Lesson 4 Accounting and composition of GDP

Expenditure and income method

The Economy's Income and Expenditure

- For an economy as a whole, *income must equal expenditure* because:
  - Every transaction has a buyer and a seller.
  - Every dollar of spending by some buyer is a dollar of income for some seller.

National Income

- National Income is the total income earned by a nation's residents in the production of goods and services.
- In AP course

  GDP=National Income=

  National Output=Aggregate Income=Aggregate Spending

Calculating GDP

Two Ways of calculating GDP:

1. Expenditures Approach-Add up all the spending on final goods and services produced in a given year.

2. Income Approach-Add up all the income that resulted from selling all final goods and services produced in a given year.

Both ways generate the same amount since every dollar spent is a dollar of income.

Income approach

RESOURCE SUPPLIED	INCOME RECEIVED
Labor	Wages
Land	Rent
Capital	Interest
Entrepreneurial Talent	Profits

Composition of GDP

Expenditures Approach

Four components of GDP:

1. **Consumer Spending**
   - **Ex: $5 Little Caesar's Pizza(exclude new house)**
2. **Investments -When businesses put money back into their own business. Inventory**
   - **Ex: Machinery or tools(include new house)**
3. **Government Spending**
   - **Ex: Tanks, roads, NOT transfer payment**
4. **Net Exports -Exports (*X*) – Imports (*M*)**
   - **Ex: Ford Focuses VS Hondas**

$$GDP = C + I + G + X_n$$

Included or not Included in US GDP?

For each situation, identify if it is included in GDP the identify the category C, I, G, or X_n

1. $10.00 for movie tickets
2. $5M Increase in defense expenditures
3. $45 for used economics textbook
4. Ford makes new $2M factory
5. $20K Toyota made in Mexico
6. $10K Profit from selling stocks
7. $15K car made in US, sold in Canada
8. $10K Tuition to attend college
9. $120 Social Security payment to Bob
10. Farmer purchases new $100K tractor

Included or not Included in GDP?

GDP=$7,125,010

1. $10.00 for movie tickets
2. $5M Increase in defense expenditures

X $45 for used economics textbook

4. Ford makes new $2M factory

X $20K Toyota made in Mexico

X $10K Profit from selling stocks

7. $15K car made in U.S., sold in Canada
8. $10K Tuition to attend college

X $120 Social Security payment to Bob

10. Farmer purchases new $100K tractor

Multiplier

How is Spending "Multiplied"?

- **Assume the Super Bowl comes to town and there is an increase consumer spending of $100 in Ashley's restaurant.**
- **Ashley now has $100 more income.**
- **She saves $50 and spends $50 at Carl's Meat Shop**
- **Carl now has $50 more income**
- **He saves $25 and spends $25 at Dan's fruit stand**
- **Dan now has $25 more income.**

This continues until every penny is spent or saved

Change in GDP = Multiplier X Initial Change in Spending

The Multiplier Effect shows how spending is magnified in the economy.

Disposable Income

- Personal gross income is the income that households receive.
- Disposable personal income is what consumers have left over to spend or save once they have paid out their net taxes.

- DI=Personal income – net taxes

Marginal Propensity to Consume

Marginal Propensity to Consume (MPC)

- How much people consume rather than save when there is an change in Disposable income.
- It is always expressed as a fraction (decimal).

$$MPC = \frac{\text{Change in Consumption}}{\text{Change in Disposable Income}}$$

Examples:

1. If you received $100 DI and spent $50.
2. If you received $100 DI and spent $80.
3. If you received $100 DI and spent $100.

Marginal Propensity to Save

Marginal Propensity to Save (MPS)

- **How much people save rather than consume when there is an change in disposable income.**
- **It is also always expressed as a fraction (decimal)**

$$MPS = \frac{\text{Change in Saving}}{\text{Change in Disposable Income}}$$

Examples:

1. **If you received $100 DI and save $50.**
2. **If you received $100 DI your MPC is .7 what is your MPS?**

MPC+MPS = 1

Why is this true?

Because people can either save or consume

Calculating the Spending Multiplier

If the MPC is .5 how much is the multiplier?

$$\text{Simple Multiplier} = \frac{1}{\text{MPS}} \text{ or } \frac{1}{1 - \text{MPC}}$$

- **If the multiplier is 4, how much will an initial increase of $5 in Government spending increase the GDP?**
- **How much will a decrease of $3 in spending decrease GDP?**

$$\text{Change in GDP} = \text{Multiplier} \times \text{initial change in spending}$$

The Multiplier Effect

Let's practice calculating the spending multiplier

$$\text{Simple Multiplier} = \frac{1}{\text{MPS}} \textit{ or } \frac{1}{1 - \text{MPC}}$$

1. If MPC is .9, what is multiplier?
2. If MPC is .8, what is multiplier?
3. If MPC is .5, and consumption increased $2M. How much will GDP increase?
4. If MPC is 0 and investment increases $2M. How much will GDP increase?

