Session on Growth, Austerity, and Public Policy

Chetan Ghate

ICRIER and Indian Statistical Institute, Delhi Centre

Global Economic Cooperation: Views from G20 Countries
Contractionary Fiscal Expansions

- Empirical literature
  - Giavazzi and Pagano (2000, 2005)
- Micro-foundations
  - Sutherland (1997)
- Virtually no discussion of these mechanisms in the current growth versus austerity debate
- G20 concerns on infrastructure largely limited to more "efficient spending" and dealing with financing spending gaps.
- How do we think about fiscal austerity in the context of the EMEs?
- Infrastructure bears the brunt of adjustment.
- What happens when infrastructure spending is re-allocated in an economy experiencing *unbalanced* growth?
Structural Transformation in Asian Economies

Source: Verma (2012)
Structural Transformation in Asian Economies

- Source: Verma (2012)
Structural Transformation in Select Emerging Market Economies

Source: Verma (2012)
Table 1: Data

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Shares(^{(a)})</td>
<td>77%</td>
<td>62%</td>
<td>12%</td>
</tr>
<tr>
<td>GDP Shares</td>
<td>48%</td>
<td>25%</td>
<td>23%</td>
</tr>
<tr>
<td>K/Y Ratios</td>
<td>3.3</td>
<td>0.85</td>
<td>0.6</td>
</tr>
<tr>
<td>Gross Capital Formation</td>
<td>18%</td>
<td>9%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Source: Verma(2012)

\(^{(a)}\): the employment share data are for 1970 and 1997.
Another policy motivation

- Nature of public expenditure in Indian agriculture skewed.
- In 2010, only 20% of public expenditure going into Indian agriculture was on agricultural investments (public and private). Remaining 80% is on input subsidies (2010).
- Policy thrust is to try and reverse this.
- What implications does fiscal austerity have for re-allocating public investments in an economy experiencing unbalanced growth?
- Answer is not obvious
A Model

- Ghate, Glomm, and Liu (2012) construct a 2-sector OLG model to study this question.
- Preferences are semi-linear (zero income elasticity of demand for food)
- Agriculture - "stagnant" sector; manufacturing - "dynamic" sector
- Government taxes both sectors, and funds infrastructure investments and a consumption subsidy.
- We will look at four counterfactual experiments
  - Increase (decrease) the share of infrastructure investment going to agriculture (manufacturing)
  - Increase the agriculture subsidy
  - Raise the agriculture tax rate, while increase all government expenditure proportionately
  - Raise the manufacturing tax rate, while increase all government expenditure proportionately
## The Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
<th>Normal</th>
<th>Experiments</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_a$</td>
<td>initial TFP in agriculture</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>$A_m$</td>
<td>initial TFP in manufacturing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>$g_a$</td>
<td>growth rate of agri TFP (20 yrs)</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>$g_m$</td>
<td>growth rate of manuf TFP (20 yrs)</td>
<td>1.05</td>
<td></td>
</tr>
<tr>
<td>$\alpha$</td>
<td>income share of K in agri</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>$\beta$</td>
<td>income share of K in manuf</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>$\phi$</td>
<td>parameter in consumption func</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>$\psi_a$</td>
<td>power param of G in agri prod.</td>
<td>0.12~0.2</td>
<td></td>
</tr>
<tr>
<td>$\psi_m$</td>
<td>power param of G in manuf prod.</td>
<td>0.12~0.2</td>
<td></td>
</tr>
<tr>
<td>$\delta_a$</td>
<td>govt funding share for agri</td>
<td>0.5</td>
<td>0.1, 0.4</td>
</tr>
<tr>
<td>$\xi$</td>
<td>govt subsidy of agricultural prices</td>
<td>0.05</td>
<td>0.01, 0.1</td>
</tr>
<tr>
<td>$\tau_a$</td>
<td>tax rate of agricultural income</td>
<td>0.3</td>
<td>0.2, 0.4</td>
</tr>
<tr>
<td>$\tau_m$</td>
<td>tax rate of manufacturing income</td>
<td>0.3</td>
<td>0.01, 0.35</td>
</tr>
</tbody>
</table>
Result 1:

\[ \delta_a \uparrow \]

Figure 1: Policy experiment 1: raising \( \delta_a \) (allocation of govt funding to agriculture) from 0.1 to 0.4. Green: agriculture; Red: Manufacturing. Solid line: before experiment; Dashed line: after experiment.
Result 2:

$\xi \uparrow$

Figure 2: Policy experiment 2: raising $\xi$ (subsidies of agriculture goods) from 0.01 to 0.1. Green: Agriculture; Red: Manufacturing; Solid line: before experiment; Dashed line: after experiment.
Result 3:

$\tau_a \uparrow$

Figure 3: Policy experiment 3: raising $\tau_a$ (income tax rate on agricultural workers) from 0.2 to 0.4. Green: agriculture; Red: Manufacturing; Solid line: before experiment; Dashed line: after experiment.
Result 4:

$$\tau_m \uparrow$$

Figure 4: Policy experiment 4: raising $$\tau_m$$ (income tax rate on manufacturing workers) from 0.01 to 0.35. Green: agriculture; Red: Manufacturing; Solid line: before experiment; Dashed line: after experiment.
Figure 5: Infrastructure funding ($\delta_a$) and output ($T = 2$)
Figure 10: Optimal tax rate in period 2 (3D). Change the two tax rates at the same time.
Recent Committee on Development Effectiveness report (2011) notes that infrastructure investment needs to be as high as 15% of GDP to tackle poverty, inequality and unemployment in developing economies.

Where does this number come from?

We highlight the need to think rigorously about the inter-sectoral allocation of public infrastructure in unbalanced growing economies. Fiscal austerity pushes us to think in this direction.

Increasing (decreasing) taxes on the stagnant (dynamic) sector increases GDP.
Thank you