



# *Aggregate Expenditure Components*

Consumption

Investment

Government

Net Exports

Composition of Aggregate Expenditure



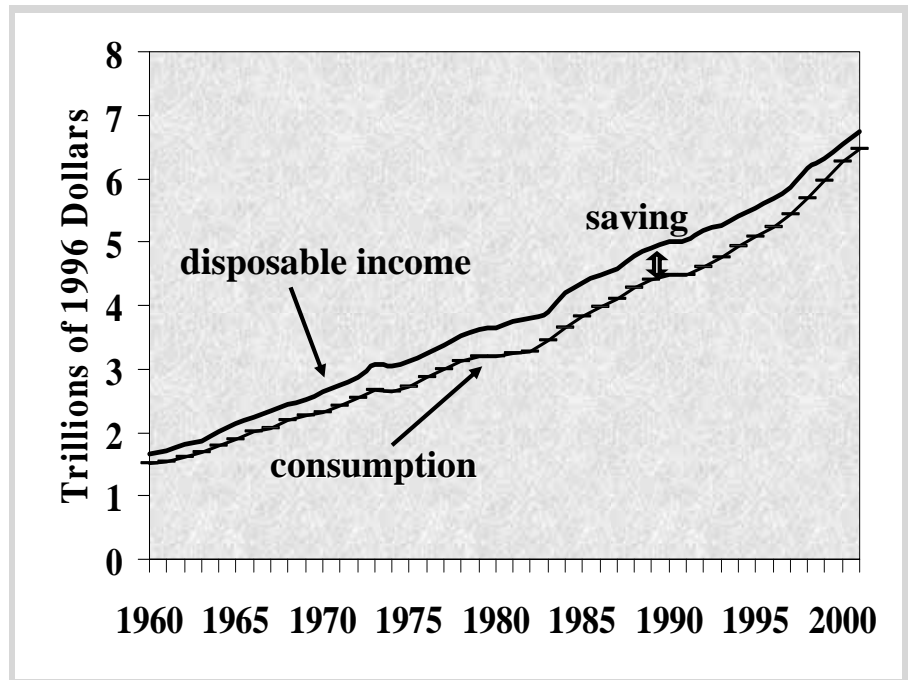
## *Consumption*

- ✦ **Stable and positive relationship between consumption and income**
- ✦ **Next slide shows the relationship between disposable income and consumption spending**

# Consumer Spending and Disposable Income

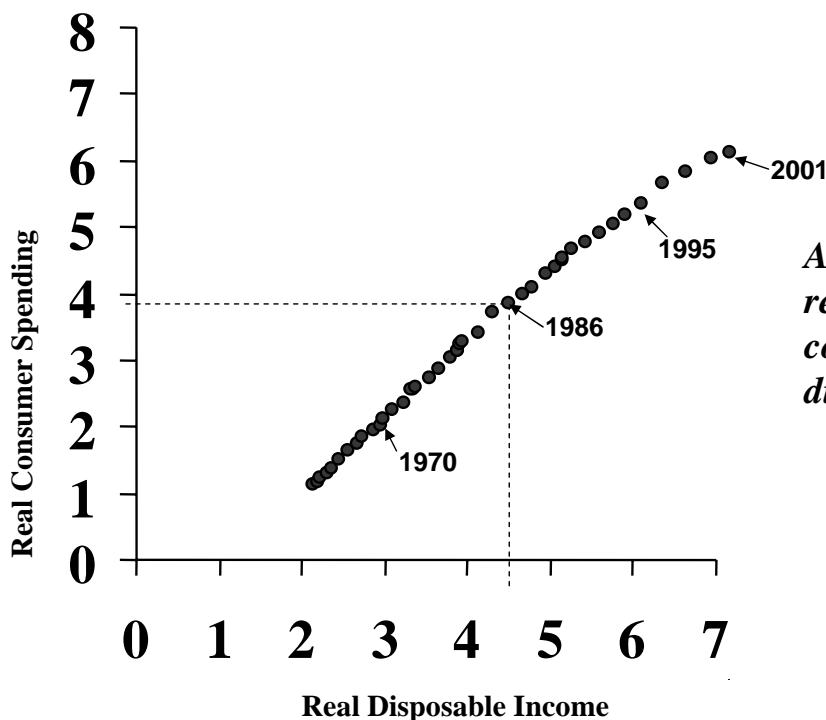
*The relationship between disposable income and consumption has been relatively stable.*

*Saving is the difference between disposable income and consumption and is shown by the vertical distance between the two lines.*



Source: based on annual estimates from Bureau of Economic Analysis, U.S. Dept of Commerce. Figures for 2001 were projected as of September. For the latest data, go to <http://www.bea.doc.gov/bea/dn1.htm>.

