



China Center for Human Capital and Labor Market Research

Measuring Human Capital in China

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- **Schultz (1961) and Becker (1964) introduce the concept of human capital**
- **The most important and most original development in the economics of education in the second part of the 20th century**
- **“The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (OECD, 2001)**
- **Human capital is the core of human resources**
- **Accounts for more than 60% of the nation’s wealth (World Bank, 1997)**

Importance of human capital



- **Important source of economic growth and innovation**
- **Important factor for sustainable development**
- **Reduce poverty and inequality**
- **Played an important role in the magic growth of China's economy**

Measurement of human capital



➤ Difficulties

- **The knowledge, skills, competencies and attributes are hard to measure**
- **The unique feature makes it hard to assess the value of human capital**
- **Partial measurement is normally used, like education attainment**
- **The methodology is in the process of improving**



- **U.S.,**
 - Include nonmarket activities into human capital calculation
- **Canada,**
 - “Human Development and its Contribution to the Wealth Accounts in Canada”
- **Australia, Norway, New Zealand,**
 - Established research program on the measurement of human capital
- **OECD,**
 - 17 countries and 2 international organizations, Eurostat and the International Labor Organization, have agreed to join the OECD consortium to develop human capital measurement
 - facilitate cross-country comparison in human capital



- On October 10th, 2009, CHLR held international symposium on human capital measurement
- First released the national HC index of China and “China Human Capital Report”
- Difficulties in China
 - Limited data
 - Some popular methods can not be used
 - Data collection and calculation work is arduous and complicated.
 - A well-organized research group is needed, CHLR team.



➤ Impact of the China Human Capital Report

- OECD STATISTICS DIRECTORATE recommends CHLR to the Chinese government as "designated representative" to participate in OECD Human Capital project.
- Invited presentation at the 31st conference at the International Association for Research in Income and Wealth (IARIW) in August 2010.
- The English version of China Human Capital report has been accepted as working papers by NBER
- World Bank's report "The Changing Wealth of Nations" 2010 has included part of the "China Human Capital Report" as one chapter.
- Part of the results has been published in the top economics journal in China , "Economic Research Journal", 2010.
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➤ Impact of the China Human Capital Report

- Human Resources Development Research Association of China plans to incorporate part of China Human Capital report into its White Paper on human resources in China.
- CHLR is working with the National Bureau of Statistics to discuss the possibility of enhanced cooperation.
- Beijing Municipal government plans to include part of the human capital report into their Blue Paper (one chapter)
- A report summary has been requested by the top government agency as reference for policy initiatives
- Numerous media coverage



➤ **The HC project is funded by**

National Natural Science Foundation of China

Central University of Finance and Economics (CUFE)

➤ **International research team in CHLR**

- CHLR-an international research center at CUFE (<http://humancapital.cufe.edu.cn/>)
- Nearly 20 full-time faculty, special-term faculty and fellows (Chinese and non-Chinese)
- Master's program, Doctoral program, Post-doctoral program
- Near 50 graduate students now



Goal of the HC project

- To establish the first systematic human capital measurement of China
- To quantitatively describe the distribution and development of human capital in China
- To provide comprehensive human capital measurement for empirical study
- To provide quantitative information for government's decision-making
- To participation in the international discussion of human capital measurement in methodology
- ➔ **Release China Human Capital Report on annual base.**



Investment in human capital





Cost-based approach

- **HC stock = initial stock+ total investment-depreciation**

Income-based approach

- **Estimates human capital stock as the expected future lifetime income**

Other approaches

- **Attribute-based approach**
- **Residual approach**

J-F income-based approach

- **We adopt Jorgenson-Fraumeni (J-F) income-based approach**
 - OECD, Canada, New Zealand, Norway, Sweden, US, etc.
 - Estimates the expected future lifetime income as human capital stock

- **Major improvement to the method**
 - Use micro-survey data to in the calculation to overcome data limitation in China
 - Make income-based human capital measurement more closely related to human capital theory
 - Reflect the changes of labor market mechanism in China

Main contributions of HC Report 2010



- **Calculated labor force human capital, i.e., active human capital (age 15 +)**
- **Estimated provincial level of human capital, 6 provinces**
- **Horizontal and vertical comparison greatly improved the reliability of human capital estimation**
- **constructed panel data of human capital stock**

