



*China Center for Human Capital and Labor Market Research*

# Measuring Human Capital in China

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**&**

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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**



## ➤ 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 10<sup>th</sup>, 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 31<sup>st</sup> 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



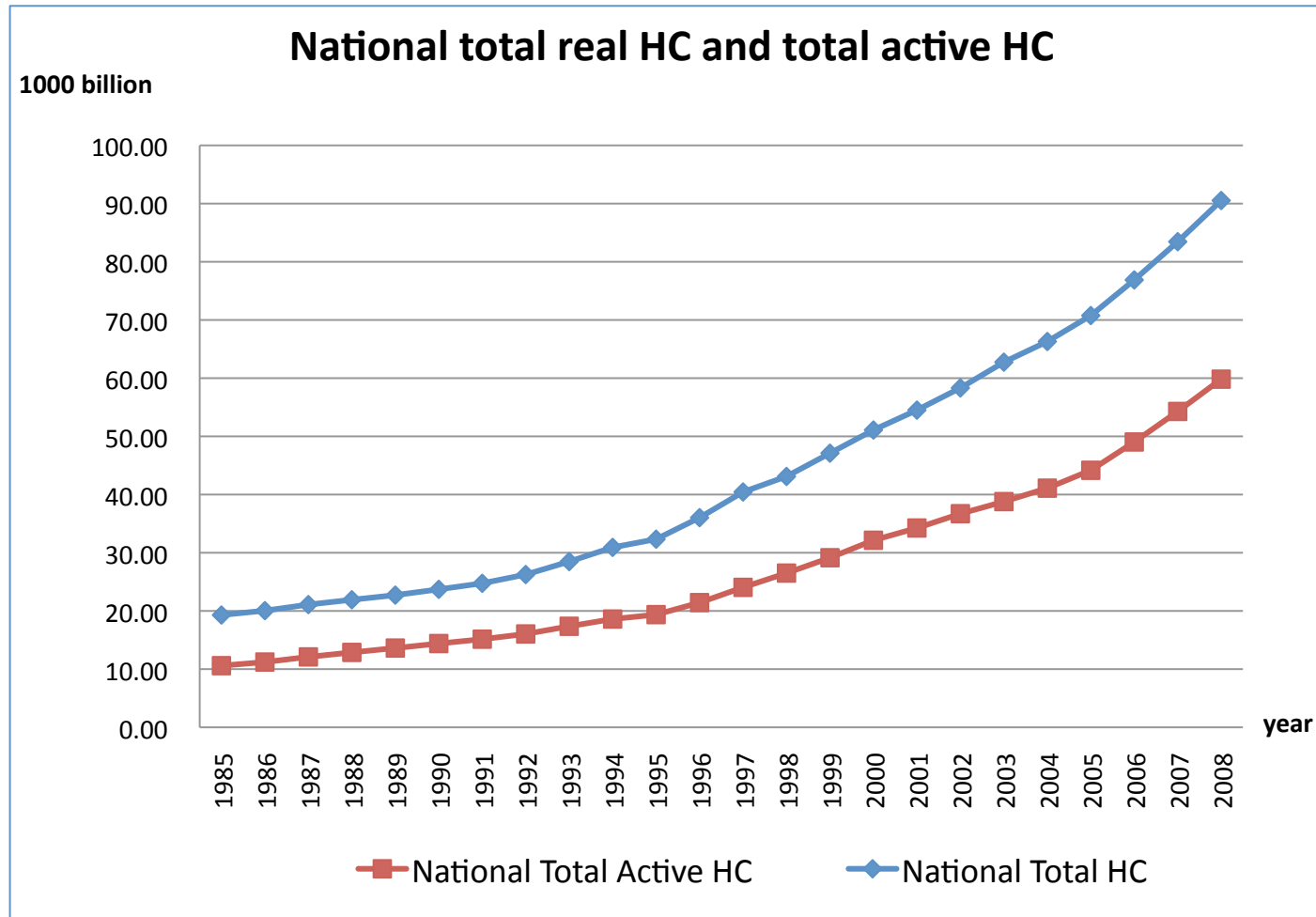
- **“Human resource is the first resource for China” (President Hu)**
  