## Dependence of Consumer Spending on Disposable Income



*A clear and direct relationship between consumption and disposable income.*

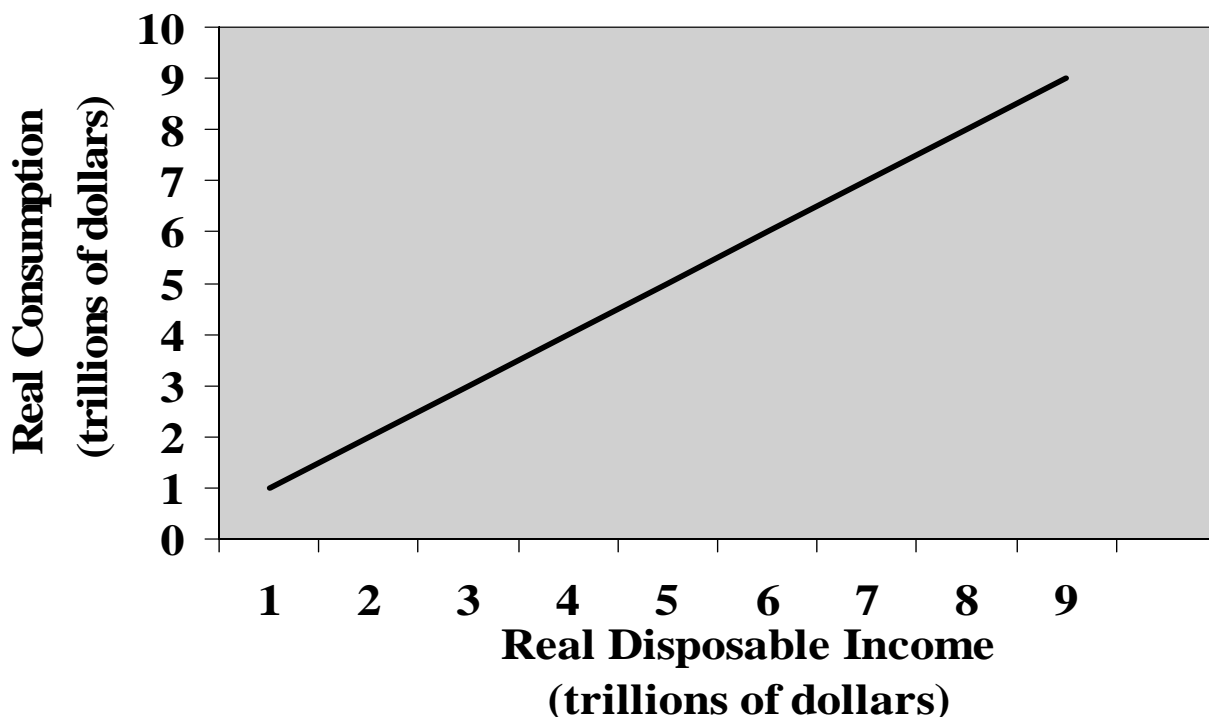
Source: based on estimates from the Bureau of Economic Analysis, U.S. Dept of Commerce. Point for 2001 was projected as of September. For the latest data, go to <http://www.bea.doc.gov/bea/dn1.htm>.

# Consumption Function

- ✦ Consumption is a function of income
  - ❖ *Consumption: dependent variable*
  - ❖ *Disposable income: independent variable*
- ✦ Next slide presents a hypothetical consumption function:
  - ❖ Positive relationship between the level of disposable income and the amount spent on consumption, with other determinants of consumption assumed to be constant

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## The Consumption Function



Both disposable income and consumption are measured in real terms, or in inflation-adjusted dollars .