Main conclusions

- **Total human capital in China is growing much faster than most countries; and the growth is accelerating (especially after 1994).**
- **The growth of active human capital is much faster than labor force growth**
 - ➔ **higher labor quality**
- **Average human capital grew faster in recent years ➔ the growth of HC is mainly due to education and other factors, but not to the growth of population**
- **The ratio of active HC to GDP declined ==> the productivity of human capital increases**

Main conclusions

- **Average per capita HC is much lower than that in developed countries (e.g., 1/6 of that in US)**
- **The ratio of active HC to the total HC shows upward trend → labor force is getting older and human capital reserve is decreasing (one child policy)**
- **The ratio of HC/physical capital and HC/GDP declines → the share of HC in the economy is getting smaller.**

Major policy initiatives in China



- **“Human resource is the first resource for China” (President Hu)**

- **Three official middle-long term guidelines/plans:**
 - **Education Reform and Development Guidelines (2010-2020)**

 - **Talent Development Guidelines**

 - **Science and Technology Development Guidelines**

Major policy initiatives in China



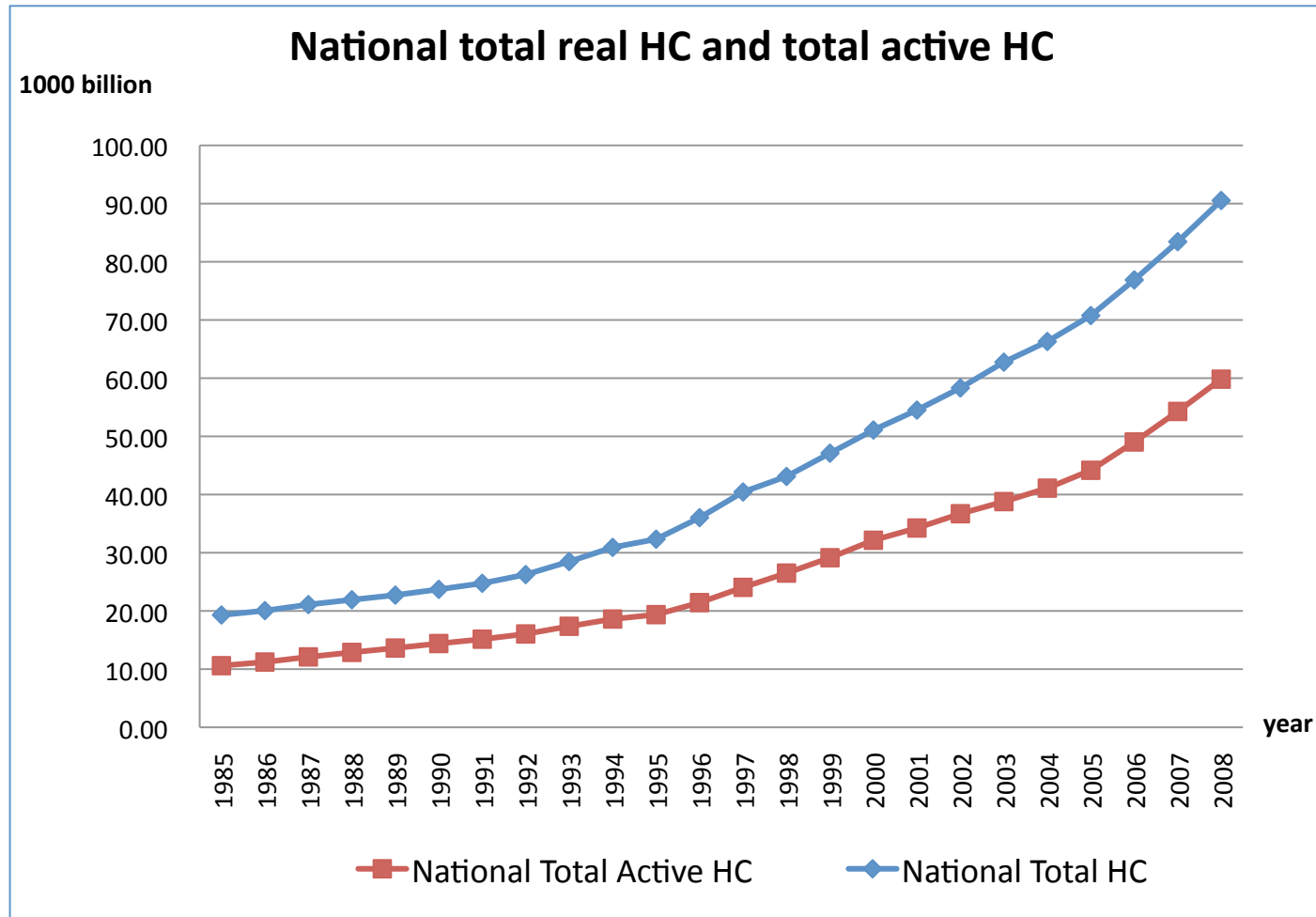
- **The 12th Education Plan: education spending reaches 4% of GDP, a very large increase in the actual amount of money**

