Aggregate Demand: Consumption & Investment

Prof. Ed Cho

Outline: Unit V, Section SF1

I. Introduction
II. Components of Aggregate Demand
III. Consumption, C
IV. Investment, I
V. Aggregate Demand Slope
VI. Liquidity Market (if time)

I. Intro: Classical Dichotomy

Long-Run: Y = AF(L,K)

- Assume labor and capital are employed at their "natural" or "normal" rates
- Actual GDP = Potential GDP
- Money Neutrality

Short-Run

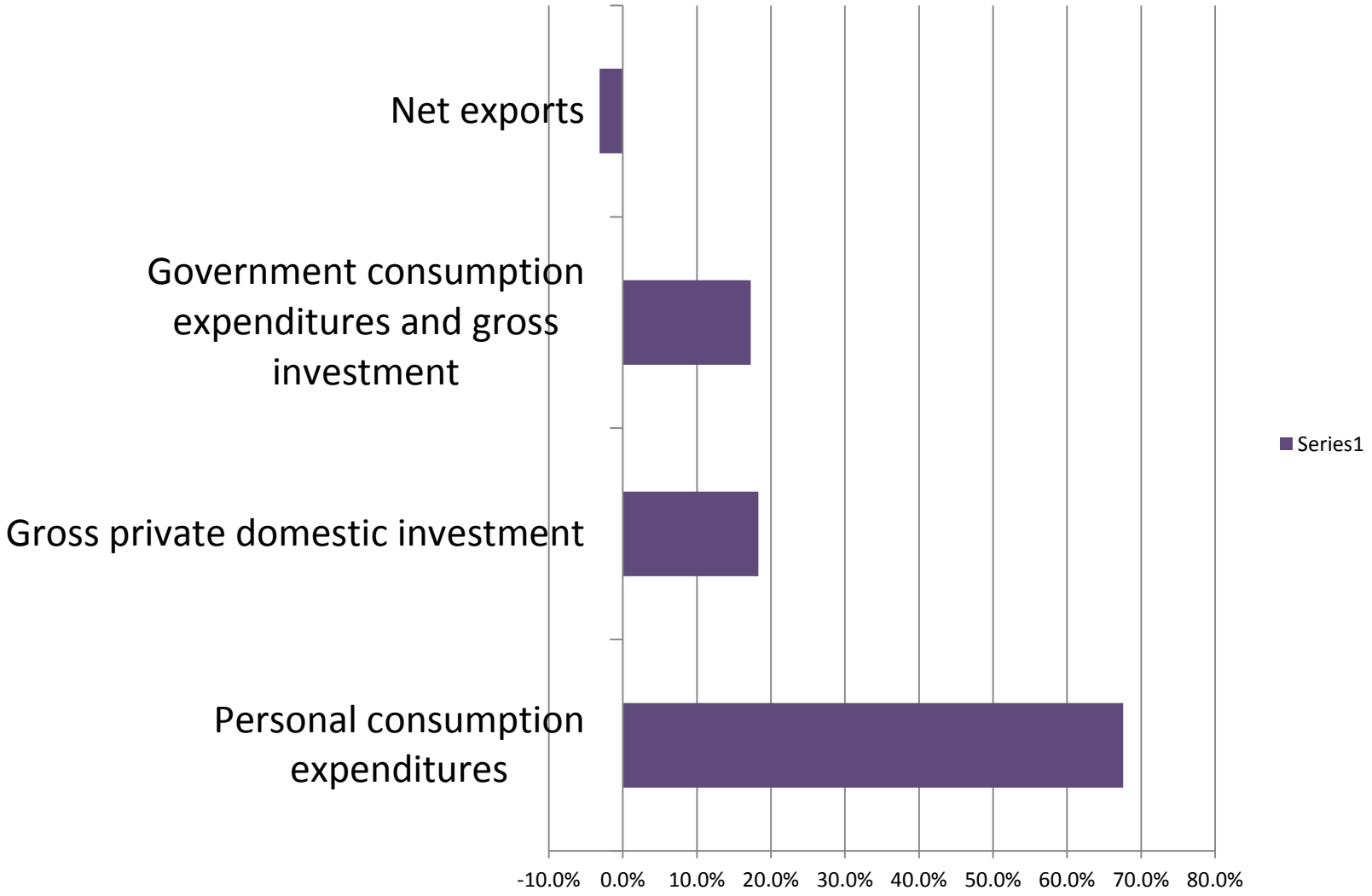
- AD and AS
  - Last large model
- AD = C + I + G + NX
- Deviations from potential GDP
  - Booms and recessions
- Monetary policy has real effects