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## Marginal Propensities to Consume and Save

### What happens to consumption and saving when income changes?

#### Marginal Propensity to Consume (MPC)

- change in consumption divided by the change in income

#### Marginal Propensity to Save (MPS)

- change in saving divided by the change in income

### MPC + MPS = 1

- All disposable income are spent on consumption or saved

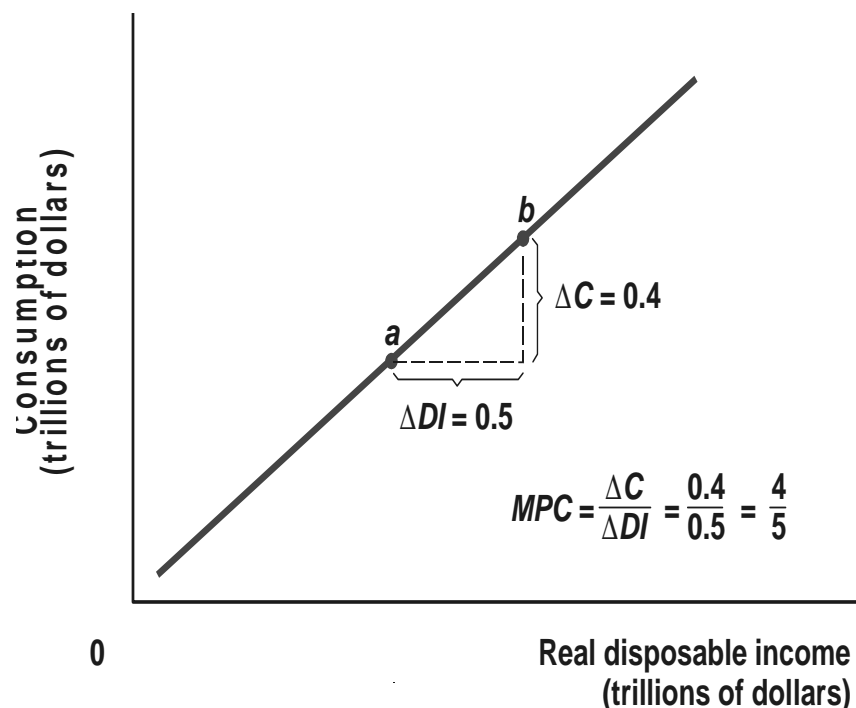
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## Marginal Propensity to Consume

Horizontal-axis: Change in disposable income

Vertical axis: Change in consumption

Slope = MPC



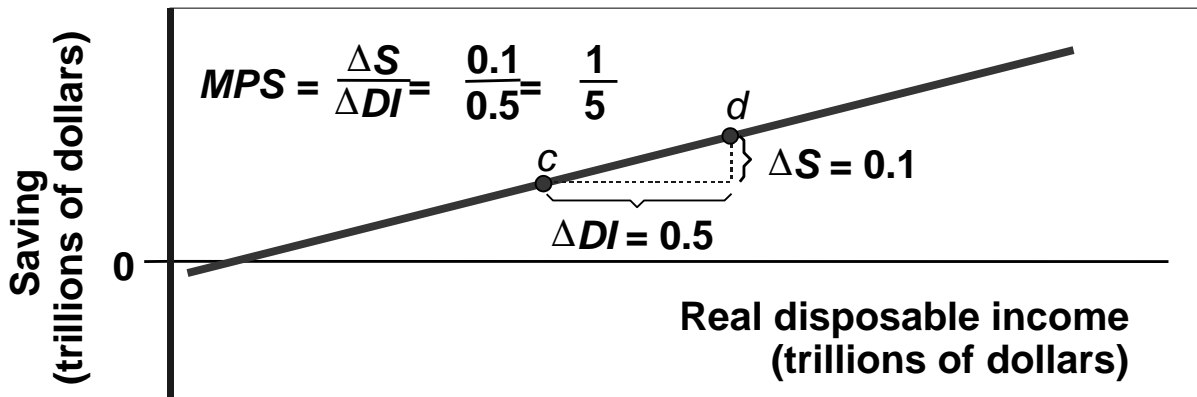
MPC=0.8 or 80% → 80% of any change in income is spent on consumption

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## Marginal Propensity to Save

Slope= MPS →

Ex: Saving will change by 20% of every dollar change in income.

