Consumption Structure Evolutions in an Aging Society and Implications for the Social Security System

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The Aging Population

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  • Natural population growth rate: 33.33‰ (1963) → 5‰ (2011)
  • People younger than 15: 40.4% (1960) → 22.9% (2000) → 16.6% (2010)
  • People older than 64: 7% (2000) → 8.9 % (2010)
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    - The birth rate dropped dramatically from 33.43‰ in 1970 to 11.9‰ in 2010
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• China will continue to face the inevitable challenge of population aging in the future
The Aging Population

The age distribution in urban China, 2011 vs. 2050

The Social Security System

- Before 1980
  - Covered only the urban public (government, SOEs, public institutes) sector
  - "firm insurance" rather than "social insurance"
  - The payment rate was only 3% of the wage rate and the gross pension replacement rate was between 50% and 70% (1950s)
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• After 1980
  • Heavy financial burdens and substantial inequality after firms were reformed
  • The social security system reformed subsequently in three ways
The Social Security System

• Reforms
  • Inequality
    • 1984: coordinate social security operations at the county and city levels
    • 1986: the coordination further moved up to the province level and a nationwide coordination in industries that had high state capital penetrations
    • 1991: 96% of Chinese cities and counties realized a basic coordination of social security operations
    • 1994: a basic coordination was realized in 13 provinces and 11 industries
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• The composition of contributions to the social security system
  • Before 1984: all contributions were essentially made by employers, with the rate set at 3% uniformly
  • 1986: with the labor contract system introduced, contributions were shared between employers (15%) and employees (3%)
  • 1991: three “pillars” – nationwide compulsory (basic) social insurance (employers: 20% + employees: 8% since 2005); the enterprise annuity; employees’ voluntary contribution – formally adopted in 1997
The Social Security System

• Reforms
  • The benefit scheme
    • Before 1997: pay-as-you-go
    • 1997: a hybrid scheme – the pay-as-you-go scheme (the social pooling account) + the funded scheme (the individual account)
      • The social pooling account: 17% out of 20% for employers
      • The individual account: 3% out of 20% for employers + 8% out of 8% for employees
    • 2000: established the National Social Security Fund to separate fund operations from administrative management
The Social Security System

• Challenges
  • Sustainability and fund management
    • Increased financial burden
      • Pension payments increased from 0.7% of GDP in 1989 to 2.7% in 2011
      • The ratio of workers to pensioners dropped from 5.4 in 1989 to 3.2 in 2011
      • The replacement ratio dropped from 65-75% of urban workers’ average wage rate in 1990s to 44.7% in 2011
    • “Implicit deficit” created by “old people” retired before the reform
      • China has maintained a positive social security balance each year since 1989 and the total amount of accumulation reached almost two trillion yuan in 2011
      • However, the estimated implicit deficit ranged between two to ten trillion
  • The individual account became nominal, while the pay-as-you-go scheme was essentially maintained
The Social Security System

• Challenges
  • Dilemma to push forward social security reforms
    • On the one hand, the pay-as-you-go scheme is still a necessary option at the moment
    • On the other hand, the payment ratio could rise to 40% in 2030 due to the aging population
    • Postponing the reform date means even greater challenge
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• The social security in the rural sector
  • The old “insurance system”, i.e. to be taken care of by family members, will effectively fail due to the large amount of emigrants
    • More than 80% of rural families had less than four members in 2010
    • Most old people lived either with their spouses or grandchildren
  • The old ideology
    • Rural families, communities, and villages shared the responsibility of the rural social security, while the government only needed to offer supportive policies
  • 2009: New Rural Pension System was piloted in 10% of all counties
Consumption Share Evolutions

• More people will be supported by the social security system for their consumption expenditure with population aging
  • How will the total expenditure change? How will the expenditure structure change? – The pension expenditure will be allocated to a substantially different basket from the current one
• Industry policies
  • If products that foresee an increasing demand are undersupplied, prices will rise, which will undermine the purchasing power of pension benefits
• Employment policies
  • If industries that shrink along with population aging cannot make immediate upgrading and transformations, they may substantially lay off workers
• Public supports
  • Some products (health care and medical services) are typically provided by the government
Consumption Share Evolutions