- **Three official middle-long term guidelines/plans:**
  - **Education Reform and Development Guidelines (2010-2020)**
  
  - **Talent Development Guidelines**
  
  - **Science and Technology Development Guidelines**

## Major policy initiatives in China



- **The 12<sup>th</sup> 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

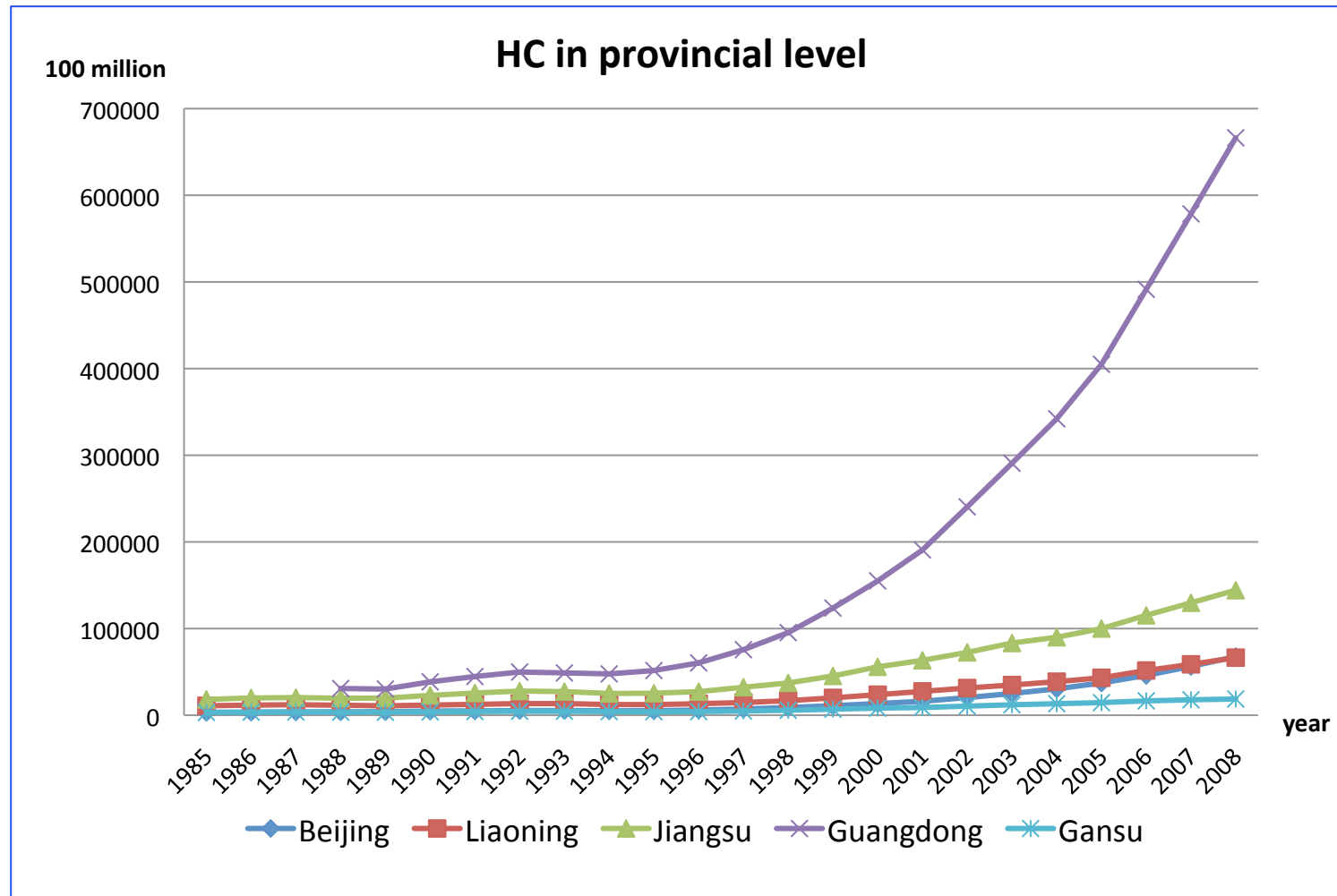
- **2008**
  - **Total nominal human capital reached 370 trillion yuan**
  - **Total nominal human capital by rural and urban are 132 trillion yuan (35.66%) and 238 trillion yuan(64.34%), respectively.**
- **Total human capital in China is growing**
  - **1985-1994, human capital grows 5.24% each year**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

