ECONOMICS 2

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# Week 12

Consumption

Chapters 15

Outline

- The Keynesian consumption function
- Irving Fisher and the intertemporal choice
- Life cycle and permanent income hypothesis

Assumptions of the Keynesian consumption function

- The **marginal propensity to consume** is constant, positive, and smaller than one.
- The **average propensity to consume** is decreasing,
C/Y decreases if Y increases

- The consumption depends mainly on income. Other factors like real interest rates have negligible effect.

The Keynesian consumption function

$$C = C_0 + cY \qquad C/Y = C_0/Y + c$$
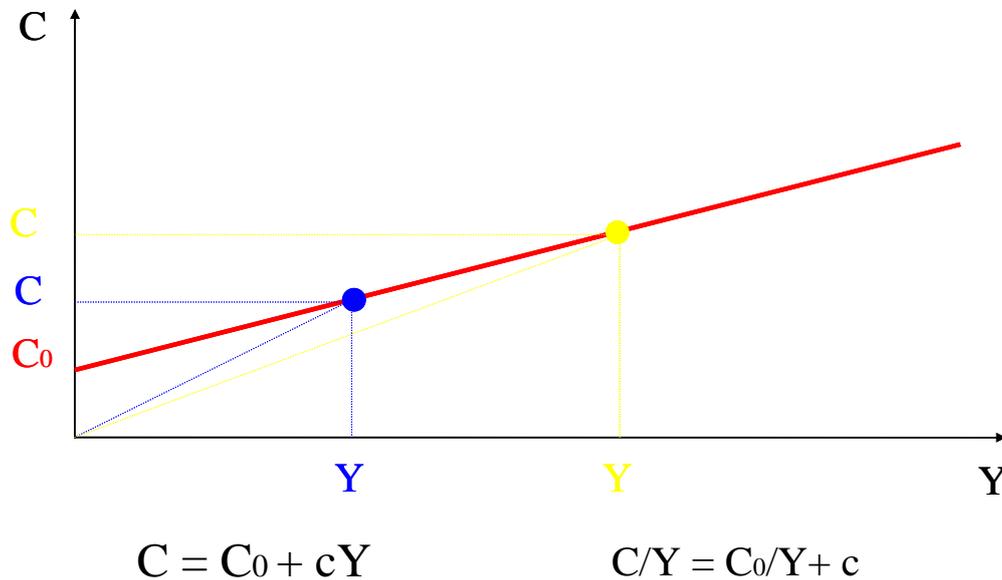
Empirical data and the consumption function

If income rises then consumption rises, thus it can be proven that the marginal propensity to consume is positive.

If income rises then saving rises, thus it can be proven that the marginal propensity to consume is less than one.

Those with higher income save a higher ratio of their income, thus it can be proven that the average propensity to consume decreases.

Consumption during and after the world war

During the world war II the public expenditures increased, and at the same time the income increased.

The forecasts of that time indicated that after the war public expenditures would decrease, and private consumption would not rise proportionally. Thus after the war it would have to cause a crisis that increased savings were not used by private investments.

In other words the economists expected the situation of **secular stagnation** (crisis of infinite length).

Long run observations

Simon Kunztens collected income and consumption data in 1940 back to year 1869. He found that although income growth was large during this period, the consumption to income ratio did not change.

Both observations contradict the implication of the Keynesian consumption function that the average propensity of consumption would decrease.

Consumption puzzle
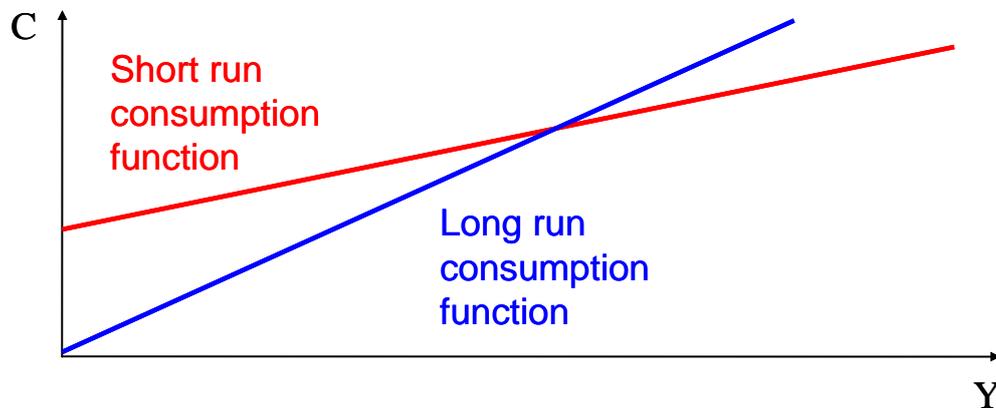
According to the consumption puzzle the average propensity to consume is constant in the long run, whereas it is a decreasing function of income in the short run.
Irving Fisher and the intertemporal choice

Irving Fisher and the intertemporal choice

Assumptions of the model:
*   The consumer lives for two periods.
*   The income in the two period is Y1; Y2.
*   The consumer can save or borrow money in the first period, the interest rate is r.
*   The consumer decides how much to consume in the first period. In the second period he/she consumes the remaining wealth.
*   The consumer decides so as to maximize his/her welfare.