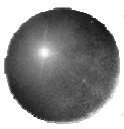


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## Shifts and Movements Along

- ***Movement along the consumption function*** results from a change in income
- ***Shift of the consumption function*** results from a change in one of the nonincome determinants of consumption

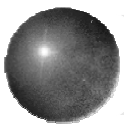
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## *Nonincome Determinants*

- ⊕ **What could cause the consumption function to shift?**
  - ⊞ **Net Wealth**
  - ⊞ **Price Level**
  - ⊞ **Interest Rate**
  - ⊞ **Expectations**

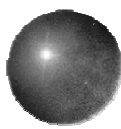
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## *Net Wealth*

- ⊕ ***Net wealth:***
  - ⊞ **the value of all assets minus any liabilities or debts**
  
- ⊕ ***A decrease in net wealth***
  - ⊞ **make consumers less inclined to spend – more inclined to save**
  
- ⊕ ***Increase in net wealth →***
  - ⊞ **Increases consumption**
  - ⊞ **consumption function shift from C to C''**

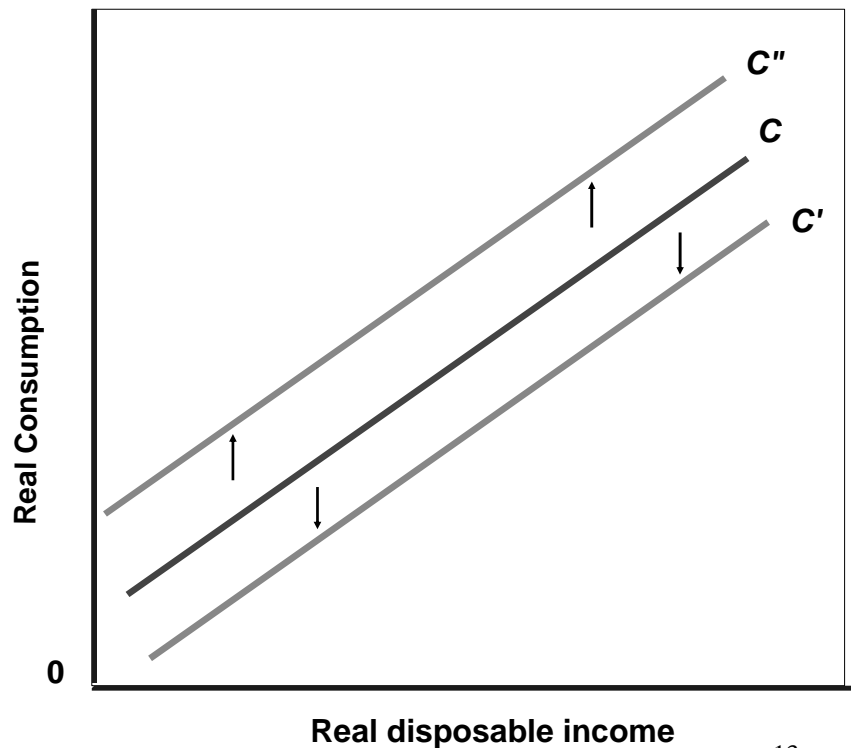
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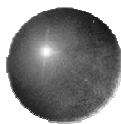
## Shifts in the Consumption Function

Increase in net wealth:  $C \rightarrow C''$

Decrease in net wealth:  $C \rightarrow C'$



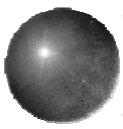
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## Price Level

- ⊕ Some household wealth is held in dollar-denominated assets such as bank accounts and cash
  
- ⊕ If price level changes, the real value of dollar-denominated assets changes
  - ⊠ *Increase in the price level* reduces the purchasing power of wealth held in fixed dollar assets → Consume less and save more
  - ⊠ *Decreases in the price level* increase the purchasing power of wealth held in fixed assets → Consume more and save less

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## *Interest Rate*

### ⊕ Interest

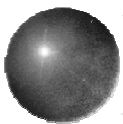
- ❖ The reward savers earn for deferring consumption
- ❖ the cost paid by borrowers for current spending power

### ⊕ The *higher the interest rate,*

- ❖ the less is spent on purchased on credit
- ❖ Save more and borrow less
- ❖ Consumption function shifts downward