- **Build world-class universities**
 - **Changjiang Fellowship**

 - **985-project**

 - **1000-talent project, etc.)**

National total real HC and total active HC



Main results



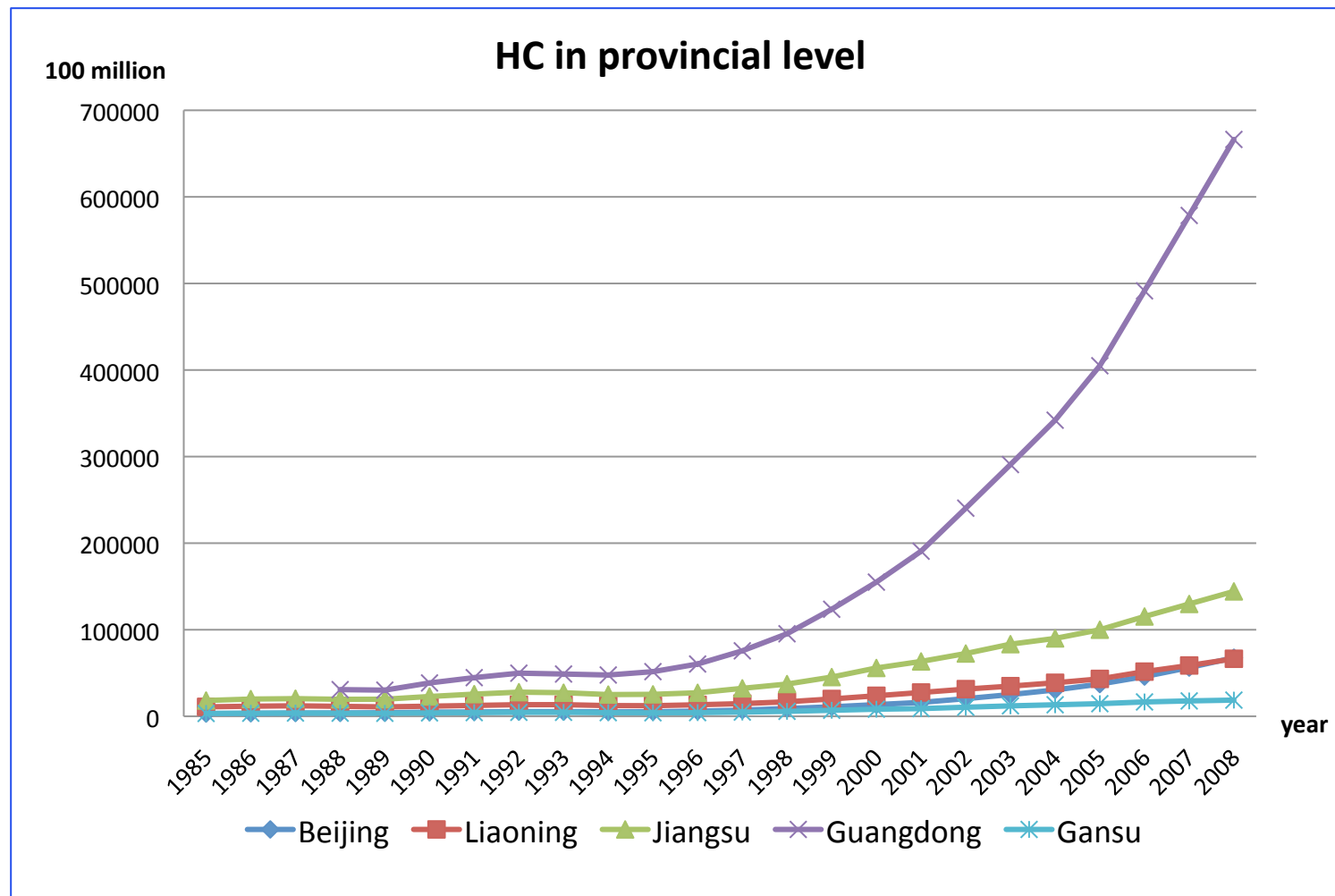
- **2008**
 - **Total nominal human capital reached 370 trillion yuan**
 - **Total nominal human capital by rural and urban are 132 trillion yuan (35.66%) and 238 trillion yuan(64.34%), respectively.**
- **Total human capital in China is growing**
 - **1985-1994, human capital grows 5.24% each year**
 - **1995-2008, human capital grows 7.67% each year**