## Main results

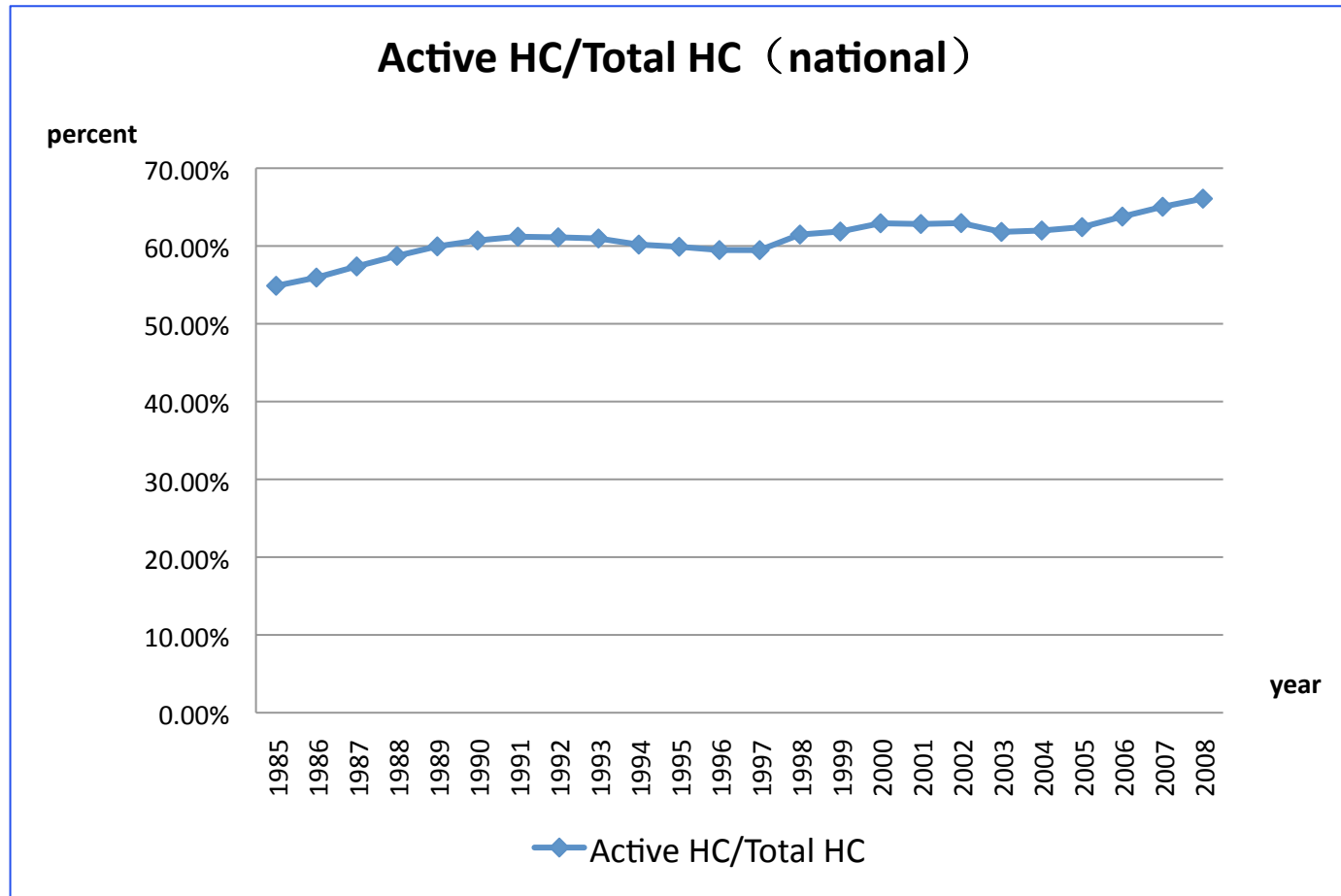


- **1985-2008, active real human capital grows 7.53% each year**
  - **Exceed the grows rate of labor force during 1985-2008(1.52%)**
  - **The quality of labor force in China is enhanced**

