

### 3. Fiscal policy with forward-looking agents

Up to now we have assumed that consumption depends on current disposable income:  $C = C(Y - T)$ .

Since many of our conclusions were model dependent, it is important to understand how many of them survive in a more sophisticated model of consumer behaviour.

#### 1 Fischer's intertemporal consumption theory

This is the backbone of any modern theory of the consumption function. We present a stripped-down version of it.

Assumptions:

1. endowment economy (no production)
2. Consumers: live for two periods and maximize their lifetime utility function  $U(C_1, C_2)$ .

3. Endowments:  $Y_1$  units of the consumption good in the first period of life and  $Y_2$  in the second one. Endowments can be freely borrowed and lent at the real interest rate  $r$  subject to solvency.

**Solvency:** with finite lifetimes solvency means that agents cannot die with a positive stock of debt. If the marginal utility of consumption is positive it implies that the PDV of consumption equals the PDV of income.

So consumers maximize  $U(C_1, C_2)$

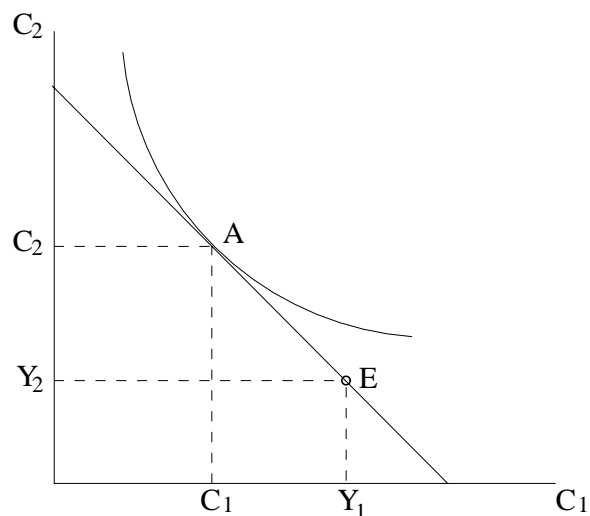
$$\text{subject to} \quad C_2 = (Y_1 - C_1)(1 + r) + Y_2 \quad (1)$$

or equivalently

$$C_1 + \frac{C_2}{1 + r} = Y_1 + \frac{Y_2}{1 + r} \quad (2)$$

With decreasing marginal utility of consumption, consumers borrow and lend to smooth the consumption profile over time. Consumption depends on lifetime

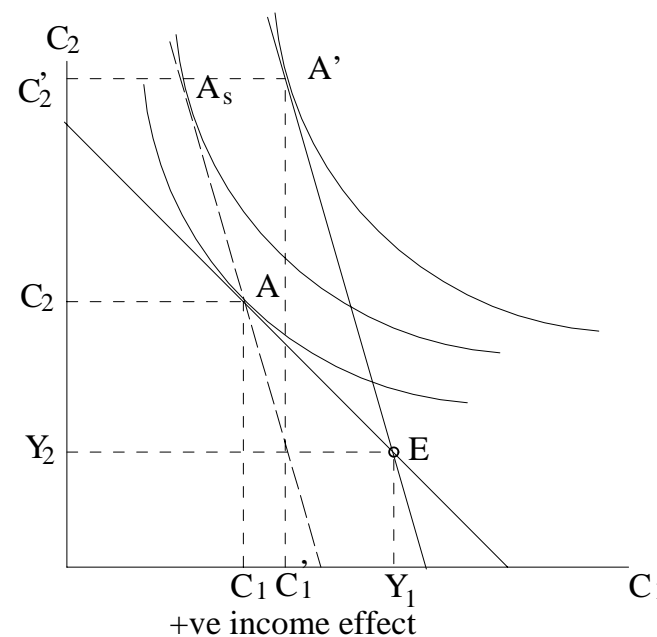
income (rather than current income). Changes in the time profile of income that leave its present value unchanged do not affect consumption.

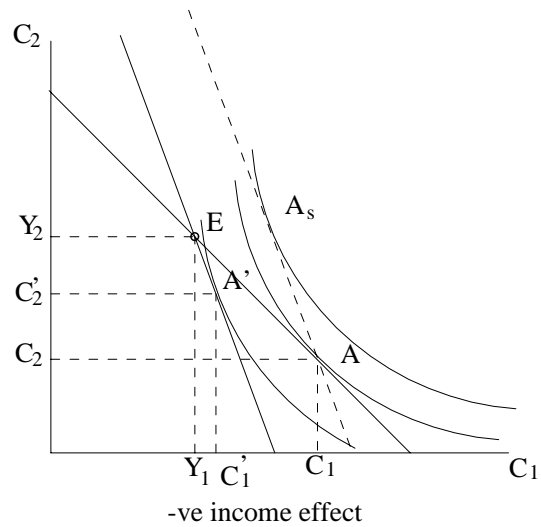


### 1.1 Changes in the relative price of consumption across time

$(1 + r)$  is the (relative) price of consumption at time 1 in terms of units of consumption at time 2. The net effect of a change in  $r$  on  $C_1$  and  $C_2$  can be decomposed into a substitution and an income effect.

