

Optimal Public Expenditure

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Optimal public expenditure maximizes $U(c(g), g)$

Assumption: $g \mapsto U(c(g), g)$

is well behaved. admits a unique extremum

& the extremum is an interior maximum.

[strictly concave function w/ interior extremum]

\Rightarrow FOC is necessary & sufficient to find
the solution of planner's problem

Take FOC. $\frac{dU}{dg} = 0$

$$\Rightarrow 0 = \frac{\partial U}{\partial g} - \frac{\partial U}{\partial c} + \frac{\partial U}{\partial c} \times [-u'(g)] \times [1 - (-v'(u))]$$

$$\Rightarrow \cancel{\frac{\partial U}{\partial c}} = \frac{\partial U}{\partial g} + \cancel{\frac{\partial U}{\partial c}} \times [-u'(g)] \times [1 - (-v'(u))]$$

$\frac{\partial U}{\partial g} = m$

$$\Rightarrow 1 = MRS_{gc} + [-u'(g)] [1 - (-v'(u))]$$

$$\Rightarrow \underline{1 = MRS_{gc} + m \times [1 - (-v'(u))]}$$

Samuelson rule
(neoclassical)

$$MRS_{gc} = 1 \Rightarrow \frac{\partial U}{\partial c} = \frac{\partial U}{\partial g}$$

$$m \times [1 - (-v'(u))] = m \times [1 - \text{Bewridge slope}]$$

core dist'n term that appears in a model

w/ inefficient slack, w/ productive inefficiencies

(s stabilization term \rightarrow appears b/c

economy is not stabilized at efficient
unemployment u^*