5138	11718	23057	45009	82485
Tianjin	464	832	1466	2667	4927	11673
Hebei	740	1134	1866	3613	6503	13725
Shanxi	514	772	1072	1635	2945	6555
Inner Mongolia	304	493	912	1506	3752	12063
Liaoning	568	895	1382	2023	3397	7654
Jilin	315	506	801	1239	2221	6714
Heilongjiang	626	996	1464	2325	3668	7130
Shanghai	965	1817	3476	7029	12174	21031
Jiangsu	744	1688	3591	7218	14598	30989
Zhejiang	78	149	275	655	2180	7814
Anhui	231	406	674	1183	2057	4169
Jiangxi	658	939	1475	2494	5020	10894
Shandong	1193	2108	3489	6211	12215	26458

Province	1985	1990	1995	2000	2005	2010
Henan	861	1406	2280	4176	7747	20206
Hubei	446	671	1114	2212	3920	7886
Hunan	569	862	1225	1936	3301	7059
Guangdong	901	1633	3703	7962	16424	33883
Guangxi	322	418	632	1029	1808	4828
Hainan	97	170	439	730	1154	2110
Chongqing	249	348	618	1283	2895	6439
Sichuan	356	595	1294	2859	5664	12090
Guizhou	299	418	502	774	1437	2749
Yunnan	63	76	114	180	291	558
Tibet	21	27	33	44	100	246
Shaanxi	585	1005	1431	2134	3647	8111
Gansu	509	713	886	1266	2166	4045
Qinghai	92	129	178	306	606	1196
Ningxia	99	139	182	256	460	1040
Xinjiang	293	484	893	1526	2697	4840
National	**15238**	**27362**	**49907**	**93006**	**177750**	**372889**

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