- Data: UHS (urban household survey) in 18 provinces/autonomous regions/municipalities of China from 2002 to 2009
  - 155,905 different households, 294,422 household observations
  - Each household recorded annual total spending and its eight components
Consumption Share Evolutions

• Method: decompose household expenditure to constituent members

\[ E_{jk} = \alpha_{0k} DUMMY0_{jk} + \alpha_{1k} DUMMY1_{jk} + \ldots + \alpha_{80k} DUMMY80_{jk} + e_{jk}. \]

\[ E_k = \alpha_{0k} \sum_{j=1}^{N} DUMMY0_{jk} + \alpha_{1k} \sum_{j=1}^{N} DUMMY1_{jk} + \ldots + \alpha_{80k} \sum_{j=1}^{N} DUMMY80_{jk} + \sum_{j=1}^{N} e_{jk} \]

• Age profiles of the total consumption expenditure
Consumption Share Evolutions
Predictions of Domestic Consumption

- **Method:** \[ C_{kt} = \sum_{t=1}^{80} \alpha_{tk} N_{it}. \]

- **Total consumption expenditure per capita**
Predictions of Domestic Consumption

- Annual growth of each component
- Method
  - The effect of population alone
  - With the income effect included

\[ E_k = \alpha_0^{"} \sum_{j=1}^N \text{DUMMY}0_j + \ldots + \alpha_8^{"} \sum_{j=1}^N \text{DUMMY}80_j + \beta \cdot \text{inc} + \sum_{j=1}^N e_{jk}^', \]

\[ c_{ikr} = \alpha_k^{"} + \beta \cdot \text{inc}_{ir}, \]

**Table 1.** Average annualized growth rates of consumption shares in urban China (2013-2030%).

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Cloth.</th>
<th>Facilities</th>
<th>Medical</th>
<th>Trans.</th>
<th>Education</th>
<th>Residence</th>
<th>Misc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population aging</td>
<td>0.20</td>
<td>-0.59</td>
<td>0.06</td>
<td>1.12</td>
<td>-0.56</td>
<td>-0.33</td>
<td>0.15</td>
<td>-0.22</td>
</tr>
<tr>
<td>+ income growth</td>
<td>-0.01</td>
<td>-0.57</td>
<td>0.22</td>
<td>1.08</td>
<td>-0.19</td>
<td>-0.21</td>
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Policy Implications

• Closely monitor and facilitate the economy’s industrial structure
  • Prevent layoffs
  • Stabilize prices
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• Complementary public support policies
  • Affordable houses and public rental houses, related household facilities, articles and services
  • Health care and medical services
    • The total medical expenses as a share of GDP will be highly probable to reach 12% in 2025 from about 5% in 2005
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• The direction of future social security reforms
  • Medical insurance system
    • The unsustainable pay-as-you-go scheme
    • The life expectancy rose substantially from 68.55 in 1990 to 74.83 in 2010
    • Managing the fund, especially seeing the large scale of migrations
      • Simultaneously involved in the New Rural Cooperative Medical Care Program and the Urban Resident Medical Care Program (costing 20 billion yuan annually)
      • Location mismatch in contributing and benefiting
Policy Change

• The “one-child policy” was changed in the end of 2013
  • Families where one of the couple was the only child will be allowed to have two children
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• Background
  • The decline in the working-age (between 15 and 59) population
    • The absolute number fell by 3.45 million in 2012 for the first time
  • The tradition and Chinese families’ inclination to have more children
  • The government’s goal to increase the country’s total fertility rate to 1.8 from the current low level of 1.5
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• Influences
  • Limited effects in the near future
    • Will only influence urban families
    • The cost of living
    • Opportunity costs
    • Dilute saving money and aggravate the financial burden of social security system
  • Will help in the long run
Thank you!