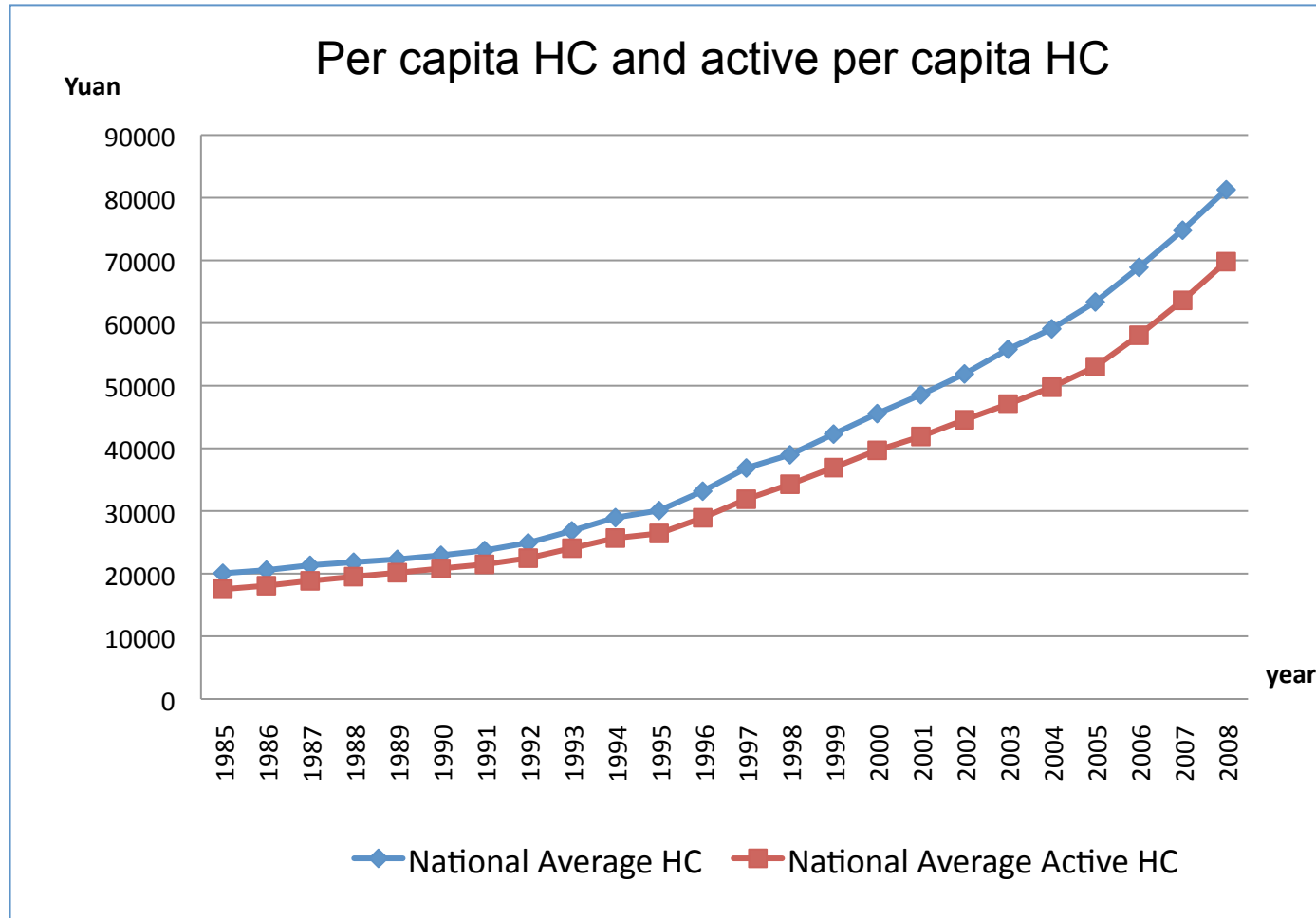
# Comparison Real HC at Provincial Level