Main results



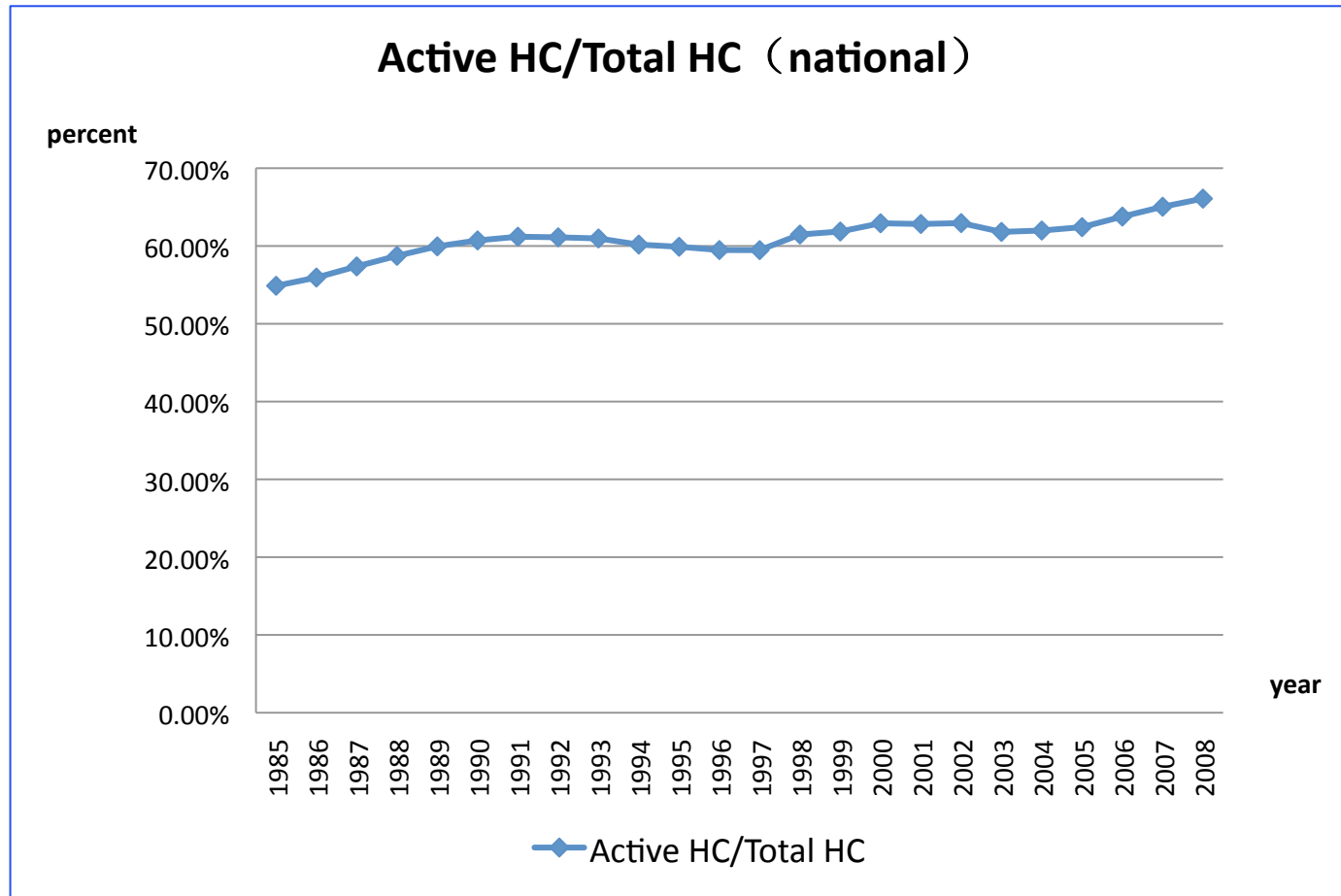
- **1985-2008, active real human capital grows 7.53% each year**
 - **Exceed the grows rate of labor force during 1985-2008(1.52%)**
 - **The quality of labor force in China is enhanced**

