

(From Currie and Ghavari, 2008) As we did in Part 1A of the tutorial, consider a market with two goods, education (denoted g) and cash (denoted x). Assume education is available at a fixed price of p : one can exchange p units of cash for one unit of education.

Assume all individuals in the population have Cobb-Douglas utilities, this time of the more general form

$$u_\alpha(g, x) = \alpha \log g + (1 - \alpha) \log x,$$

where $\alpha \in [0, 1]$ is a parameter governing the individual's relative taste for education and cash. Under these utilities, an agent will spend an α -fraction of their wealth on education, and a $(1 - \alpha)$ fraction of their wealth will be held as cash. That is, given an initial endowment of W units of cash, they will consume $\alpha W/p$ units of education, and $(1 - \alpha)W$ units of cash. (You can verify this for yourself, but doing so is not part of the exercise.)

In this exercise, you will draw pictures to help you visualize the impact of several types provision on individuals' consumption in this market. For each exercise, draw a plot of the space of available consumption bundles, where an individual's consumption of education is on the vertical axis, and their consumption of cash is on the horizontal axis.

- a. (Done as a group.) Given an agent's wealth of W , draw the set of consumption bundles that agent can afford. Determine their favorite consumption bundle by drawing level curves of their utility function. Their desired bundle will be the one touching the highest level curve. As α varies, how does their preferred bundle move in the plot?
- b. Now assume the agent receives a cash transfer of T , giving them wealth $W + T$. How does their consumption change? How does this change the picture? (The answer to this one will be simple.)
- c. Assume now that the agent instead is offered a transfer of G units of education, and that they are forbidden from purchasing additional education from the market if they accept. How does their set of available bundles change? How does their preferred bundle change as you vary α ? For each value of α , ask yourself: would this individual have preferred an equivalent cash transfer of pG ?
- d. Assume now that g is food rather than education, so individuals can purchase additional food even after receiving a transfer. How does a transfer of G units of food change their feasible consumption bundles now? How does their preferred bundle change as you vary α ? For each value of α , ask yourself: would this individual have preferred an equivalent cash transfer of pG ?