### ⊕ *A lower interest rate* shifts the consumption function upward

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## *Expectations*

### ⊕ Expectations about

- ❖ price levels,
- ❖ interest rates,
- ❖ job security and etc.

influence economic behavior in a variety of ways

### ⊕ If expectations become more pessimistic

- ❖ Consumption function shifts downward

### ⊕ If expectations become more optimistic

- ❖ Consumption function shifts upward

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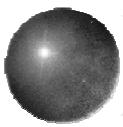
# *Aggregate Expenditure Components*

- ⊕ Consumption
- ⊕ Investment
- ⊕ Government
- ⊕ Net Exports
- ⊕ Composition of Aggregate Expenditure



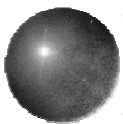
## *Investment*

- ⊕ **Investment consists of spending on**
  - ⊖ **New factories**
  - ⊖ **New equipment**
  - ⊖ **New housing**
  - ⊖ **Net change in inventories****expectation of a future return**
  
- ⊕ **Investors must estimate how much a investment will yield in all years of its productive life**

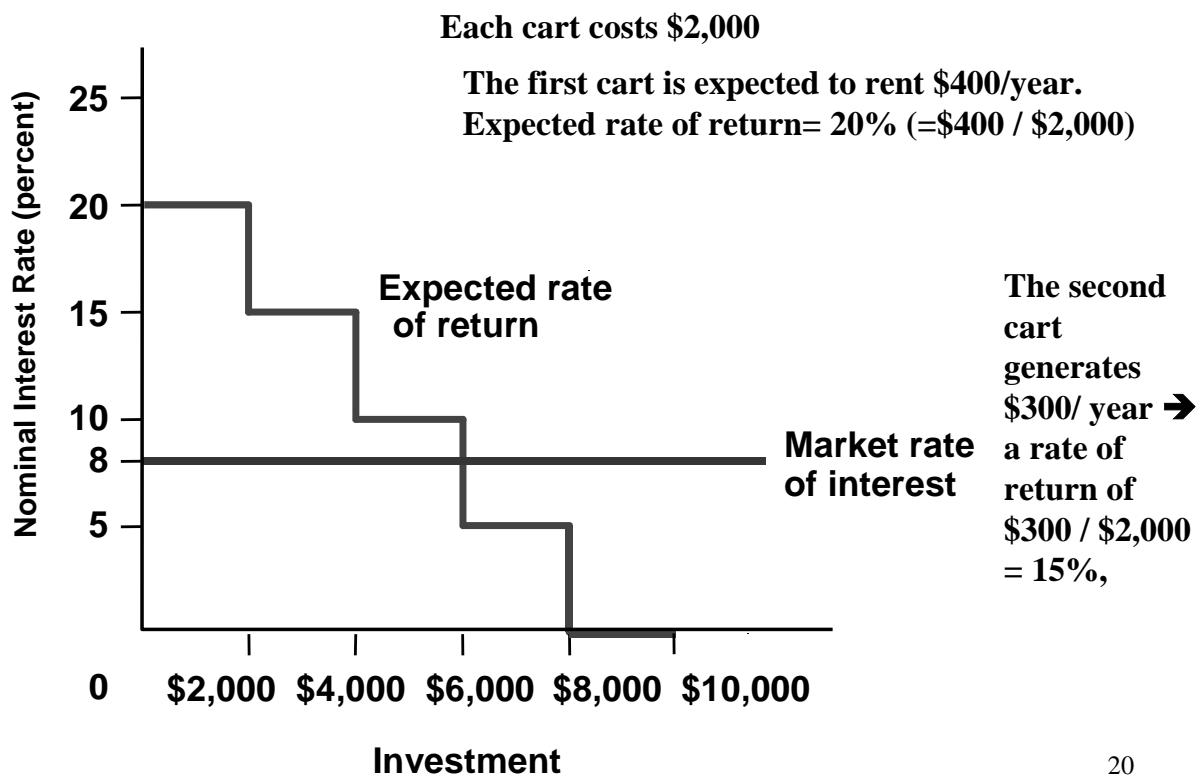


# Investment

- ✦ Buy new capital goods if expecting this investment yield a greater return than other possible uses of funds
- ✦ The expected rate of return =  $\text{annual dollar earnings} / \text{purchase price}$
- ✦ The example in next slide provides us with a comparison between
  - ▣ the rates of return
  - ▣ market interest rate