# Total active HC and total HC



# Real per capita HC and active per capita HC

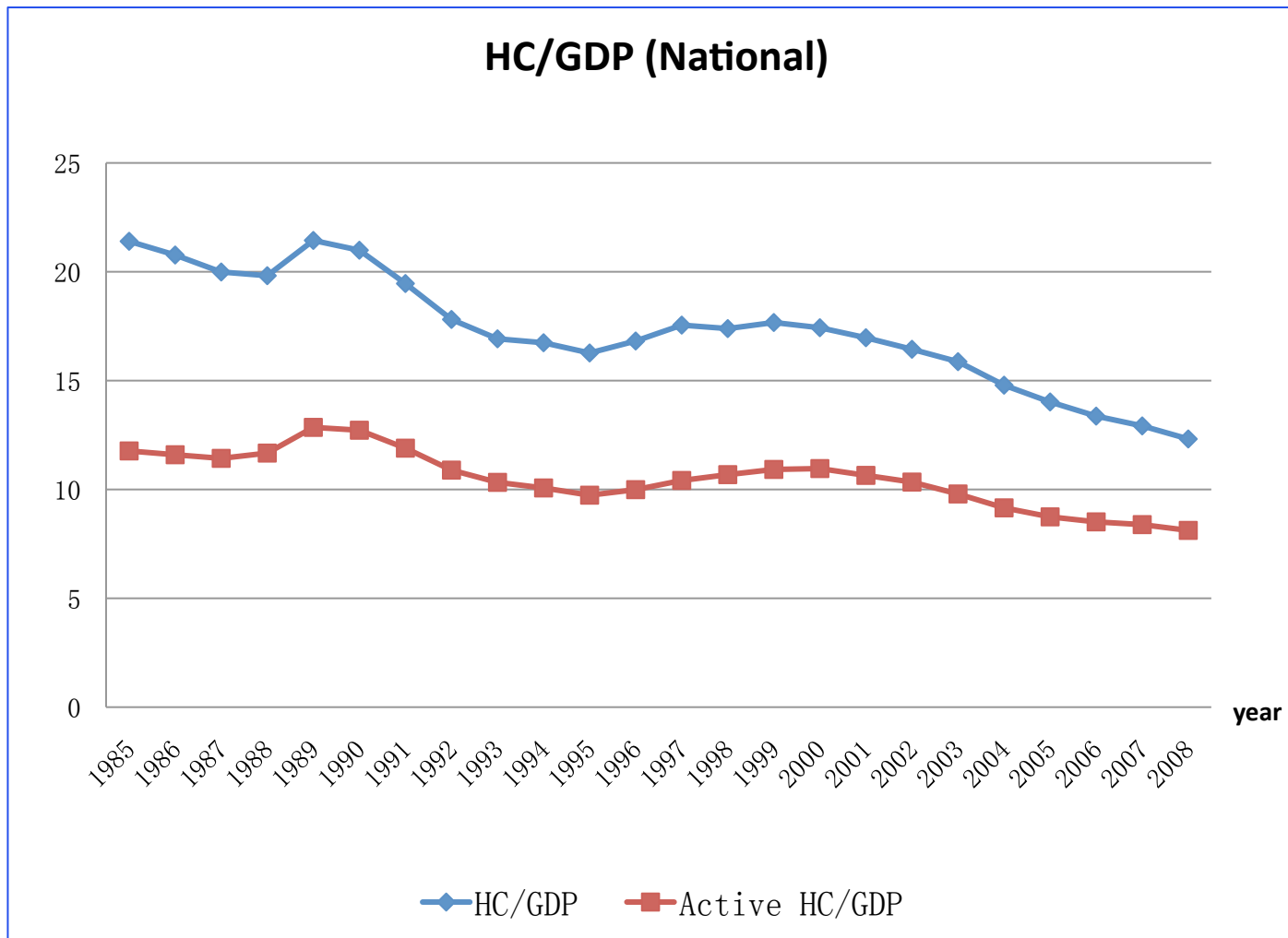