Comparison Real HC at Provincial Level

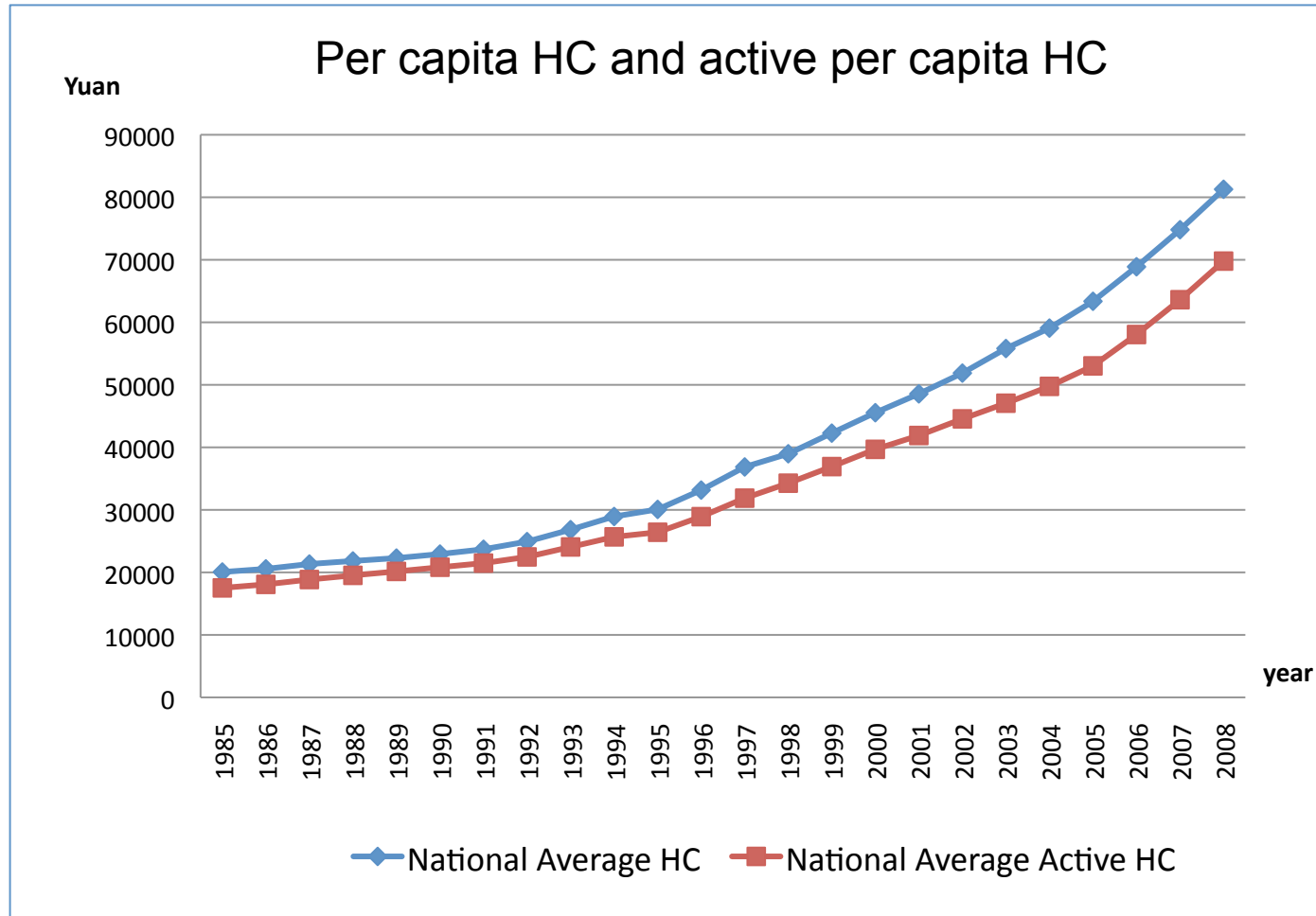




Total active HC and total HC



