

Practice Problems: Consumption and Investment

Econ520. Spring 2016. Prof. Lutz Hendricks. March 22, 2016

Blanchard / Johnson, Macroeconomics, 6th ed., ch. 16

1 Consumption

1.1 Tax cuts

In our 2 period household model, compare the effects of several tax cuts on consumption (c, c') and saving of an individual household.

1. Transitory tax cut: $\Delta t = -1$, t' unchanged.
2. Future tax cut: t unchanged, $\Delta t' = -(1+r)$. Note that this raises the same amount of revenue, in present value terms, as does the transitory tax cut.
3. Permanent tax cut: $\Delta t = -0.5$, $\Delta t' = -0.5(1+r)$. Note that this also raises the same amount of revenue as the two previous examples.
4. Tax deferral: $\Delta t = -1$, $\Delta t' = +(1+r)$. This raises no additional revenue, in present value terms.

1.1.1 Answer: Tax cuts

The first three cases have the same effect on the present value budget constraint. Therefore, the effects on consumption are the same.

1. See our analysis of a pure income effect. c, c' both rise. Saving must rise, too, to finance higher c' .
2. Same change in c, c' . But now s must fall to finance higher c .
3. Same change in c, c' . Whether s rises or falls depends on preferences.
4. No change in present value budget constraint. Therefore no change in c, c' . $\Delta s = -\Delta t$: the household completely saves the tax refund.

1.2 Borrowing constraint

Assume that the household can borrow at most a fixed amount x .

1. How does affect the household's budget constraint? Graph it.
2. Graph the household's consumption demand function as current income y changes. How does it differ from the case without a borrowing constraint? What does this imply for the Permanent Income Hypothesis?

1.2.1 Answer: borrowing constraint

1. Period 1 budget constraint becomes

$$c = y - t - s \leq y - t + x \quad (1)$$

where x is the borrowing limit. The budget constraint is "cut off" at $y - t - x$. See figure 1.

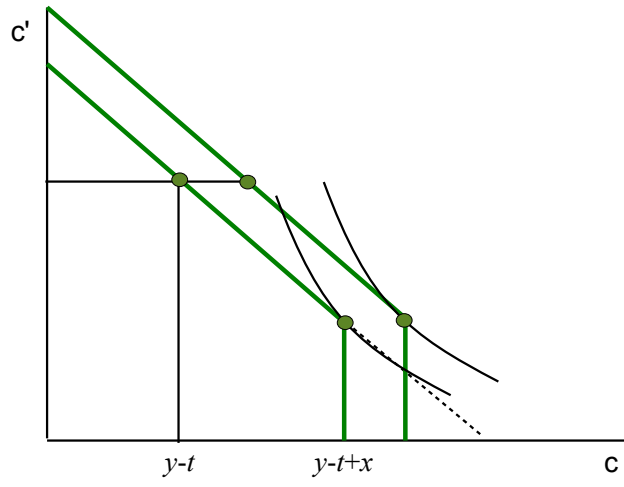
2. As y rises, the budget constraint shifts right / up. For low y , the borrowing constraint binds: the household is at the kink of the budget constraint. Rising y is then entirely consumed. The household stays at the kink of the budget constraint. The MP_C is one for low y . The PIH fails when households are borrowing constrained.

1.3 Lending rate

Assume that the household has to borrow at a high interest rate (r_B) but lends at a low rate (r_L).

1. Show how this affects the household's budget constraint.
2. How does this affect the household's consumption as the lending interest rate changes?

Figure 1: Borrowing constraint



1.3.1 Answer: Lending rate

1. The budget constraint has a kink. For points to the right of $c = y - t$ (borrowing), it is steep (high interest rate). For point to the left (saving) it is flat.
2. For households who are not borrowing, the usual arguments apply. For households who borrow, nothing happens. There will be range of interest rates for which the household is stuck at the corner without borrowing or lending.

1.4 Miscellaneous

1. You should be able to explain the permanent income hypothesis.
 - (a) What does it imply for the effects of transitory tax cuts?
 2. Why is the marginal propensity to consume out of current income small for most households? For which households is it large?
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