## Rate of Return on Golf Carts and the Opportunity Cost of Funds



## *Investment*

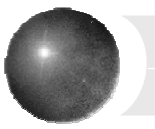
- ⊕ Should the firm invest in golf carts, and if so, how many?
- ⊕ If the firm borrows the money to buy the carts
  - ⊗ The number of carts depends on the interest rate they pay to borrow the money
- ⊕ Let market interest rate = 8%
  - ⊗ profit is maximized if \$6,000 is invested in the carts (10% > 8%)
  - ⊗ Purchase three carts
- ⊕ The market interest rate is the opportunity cost of investing in capital

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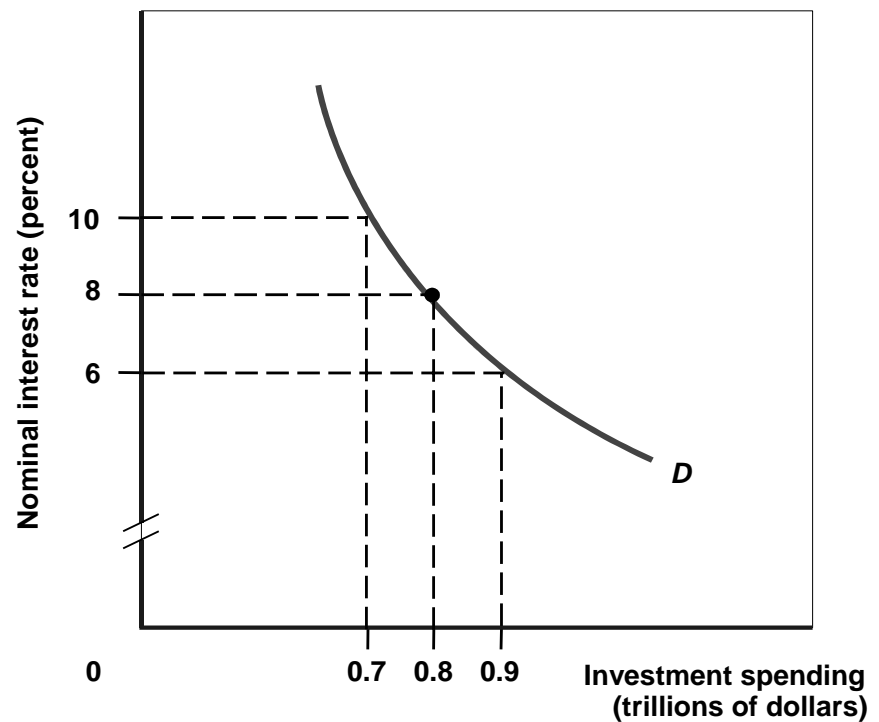
## *From Micro to Macro*

- ⊕ More is invested if the opportunity cost of borrowing is lower
- ⊕ Downward sloping investing demand curve is derived
  - ⊗ form horizontal sum of all industries' downward sloping investment demand curves
- ⊕ See next slide

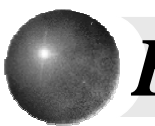
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## *Investment Demand Curve*



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## *Planned Investment and Income*

- ⊕ Investment depends more on
  - ⊕ interest rates
  - ⊕ business expectationsthan on
  - ⊕ the prevailing level of income
  
- ⊕ Investment decision is said to be “forward looking”