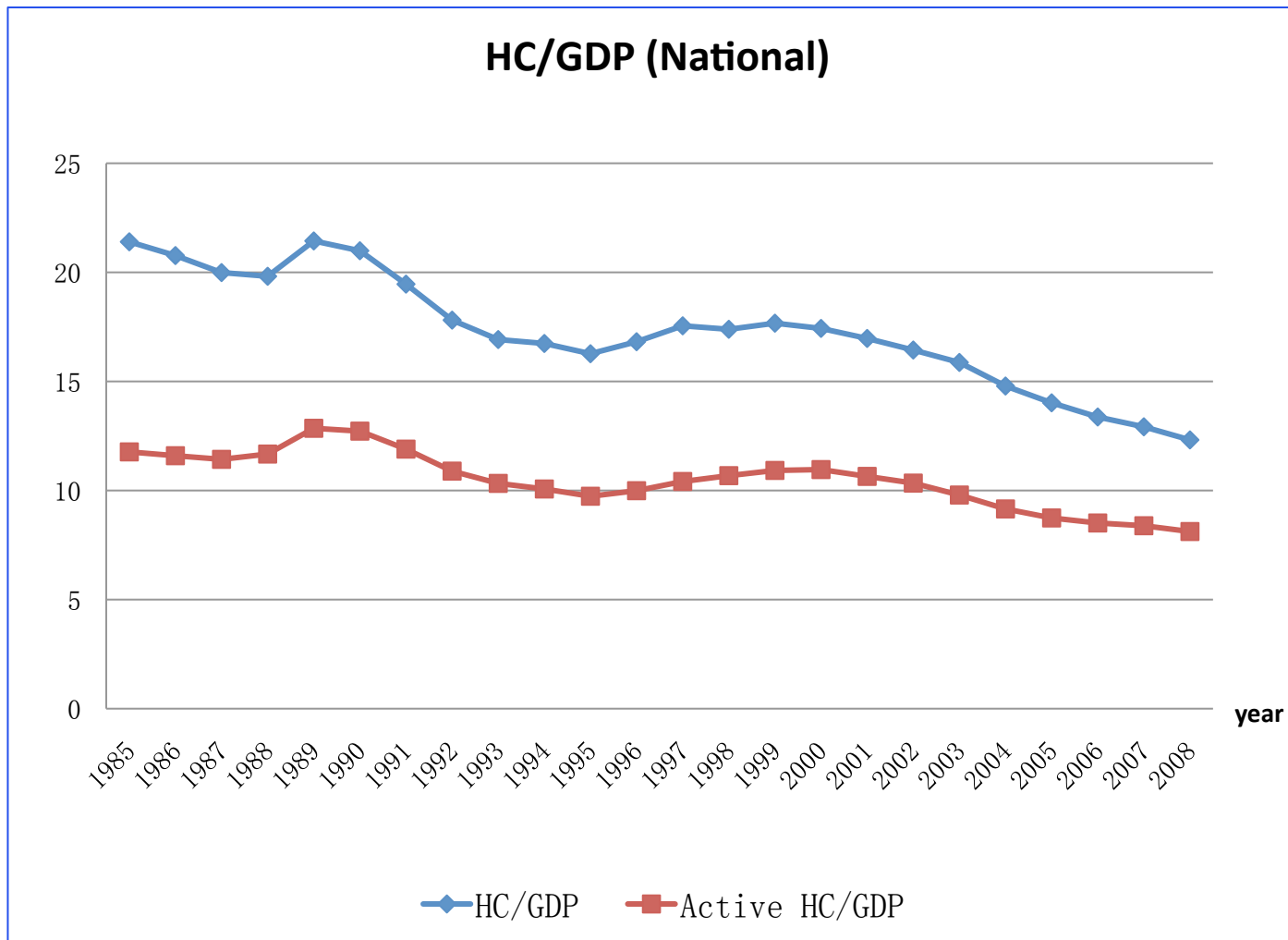
Real per capita HC and active per capita HC