Intertemporal budget constraint

Income of the consumer in the first period: Y1.
Saving : S = Y1 – C1 (can be negative).
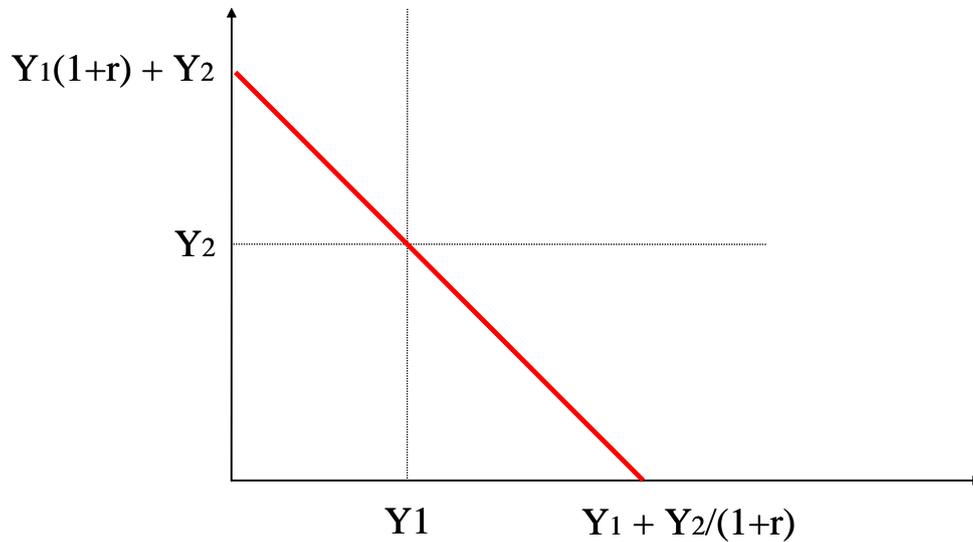In the second period the remaining wealth is consumed:

$$C2 = (1+r)S + Y2;$$
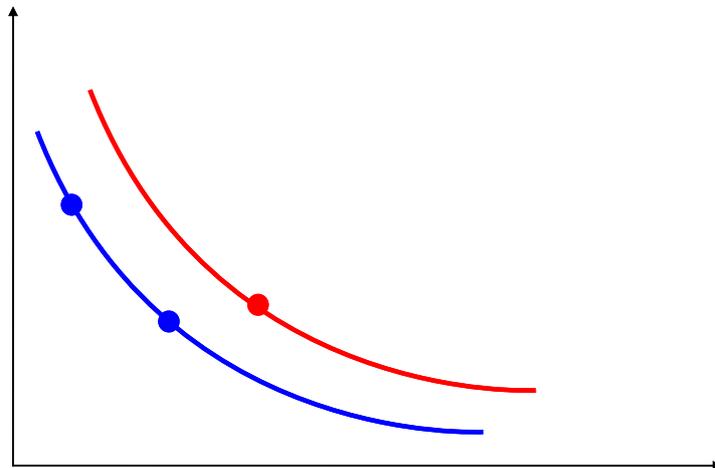$$C2 = (1+r)(Y1 – C1) + Y2.$$

