Efficiency effects of Australian Commonwealth-State funding

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• Federal system: Vertical Fiscal Imbalance

• 23% of combined tax revenue must be transferred from the Commonwealth to the states

• This is done via horizontal fiscal equalisation
CSF allows us to account for all the major factors relevant to the efficiency effects of current funding arrangements, including:

- The mobility of factors of production
- Rents from mining
- Congestion
- State government behaviour
## Use of labour and capital ($ billion)

<table>
<thead>
<tr>
<th>Category</th>
<th>NSW</th>
<th>VIC</th>
<th>QLD</th>
<th>SA</th>
<th>WA</th>
<th>TAS</th>
<th>NT</th>
<th>ACT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>private non-mining</td>
<td>137</td>
<td>103</td>
<td>58</td>
<td>22</td>
<td>31</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>360</td>
</tr>
<tr>
<td>State gov, discretionary</td>
<td>24</td>
<td>17</td>
<td>14</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>74</td>
</tr>
<tr>
<td>State gov, non-discretionary</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0.3</td>
<td>0.4</td>
<td>0.1</td>
<td>10</td>
</tr>
<tr>
<td>Commonwealth government</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td>mining</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>0.4</td>
<td>15</td>
<td>0.2</td>
<td>2</td>
<td>0.0</td>
<td>27</td>
</tr>
<tr>
<td>work-related travel</td>
<td>29</td>
<td>18</td>
<td>10</td>
<td>5</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>65</td>
<td>66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>209</strong></td>
<td><strong>153</strong></td>
<td><strong>95</strong></td>
<td><strong>36</strong></td>
<td><strong>63</strong></td>
<td><strong>10</strong></td>
<td><strong>7</strong></td>
<td><strong>12</strong></td>
<td><strong>584</strong></td>
</tr>
</tbody>
</table>
State government (i) chooses quantity of state goods and tax rates to maximize

\[
\left( \frac{\text{private goods}}{\text{pop}} \right)^{\delta_{li}} \times \left( \frac{\text{leisure}}{\text{pop}} \right)^{\delta_{2i}} \times \left( \frac{\text{state goods}}{\text{pop}^\theta} \right)^{\delta_{3gi}}
\]

subject to

expend. on state goods

\[
= T_i \times W_i \times (\text{available labour} - \text{travel} - \text{leisure}) + \text{grant}_i
\]

recognizing that households choose private goods and leisure
to maximize

\[
\left( \frac{\text{private goods}}{\text{pop}} \right)^{\delta_{li}} \times \left( \frac{\text{leisure}}{\text{pop}} \right)^{\delta_{2i}} \left( \frac{\text{state goods}}{\text{pop}^\theta} \right)^{\delta_{3i}}
\]

subject to

expenditure on private goods = \( W_i \times (1 - T_i - T_iC) \times (\text{available labour} - \text{travel} - \text{leisure}) \)
Revealed State government preference indicator ($\delta_{3gi}$)
Congestion

\[ L_{6i} = A_{6i} * N_i^\gamma \]

where \( \gamma = \begin{cases} 
3 / 2 & \text{(no externalities)} \\
5 / 2 & \text{(externalities)} 
\end{cases} \)
Equal per capita with default parameters

<table>
<thead>
<tr>
<th>Aggregate. Welfare ($mill)</th>
<th>Change in Grant per capita ($)</th>
<th>NSW</th>
<th>VIC</th>
<th>QLD</th>
<th>SA</th>
<th>WA</th>
<th>TAS</th>
<th>NT</th>
<th>ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>169</td>
<td></td>
<td>123</td>
<td>198</td>
<td>-36</td>
<td>-304</td>
<td>43</td>
<td>-687</td>
<td>-4785</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>welfare per capita ($)</td>
<td>121</td>
<td>196</td>
<td>-35</td>
<td>-276</td>
<td>41</td>
<td>-641</td>
<td>-4393</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>population (%)</td>
<td>0.32</td>
<td>0.54</td>
<td>-0.12</td>
<td>-0.93</td>
<td>0.10</td>
<td>-2.13</td>
<td>-10.83</td>
<td>0.13</td>
</tr>
</tbody>
</table>
Effect on Australian welfare of changes in relative per capita grant ($ million)