Main results

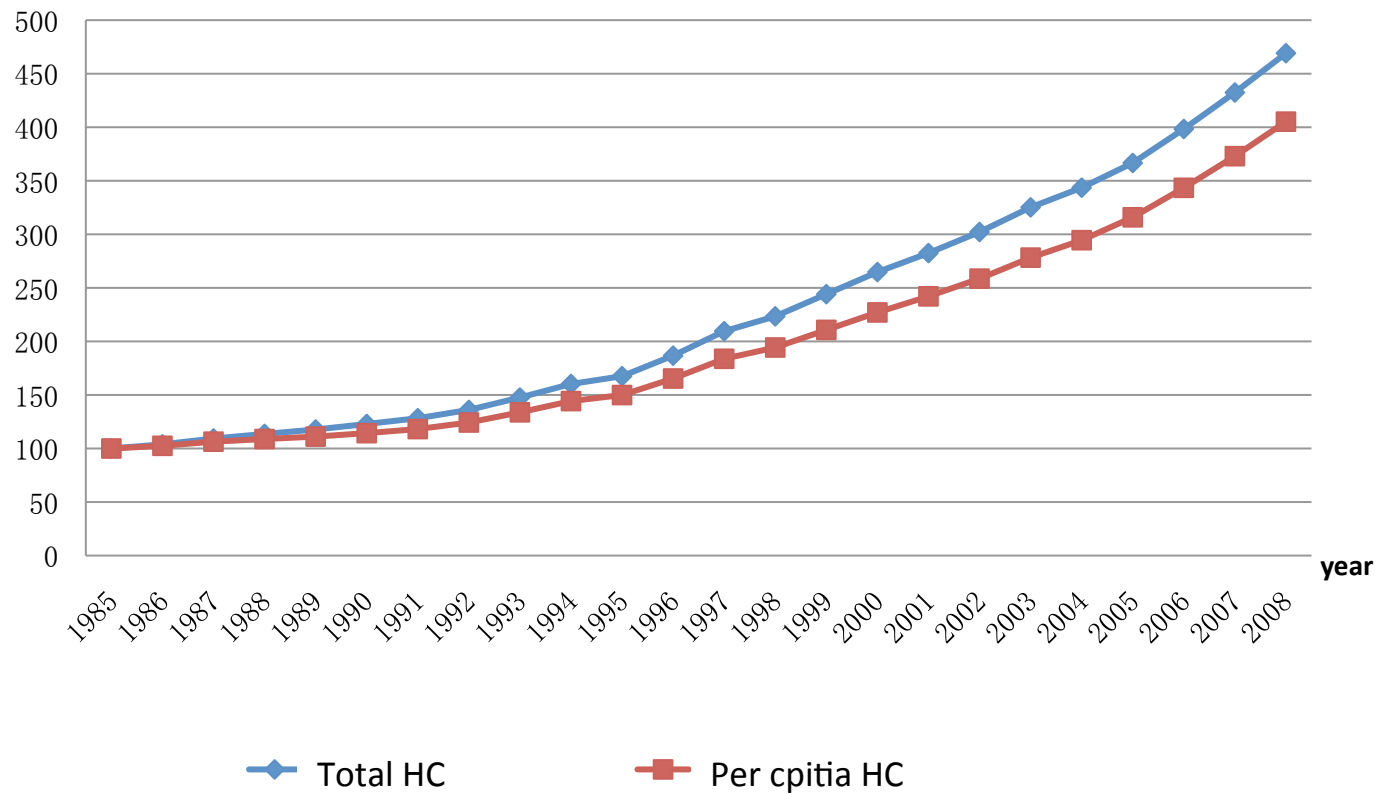
- Per capita active HC less than per capita Human Capital
- Prior to 1995, the average annual growth rate of total human capital is 5.24%, faster than per capita human capital (average annual growth rate is 4.07%)
- Since 1995, the two almost have the same average annual rate of growth, total human capital is 7.7%, and per capita HC is 7.4%
- This shows that the growth of human capital in recent years, mainly due to education and other factors, but not to the growth of population