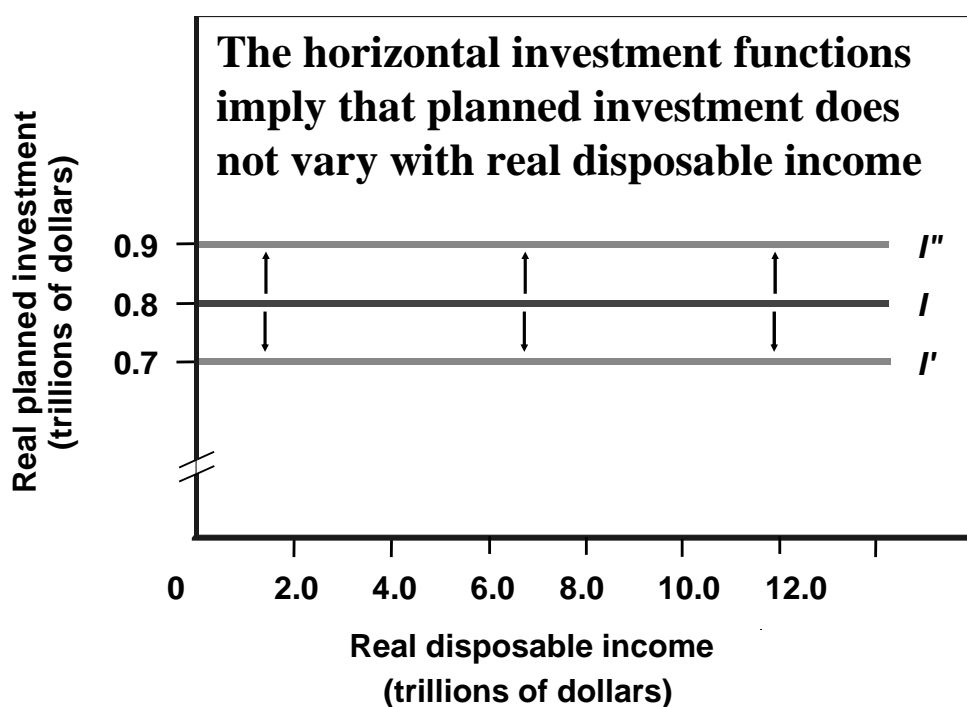
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# Investment Function

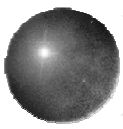
- ⊕ The simplest investment function:
  - ⊠ planned investment is unrelated to the current disposable income
  - ⊠ Planned investment does not vary as real disposable income does
- ⊕ Two determinants of investment that are assumed to be constant along the investment function curve
  - ⊠ The market interest rate
  - ⊠ Business expectations
- ⊕ See next slide

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# Investment Function



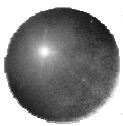
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## *Market Interest Rate*

- ⊕ In last slide, if rate=8%, planned investment=\$0.8 trillion → shown as I
  
- ⊕ If rate drop from 8% to 6%
  - ⊗ Increase planned investment from \$0.8 to \$0.9 trillion
  - ⊗ Function shifts upward from I to I''
  
- ⊕ If rate increase from 8% to 10%
  - ⊗ Increase planned investment from \$0.8 to \$0.7 trillion
  - ⊗ Function shifts downward from I to I'

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## *Business Expectations*

- ⊕ If firms become more pessimistic
  - ⊗ Planned investment will decrease
  - ⊗ Shift from I to I'
  
- ⊕ If profit expectations become rosier
  - ⊗ Investment function shift upward from I to I''
  
- ⊕ Factors that Affect Business Expectations
  - ⊗ Wars
  - ⊗ Technological change
  - ⊗ Changes in the tax structure
  - ⊗ Other destabilizing (不穩定) events that make long-term planning more uncertain

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# *Aggregate Expenditure Components*

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# *Government Purchase Function*

- ⊕ **The *government purchase function* relates**
  - ⊗ government purchases
  - ⊗ level of income in the economy
- ⊕ **Decisions about government purchases**
  - ⊗ Almost controlled by public officials,
  - ⊗ do not depend directly on the level of income
- ⊕ **we assume that government purchases,  $G$ , are independent of the level of income**

# Transfer Payments

- ⊕ Another components of government outlays
  - ⊗ Ex:
    - Social Security
    - Unemployment benefits
- ⊕ Transfer payments vary inversely with income → as income increases, transfer payments decline

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# Net Taxes

- ⊕ To fund government outlays, governments impose taxes
- ⊕ Taxes vary directly with income → as income increase, so do taxes
- ⊕ *Net taxes* = taxes - transfers
  - ⊗ Taxes tend to increase with income
  - ⊗ Transfers decrease with income,
  - ⊗ Net taxes is positively related to income
- ⊕  $\text{real GDP} - \text{NT} = \text{DI}$ 
  - ⊗ Net taxes affect aggregate spending indirectly by changing disposable income, which in turn changes consumption

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# *Net Exports*

## ⊕ Imports

- ⊕ If incomes rise,
  - Spend more on import
- ⊕ Incomes decline → spend less on imports