Rearranging the last equation

$$C1 + C2/(1+r) = Y1 + Y2/(1+r).$$

Intertemporal budget constraint

$Y_1(1+r) + Y_2$
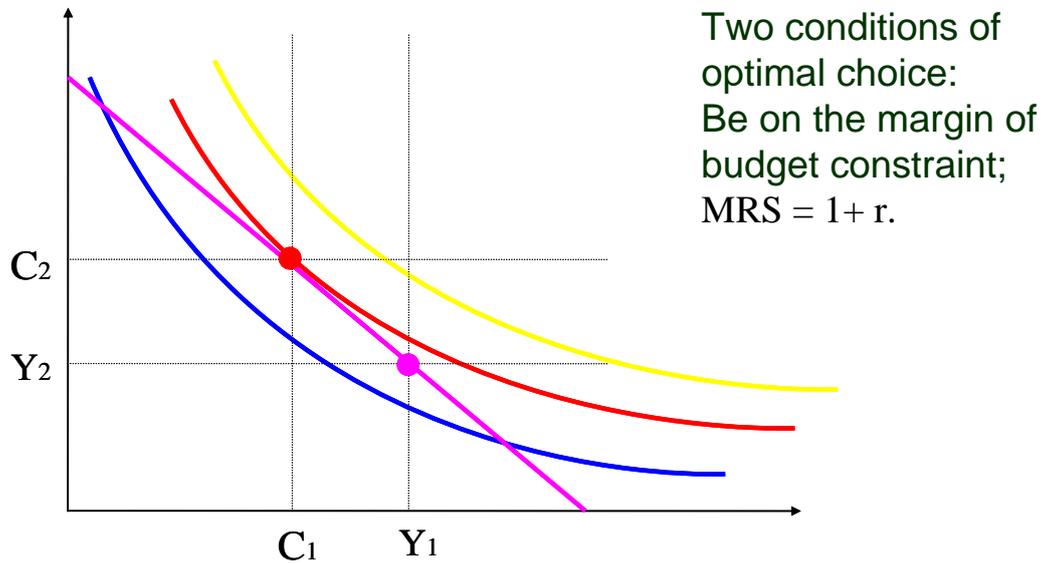
Y_2

Y_1 $Y_1 + Y_2/(1+r)$
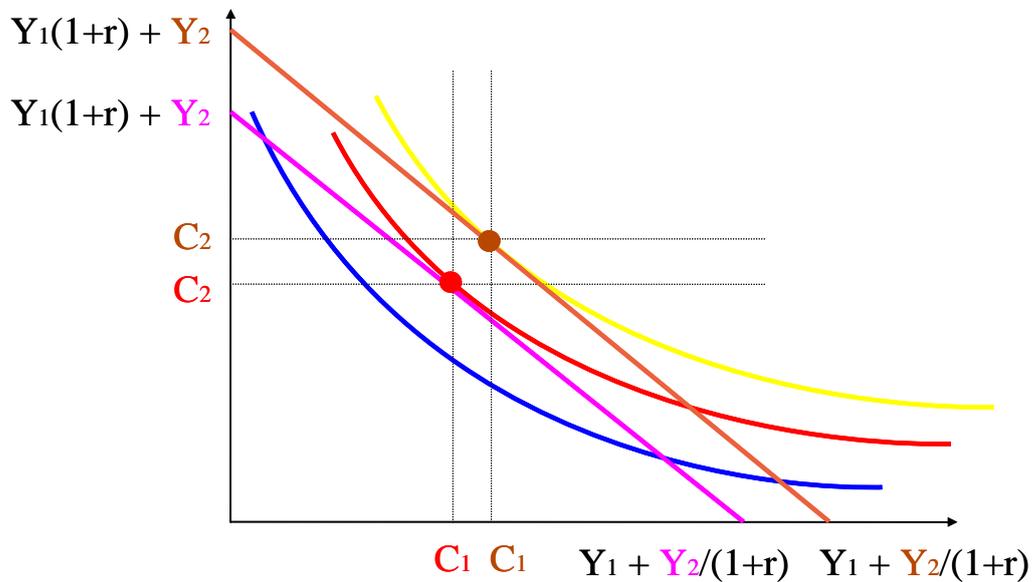
Indifference curves of the consumer

We call marginal rate of substitution (MRS) the ratio which shows for how much second period consumption are we willing to exchange our first period consumption.

Optimal choice

Two conditions of optimal choice:
Be on the margin of budget constraint;
$MRS = 1 + r$.

C_2

Y_2

C_1 Y_1

Effect of changing income

$Y_1(1+r) + Y_2$

$Y_1(1+r) + Y_2$

C_2

C_2

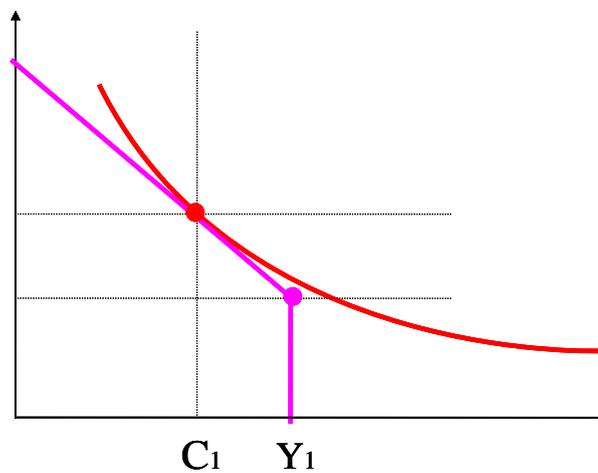C_1 C_1 $Y_1 + Y_2/(1+r)$ $Y_1 + Y_2/(1+r)$

