Effects of Public Expenditure on Welfare

Pascal Michaillat

https://www.pascalmichaillat.org/t5.html

Social planner's problem

$$\max \; U(\underset{\uparrow}{c}, \underset{\uparrow}{g})$$

influenced by g

private sector
nonproductive

public sector
public

labor force

$$\boxed{c = 1 - (u+v) - g \qquad (\text{resource})}$$

Planner's problem $\underset{g}{\max} \; U\left(1 - (u+v) - g, g\right)$

public employment
crowds out
private employment (mechanical)

public goods
(+)

Stabilization assumption

• **unemployment rat depends**
on g : $u = u(g)$

• **recruiting rate** depends on
g through Beveridge curve. $v = v(u(g))$

Planner's problem:

$$\max_{g} \; U\left(1 - \Big(u(g) + v(u(g))\Big) - g, \; g\right)$$

Take derivative of social welfare wrt g =

$$\frac{\partial u}{\partial g} + \frac{\partial u}{\partial c} \times \left[- u'(g) - v'(u) \times u'(g) - 1 \right]$$

$$= \frac{\partial u}{\partial g} - \frac{\partial u}{\partial c} - \frac{\partial u}{\partial c} \times u'(g) \times \left(1 + v'(u) \right)$$

more private workers → more welfare   # production workers

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

↑
more public goods
$\hookrightarrow$ more welfare

⤸
more public workers
$\hookrightarrow$ less private workers
$\hookrightarrow$ less welfare
(crowding out)

↖
more public
workers → less
unemployment

Stabilization $g \to u$

public econ.
(Samuelson 1954)

(Michaillat & Saez 2019)