Conclusion: As the Marginal Propensity to Consumer falls, the Multiplier Effect is less

Trap in calculating MPC

The consumption and saving schedules

DISPOSABLE INCOME (DI)	CONSUMPTION (C)	SAVINGS (S)
0	40	–40
100	120	–20
200	200	0
300	280	20
400	360	40
500	440	60

C = 40 + .8*(DI) MPC=0.8

S = –40 + .2*(DI) MPS=0.2

Loanable-fund market

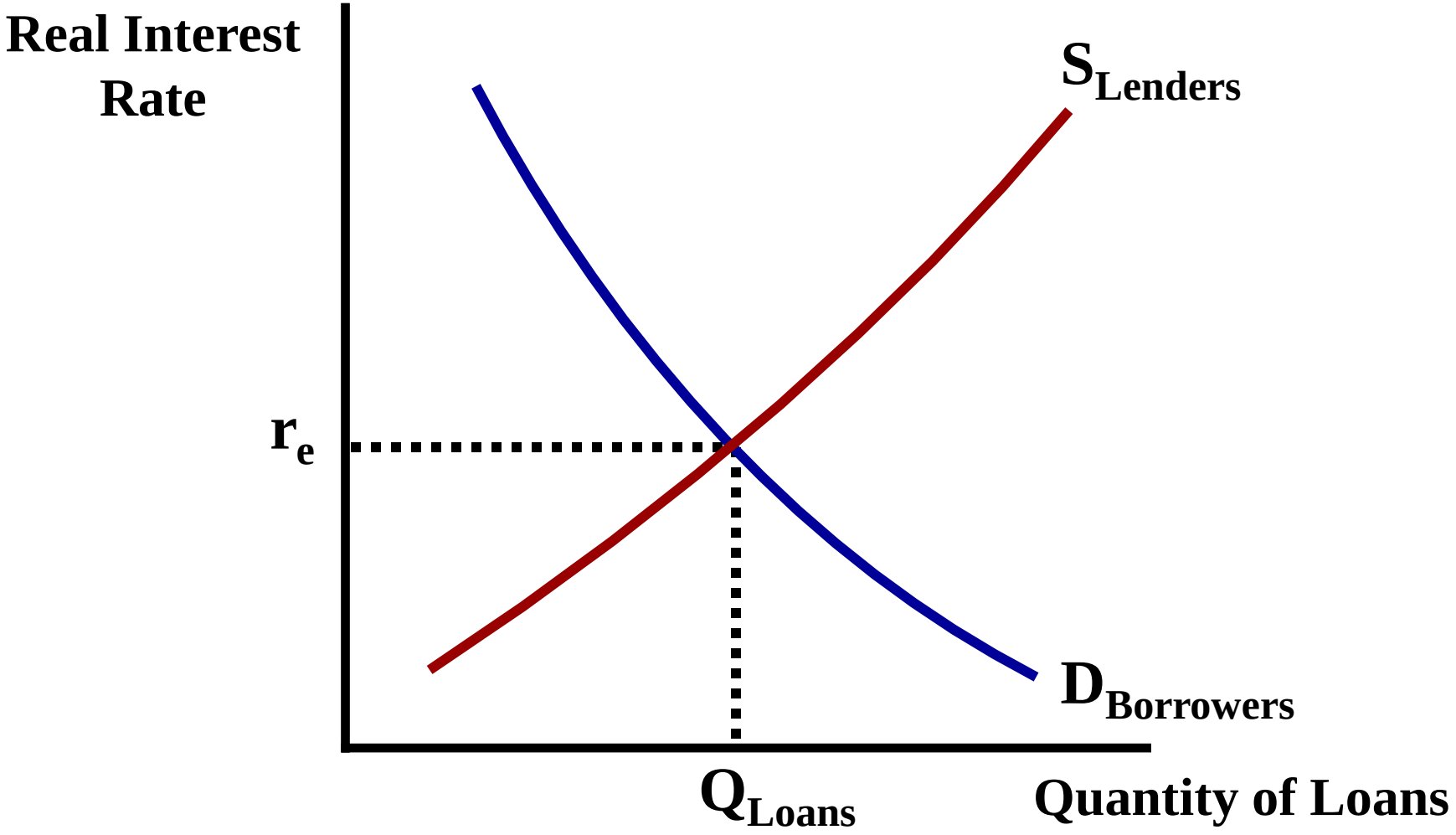
Loanable Funds Market

The loanable funds market is the supply and demand of loans.