If  $r$  increases the income effect is positive for lenders and negative for borrowers. The substitution effect always implies reallocating towards the good which becomes relatively cheaper. So the total effect of an increase in  $r$  on  $C_1$  is negative for borrowers, but ambiguous for lenders.





### 1.2 Changes in endowments

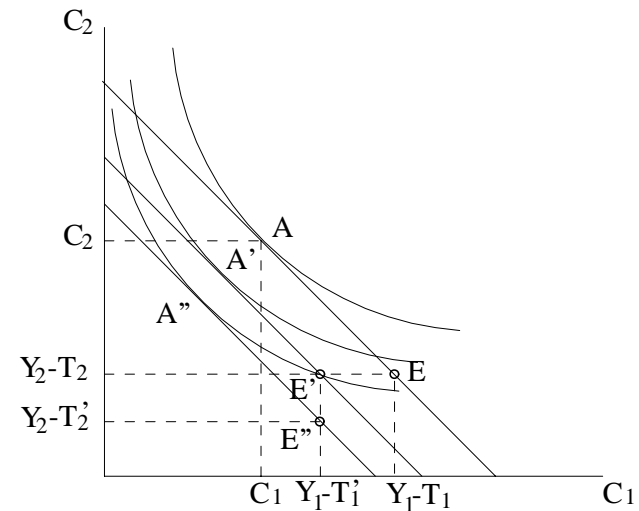
Changes in endowments have a pure income effect.

If we introduce lump-sum taxes into the picture the budget constraint becomes

$$C_1 + \frac{C_2}{1+r} = Y_1 - T_1 + \frac{Y_2 - T_2}{1+r} \quad (3)$$

Consider the effect on  $C_1$  of a temporary ( $\Delta T_1 > 0$  and  $\Delta T_2 = 0$ ) and a permanent ( $\Delta T_1 > 0$  and

$\Delta T_2 > 0$ ) increase in taxes. Note that we are crucially assuming that agents have perfect knowledge of whether the tax increase is temporary or permanent. The temporary tax has a smaller effect on the budget constraint, hence reduces consumption by less since it is spread over the lifetime.



The intertemporal theory of consumption explains the low marginal propensity to consume out of current income we have discussed in chapter 3.

## 2 Is fiscal stabilization still viable?

The last result suggests that: (a) both automatic and discretionary short-run fiscal stabilization may be very little effective (even more with longer lifetimes); (b) the effect of temporary tax changes may be persistent since people spread the temporary income fall over their lifetimes.

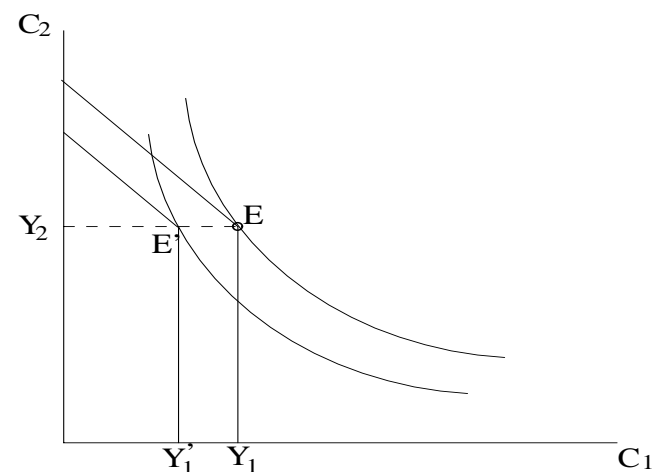
The empirical evidence confirms that temporary tax changes have a significantly smaller impact on consumption than permanent ones. Yet, their impact is far from negligible. Okun (1971) and Blinder (1981) document that the size of the change in consumption in the US in response to the temporary tax changes in 1968 and 1975 was around 50% of what it would have been if it had been permanent.

The above two caveats against fiscal stabilization found a limit in so far as:

1. People may be myopic and expect a temporary tax cut to be permanent and only later realize that it

was not.

2. For people in their old age, the temporary cut in taxes may still have a significant impact on lifetime income (yet, their marginal propensity to consume may be low for precautionary reasons).
3. Borrowing constraints. Some forms of automatic stabilizers (e.g. unemployment benefits) are likely to affect more individuals with limited access to borrowing.



#### 4. Distortionary taxes.

Consider, for example, a temporary proportional consumption tax  $t$  in a situation in which taxes are originally zero. The budget constraint becomes

$$C_1(1+t) + \frac{C_2}{1+r} = Y_1 + \frac{Y_2}{1+r} \quad (4)$$

Income and substitution effects go in the same direction. Also while the fall in permanent income is persistent, the change in relative prices is temporary.

This suggests that discretionary stabilization is still possible provided it takes the right form.

The scope for automatic stabilization, though, depends on the relevance of points 1, 2 and 3 above. Point 1 and 2 are not likely to be very relevant. It should be clear to most people that taxes will automatically go up in the next boom (with little effect on lifetime income). Also how many people expect to die 2-3 years from now? So the crucial issue is the proportion of agents who are borrowing constrained and the

following one.

In the presence of income uncertainty proportional income taxes reduce fluctuations in disposable income. Under plausible assumptions this implies that agents consume more in recessions and less in booms with respect to a situation in which taxes are not procyclical.