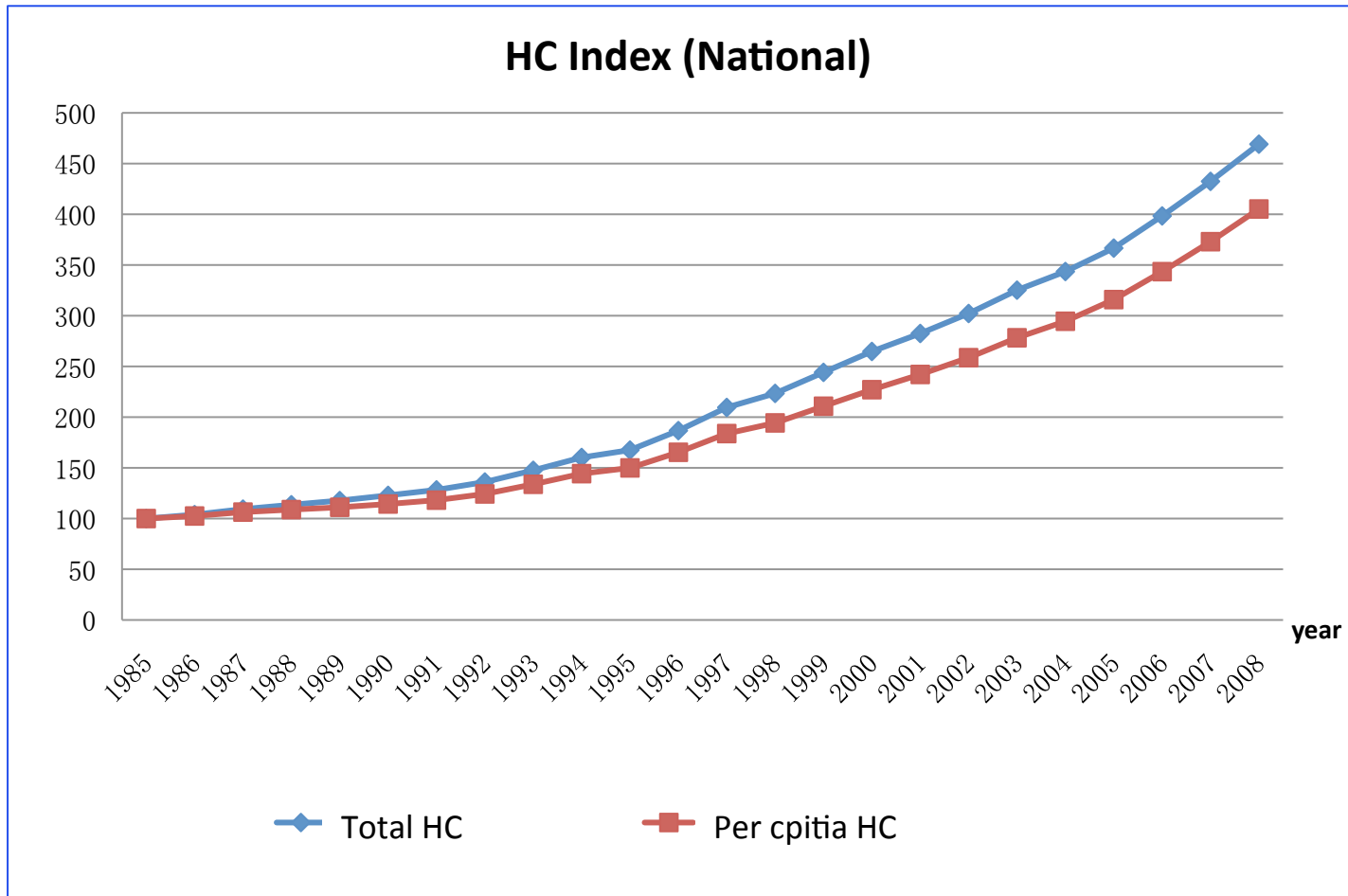


## Main results

- 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