## ⊕ Exports

- ⊕ Purchased by the rest of the world
- ⊕ Depends on the income of foreigners
- ⊕ Not on the U.S. level of income

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# *Net Export Function*

- ⊕ The net export function shows the relationship between
  - ⊕ net exports
  - ⊕ level of income
- ⊕ Net exports = Exports minus imports
  - ⊕ tend to decline as U.S. income increase
- ⊕ For simplicity, we will assume that net exports are independent of the level of income

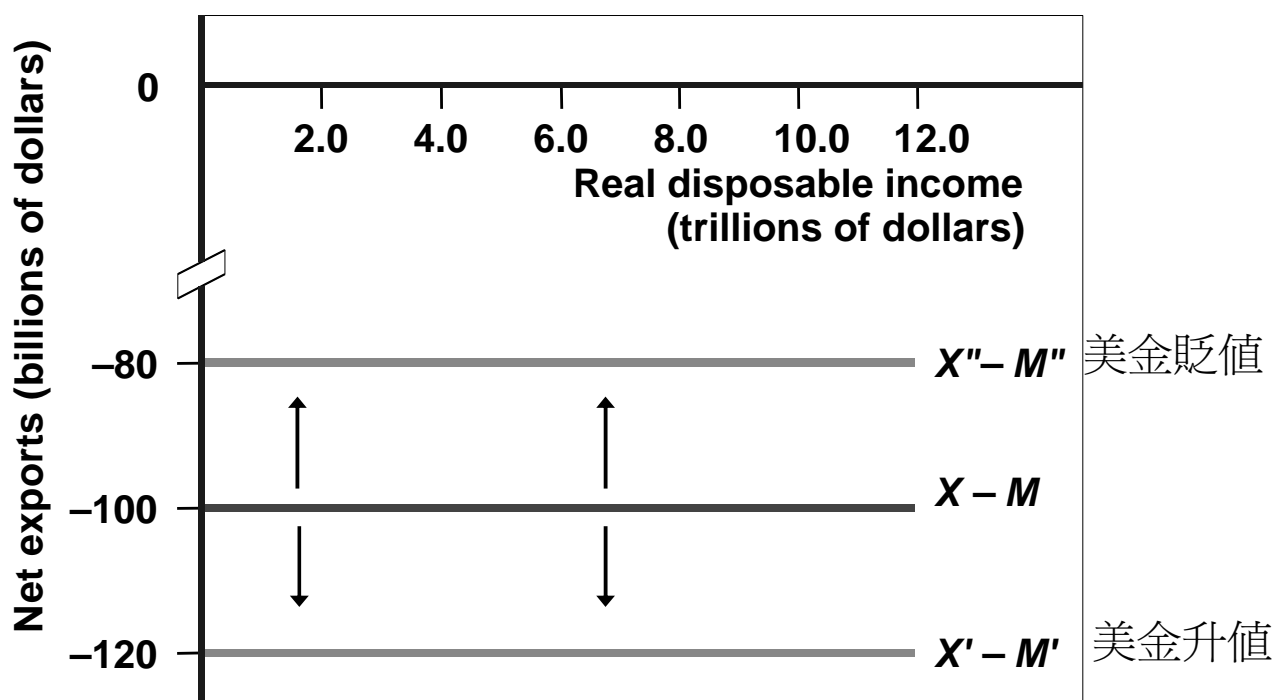
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# Nonincome Determinants of Net Exports

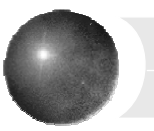
- Factors assumed constant along the net export function include
  - The U.S. price level
  - Price levels in other countries
  - Interest rates here and abroad
  - Foreign income levels
  - Exchange rates between the dollar and foreign currencies
- Next slide illustrates the effect of a change in one of these factors, the exchange rate

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# Autonomous Net Export Function



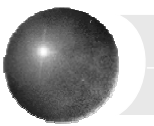
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## 課堂報告

- 請解釋何謂Consumption function
- 請解釋何謂Net wealth,並說明Net wealth對於consumption function的影響
- 請說明在本章中,公司使用投資報酬率(rate of return)和市場利率決定投資金額
- 請說明net taxes和income的關係

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## Homework

10. Consumption function
- 11. MPC and MPS

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