Conclusion

According to the Fisher model, contradiction the Keynesian model, current consumption depends not only on current income, but also on income expected for the future.
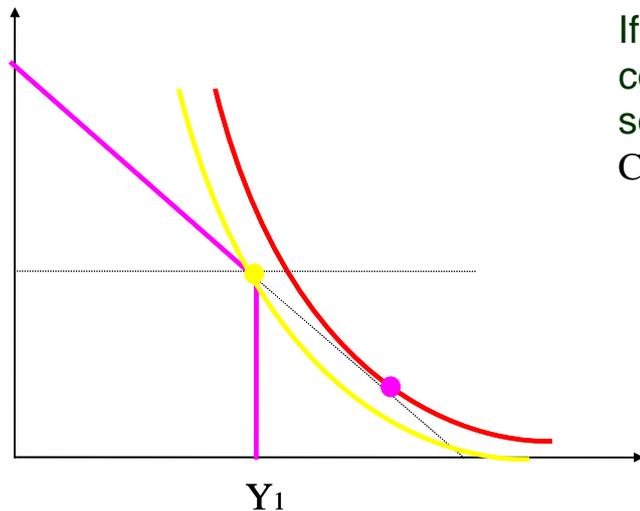
Interest rate change

C_2

C_2

Y_2

C_1 C_1 Y_1
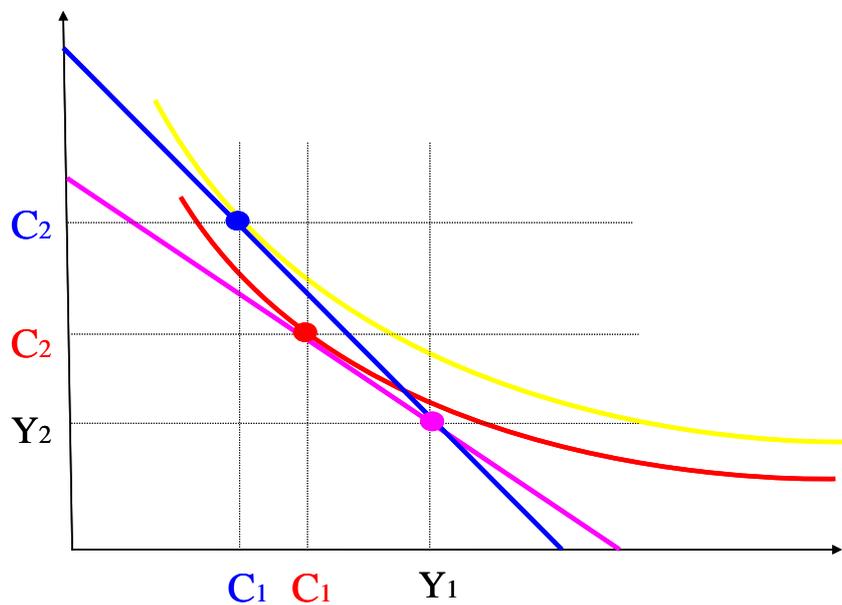
Credit constraint

C_1 Y_1

If the consumer is a lender, the credit constraint has no effect.

Credit constraint

If there is credit constraint then for some consumers $C_1 = Y_1$.

Y_1

Life cycle hypothesis

Assumptions:

Assume that someone lives T more periods.

The current wealth is W.

Remaining years until retirement: R.

Annual income until retirement: Y.

Interest rate: $r = 0$.

Objective: consume the same amount every year during the remaining lifetime.

Life cycle hypothesis

The consumer wants to divide $W + R \times Y$ wealth to T equal amounts. So:

$$C = W/T + (R/T) \times Y.$$

The consumption function has the Keynesian form:

$$C = a + b \times Y,$$

where a is the part of consumption out of wealth, and not out of income.

In the long run the income and wealth increases together, thus decreasing average consumption cannot be observed.

Permanent income hypothesis

According to the theory of Milton Friedman the income has two parts: *YP* permanent income and s *YT* transitory income.
Thus:

$$Y = YP + YT.$$

Friedman-type consumption function:

$$C = aYP.$$

Average consumption:

$$C/Y = aYP/Y.$$

Rational expectations and the permanent income

It is an important question in the theory how the consumers form expectations. If we assume rational expectations then *YT* is symmetric. Therefore in the long run the deviations from the permanent income are zero on average. It can be concluded that in the short run the consumption can not be forecasted.