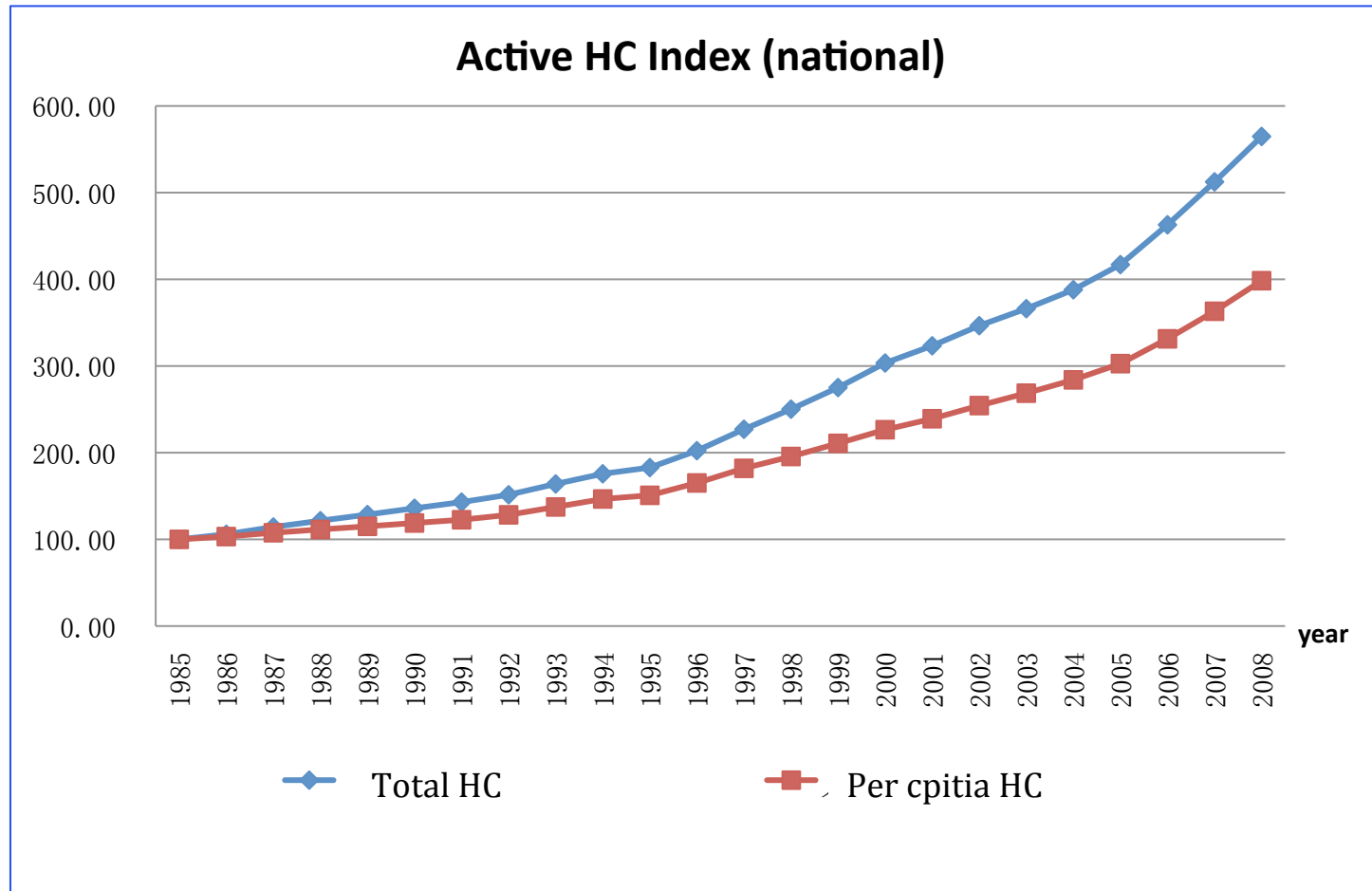


# Human Capital Index





# 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**