Elasticity of Substitution Between Public and Private Goods

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Sufficient statistic #1: Elasticity of substitution b/w public & private goods, ε

Definition:

$$\frac{1}{\varepsilon} = -\frac{\partial \ln(MRS_{gc})}{\partial \ln(g/c)}$$

- MRS_{gc} ↓ in g/c so $\varepsilon > 0$
- 3 different cases
  - $\varepsilon < 1$: public & private goods are gross complement
  - $\varepsilon = 1$: public & private goods are independent
  - $\varepsilon > 1$: public & private goods are gross substitute
- 3 special cases
  - $\varepsilon \to 0$: perfect complements

ex. Leontief: $u(c,g) = \min(c,g)$

  - $\varepsilon = 1$: independent

ex. $u(c,g) = c^{1-\gamma} g^{\gamma}$: Cobb-Douglas

- $\varepsilon \to \infty$: perfect substitute

ex: linear : $u(c,g) = c + g$