Human Capital Index

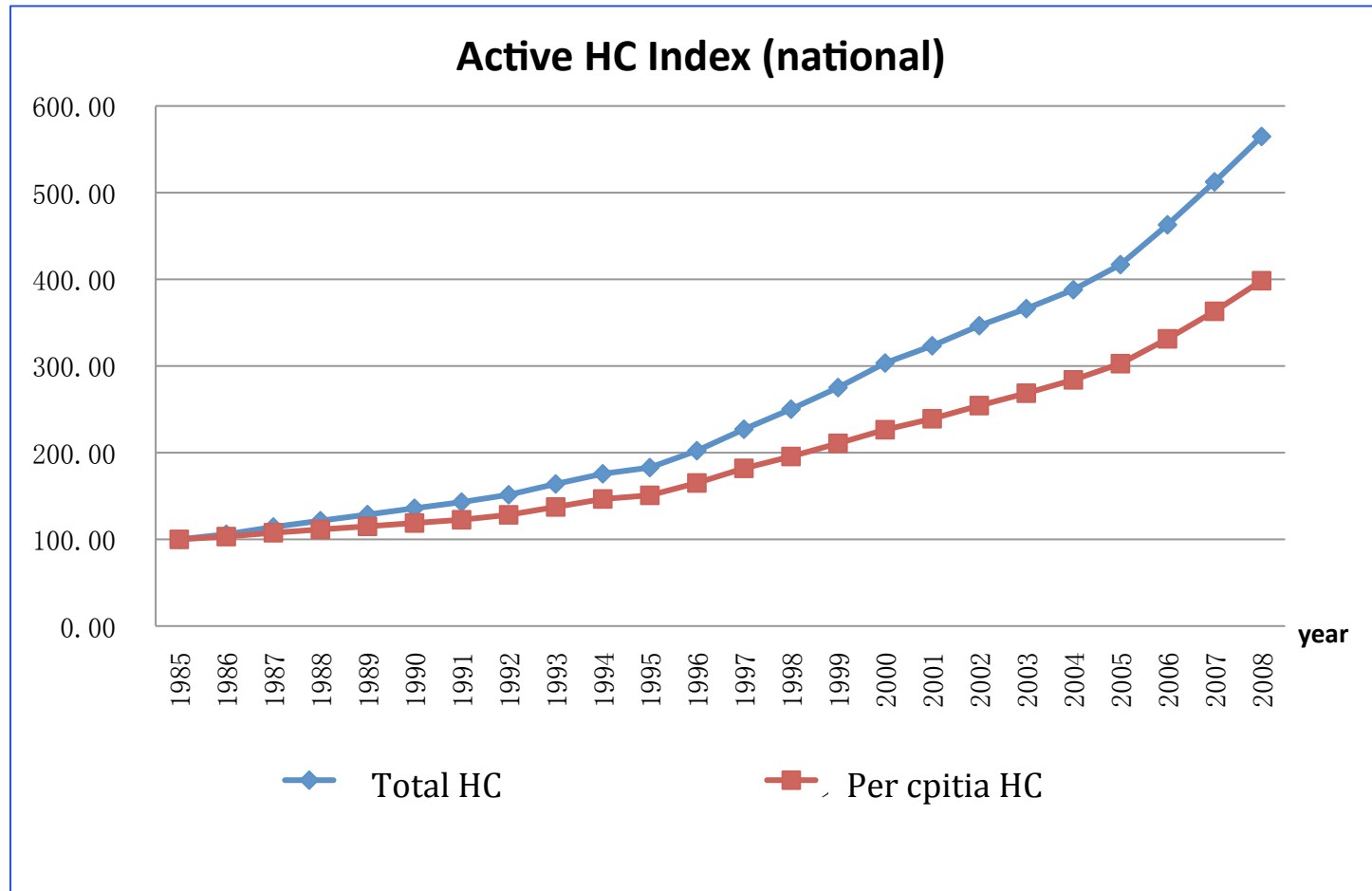


HC Index (National)





Active Human Capital Index



Other results



- **Distribution and trends in urban and rural human capital**
- **Status and dynamics of male and female human capital**
- **Divisa Indices decomposition by different factors**
- **Comparison of different provinces**

Technical Problems



- **Data limitation, especially the data at provincial level in China**
- **Estimation of income growth rate**
- **Choice of discount rates**
- **Provincial living cost differences and the horizontal comparison of human capital across provinces**

Future plans



- **Incorporate health human capital**
- **Improve the methodology of estimating parameters**
- **Get more survey data to estimate lifetime earnings**
- **Improve human capital forecasting and make it feasible for policy simulations**
- **Explore the possibility of calculating sectoral human capital**



Thank You