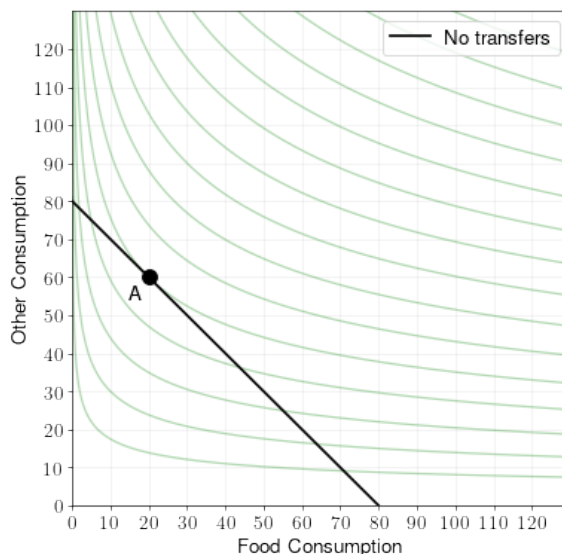
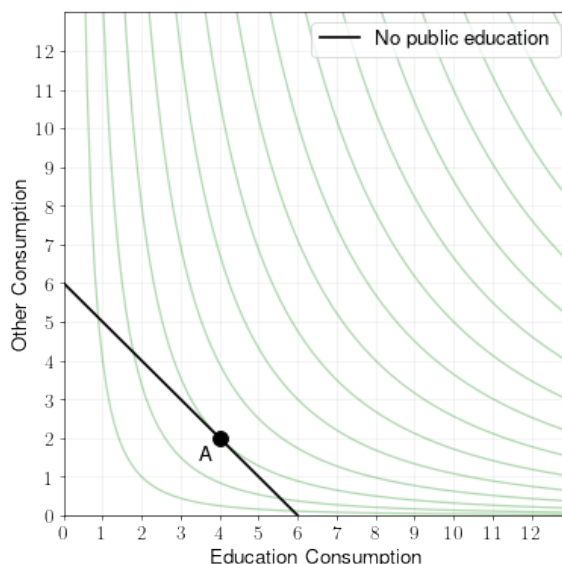


1. The diagram below illustrates a consumer's optimal choice between food consumption and numeraire consumption (i.e. consumption on other goods).



- Suppose the consumer receives a direct transfer of 40 units of food. Draw the new budget constraint and label the optimal consumption bundle B.
 - Suppose instead that the consumer receives a direct monetary transfer worth 40 units of food. Draw the new budget constraint and label the optimal consumption bundle C.
 - Which offers higher utility: the in-kind transfer or the direct monetary transfer of equal value?
-

2. The diagram below illustrates a family's optimal choice between education consumption and numeraire consumption (i.e. consumption on other goods), when only private school options are available.



- Suppose there is a public school that provides 3 units of education for free. Label the point on the diagram that illustrates the public school option. Will the family choose the public school option or continue paying for the private school? Label the optimal consumption bundle B. Does the introduction of the public school option increase or lower the equilibrium education consumption?
- Suppose instead that the family is provided a voucher worth the monetary value of 3 units of private education. The voucher can only be spent on education. Draw the budget constraint with the voucher and label the optimal consumption C. Does the introduction of the voucher increase or lower the equilibrium education consumption?
- Which offers higher utility: the public school option or the voucher?

-
3. Draw an example where the introduction of a public school option *increases* the amount of education consumed.
-

4. Draw an example where the introduction of a public school option is not utilized, i.e. the family continues to choose private school even though a free public option is available.
-

5. A consumer has a utility function over two goods, x and y , given by:

$$u(x, y) = x^{1/4}y^{3/4}$$

In the base period, the consumer has income $I = 240$, the price of x is $p_x = 15$, and the price of y is $p_y = 10$.

In the comparison period, the price of x is $p'_x = 30$, and the price of y is $p'_y = 10$.

- a. Find the optimal consumption bundle in the base period and calculate utility.
 - b. Calculate the CPI in the comparison period relative to the base period.
 - c. Calculate the optimal consumption bundle in the comparison period and calculate utility.
 - d. How much income would be required in the comparison period to achieve the same utility as in the base period?
 - e. Does the CPI underestimate or overestimate the welfare impact of the price change?
-