- **This market shows the effect on the REAL INTEREST RATE**
- **Demand – Inverse relationship between real interest rate and quantity of loans demanded**
- The demand for loanable funds comes from investment, and borrowing.
- **Supply – Direct relationship between real interest rate and quantity of loans supplied**
- The supply of loanable funds comes from saving on the part of households, both domestic and foreign.

Loanable Funds Market

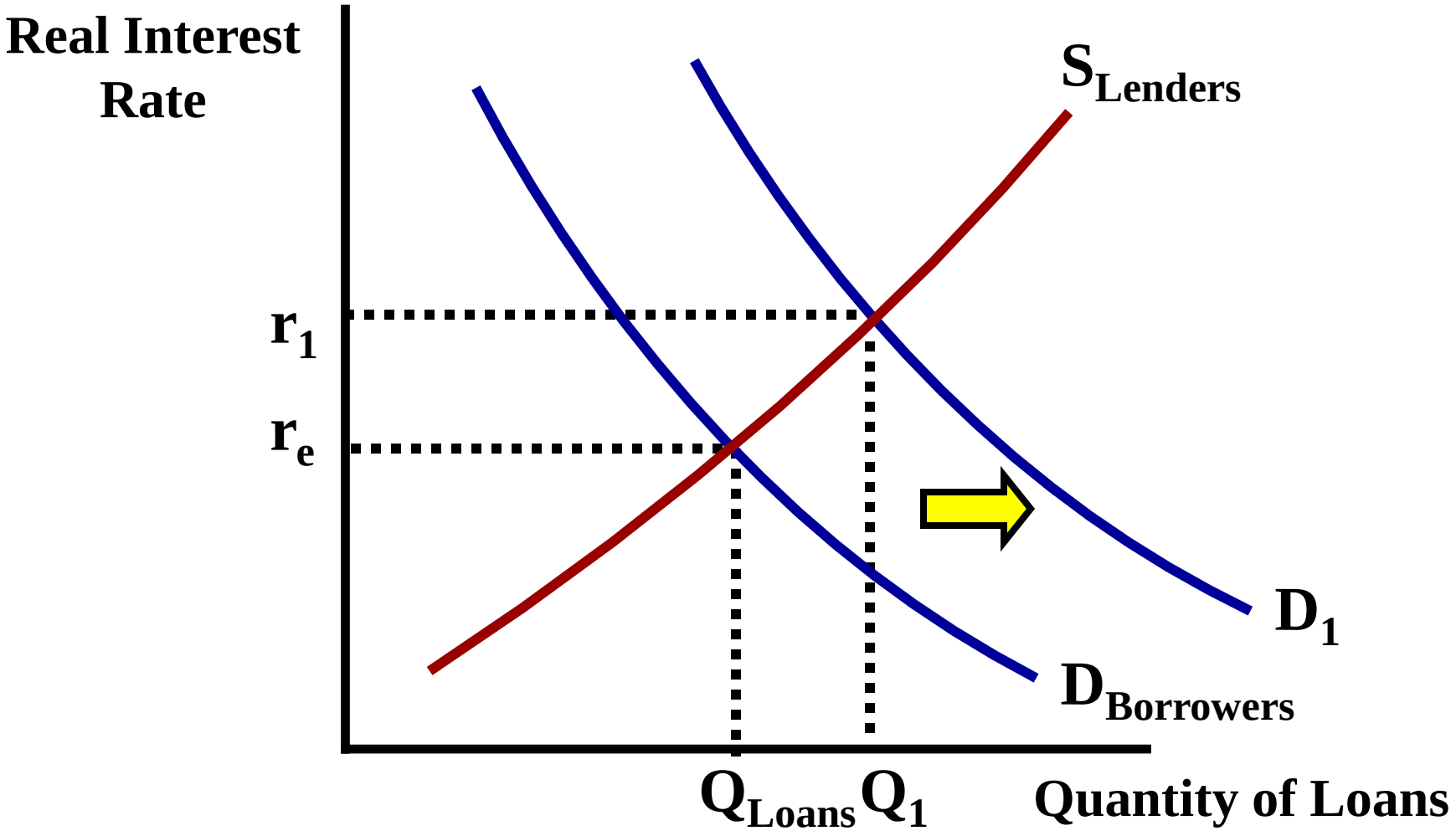
At the equilibrium real interest rate, the amount borrowers want to borrow equals the amount lenders want to lend.



Loanable Funds Market

Example:

Government borrows from private sector …
Increasing the demand for loans



Loanable Funds Market

Demand Shifters	Supply Shifters
1. Changes in perceived business opportunities (business confidence) 2. Changes in government borrowing	1. Changes in private savings behavior 2. Changes in public savings 政府储蓄