China's Regional Economy
— IO analysis

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South Africa
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Outline

- Motivation and background
- Model Description
- Result of decomposition
Distribution of China’s Major Regions

Northwest

East

West

The Central
Economic density

GDP/Population per sq.km
Green-GDP
Blue-Population
### Distribution of GDP

Percentage of GDP of the East, the Central, the West, and the Northeast in the country(%) 

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>The East</td>
<td>44.1</td>
<td>44.1</td>
<td>45.9</td>
<td>52.8</td>
<td>54.5</td>
<td>55.2</td>
<td>54.3</td>
<td>53.8</td>
<td>53.0</td>
</tr>
<tr>
<td>The Central</td>
<td>21.8</td>
<td>22.5</td>
<td>22.1</td>
<td>20.2</td>
<td>18.8</td>
<td>19.0</td>
<td>19.3</td>
<td>19.3</td>
<td>19.7</td>
</tr>
<tr>
<td>The West</td>
<td>20.1</td>
<td>20.0</td>
<td>20.2</td>
<td>17.1</td>
<td>17.0</td>
<td>17.3</td>
<td>17.8</td>
<td>18.3</td>
<td>18.7</td>
</tr>
<tr>
<td>The Northeast</td>
<td>13.9</td>
<td>13.4</td>
<td>11.7</td>
<td>10.0</td>
<td>8.7</td>
<td>8.5</td>
<td>8.6</td>
<td>8.5</td>
<td>8.6</td>
</tr>
</tbody>
</table>
## Regional Disparity

The ratio of GDP per capita in regions of the East, the Central, and the West in the country.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>East</strong> (the West=1)</td>
<td>1.93</td>
<td>1.87</td>
<td>1.92</td>
<td>2.42</td>
<td>2.49</td>
<td>2.48</td>
<td>2.29</td>
<td>2.23</td>
</tr>
<tr>
<td><strong>East</strong> (the Central=1)</td>
<td>1.56</td>
<td>1.51</td>
<td>1.64</td>
<td>1.89</td>
<td>2.09</td>
<td>2.19</td>
<td>1.97</td>
<td>2.05</td>
</tr>
<tr>
<td><strong>Central</strong> (the West=1)</td>
<td>1.23</td>
<td>1.24</td>
<td>1.17</td>
<td>1.28</td>
<td>1.19</td>
<td>1.49</td>
<td>1.16</td>
<td>1.09</td>
</tr>
</tbody>
</table>
Decomposition of GDP - Methodology

- On the demand side, regional GDP can be composited into four driving sources:
  - Consumption: including Household and government
  - Investment
  - Export
  - Domestic outflow

\[ \text{Total Outflow} \]
Decomposition of GDP -Methodology

- Using regional non-competition input-output tables and input-output model.

\[ X = (I - A^I)^{-1} \cdot Y \]

\[ = (I - A^I)^{-1} \cdot (C + I + EX + DO) \]

- Of which, C, I, EX, and DO respectively represents consumption, investment, export and domestic outflow; \( A^I \) refers to local intermediate input coefficient.
Decomposition of GDP - Methodology

\[ GDP = \nu \cdot X \]

\[ GDP = \nu \cdot (I - A^l)^{-1} \cdot (C + I + EX + DO) \]

\[ = \nu \cdot (I - A^l)^{-1} \cdot C \quad \text{Consumption} \]

\[ + \nu \cdot (I - A^l)^{-1} \cdot I \quad \text{Investment} \]

\[ + \nu \cdot (I - A^l)^{-1} \cdot EX \quad \text{Export} \]

\[ + \nu \cdot (I - A^l)^{-1} \cdot DO \quad \text{Domestic Outflow} \]

- Of which, \( \nu \) is the vector of ratio of value added.
## Structure of regional IO table

<table>
<thead>
<tr>
<th>Final Use</th>
<th>Imports</th>
<th>Domestic Inflow</th>
<th>Gross Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Consumption Expenditure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Consumption Expenditure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Final Consumption Expenditure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Fixed Capital Formation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in Inventories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Capital Formation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports</td>
<td>Domestic Outflow</td>
<td>Total Final Use</td>
<td></td>
</tr>
<tr>
<td>Gross Fixed Capital Formation</td>
<td></td>
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<td>Gross Capital Formation</td>
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</tbody>
</table>

**Total Outflow**

**Total Inflow**
Contribution of Export plus Domestic outflow (2007)

Bubble size: GDP
Investment and Growth

Bubble size: Per capita GDP
Result of decomposition (2002)

- Anhui: Consumption 32%, Investment 20%, Export 2%, Domestic Outflow 45%
- Guangxi: Consumption 40%, Investment 25%, Export 3%, Domestic Outflow 32%
- Xinjiang: Consumption 49%, Investment 26%, Export 4%, Domestic Outflow 21%
- Zhejiang: Consumption 28%, Investment 21%, Export 17%, Domestic Outflow 34%
- Jiangsu: Consumption 34%, Investment 30%, Export 18%, Domestic Outflow 18%
- Guangdong: Consumption 35%, Investment 18%, Export 32%, Domestic Outflow 15%
Change of Contribution of consumption

Consumption vs. Per capita GDP

- Guangxi2002
- Guangdong2002
- Xinjiang2002
- Zhejiang2002
- Anhui2002
- Jiangsu2002
- Guangdong2007
- Guangdong2007
- Zhejiang2007
- Jiangsu2007
- Xinjiang2007
Change of Contribution of Export + Domestic outflow
Thanks for your attention!