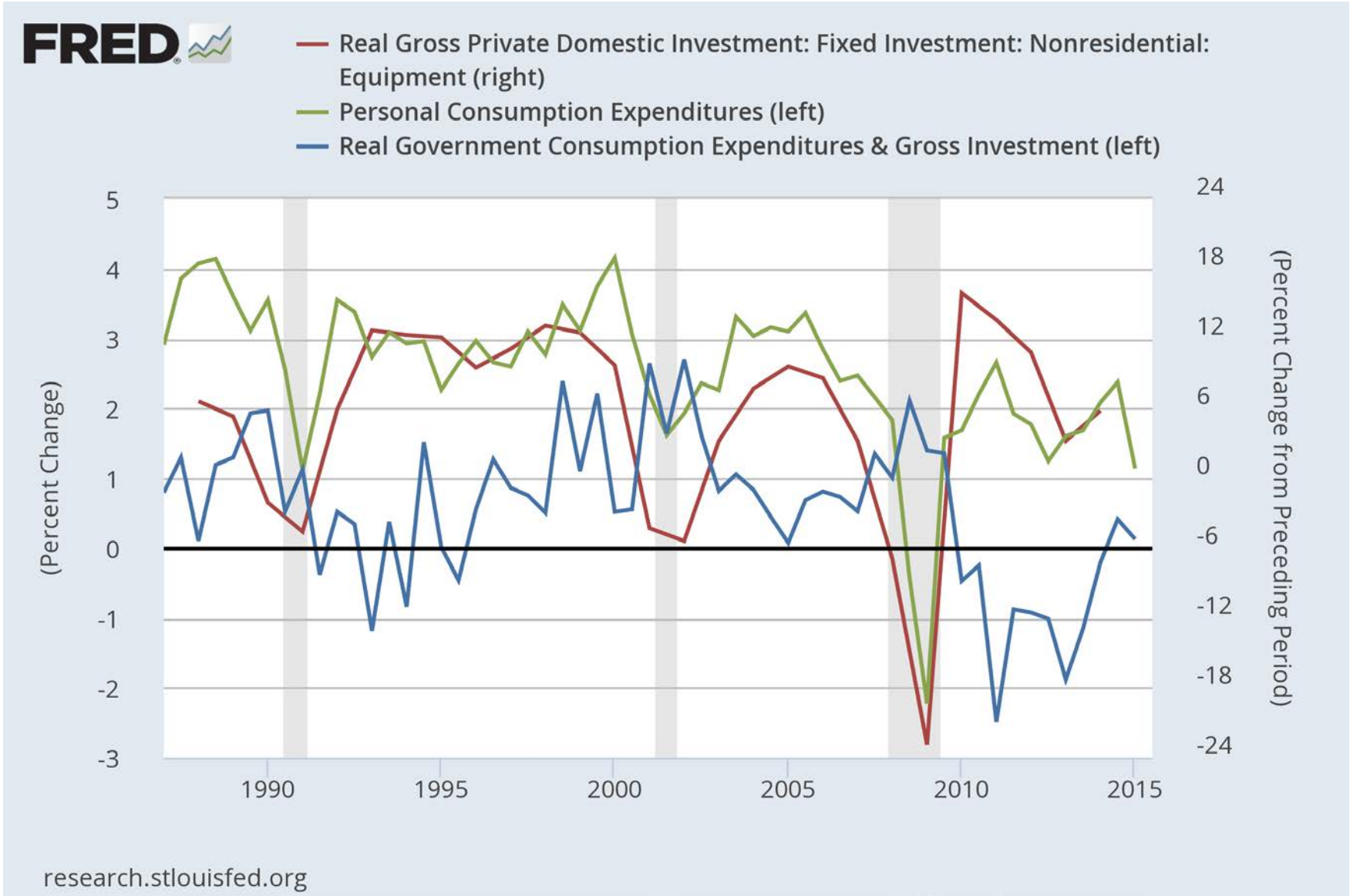
II. Components of Aggregate Demand (AD)

Aggregate Demand Curve = Total amount of domestically produced G&S that households, firms, the government, and customers abroad are willing to buy at each price level, given current economic conditions

$$Y = AD = C + I + G + NX$$

Components of GDP, 2nd Quarter 2015, % of GDP




FRED
Real Gross Private Domestic Investment: Fixed Investment: Nonresidential: Equipment (right)
Personal Consumption Expenditures (left)
Real Government Consumption Expenditures & Gross Investment (left)
(Percent Change)
(Percent Change from Preceding Period)
5
4
3
2
1
0
-1
-2
-3
24
18
12
6
0
-6
-12
-18
-24
1990
1995
2000
2005
2010
2015
research.stlouisfed.org

III. Consumption

$$C = f[(Y - T), (Y - T)^e, W, r, \ldots]$$

$(Y - T) = Y_D$ = Disposable income

$(Y - T)^e = Y_D{}^e$ = Expected future disposable income

W = Wealth

r = Real interest rate

Disposable Income

"…fundamental psychological law,… If income increases by $1, consumption increases, but by less than $1." John M. Keynes

$MPC = \frac{\Delta C}{\Delta Y_D}$ = Marginal Propensity to Consume

- 0<MPC<1, e.g. MPC = 0.90

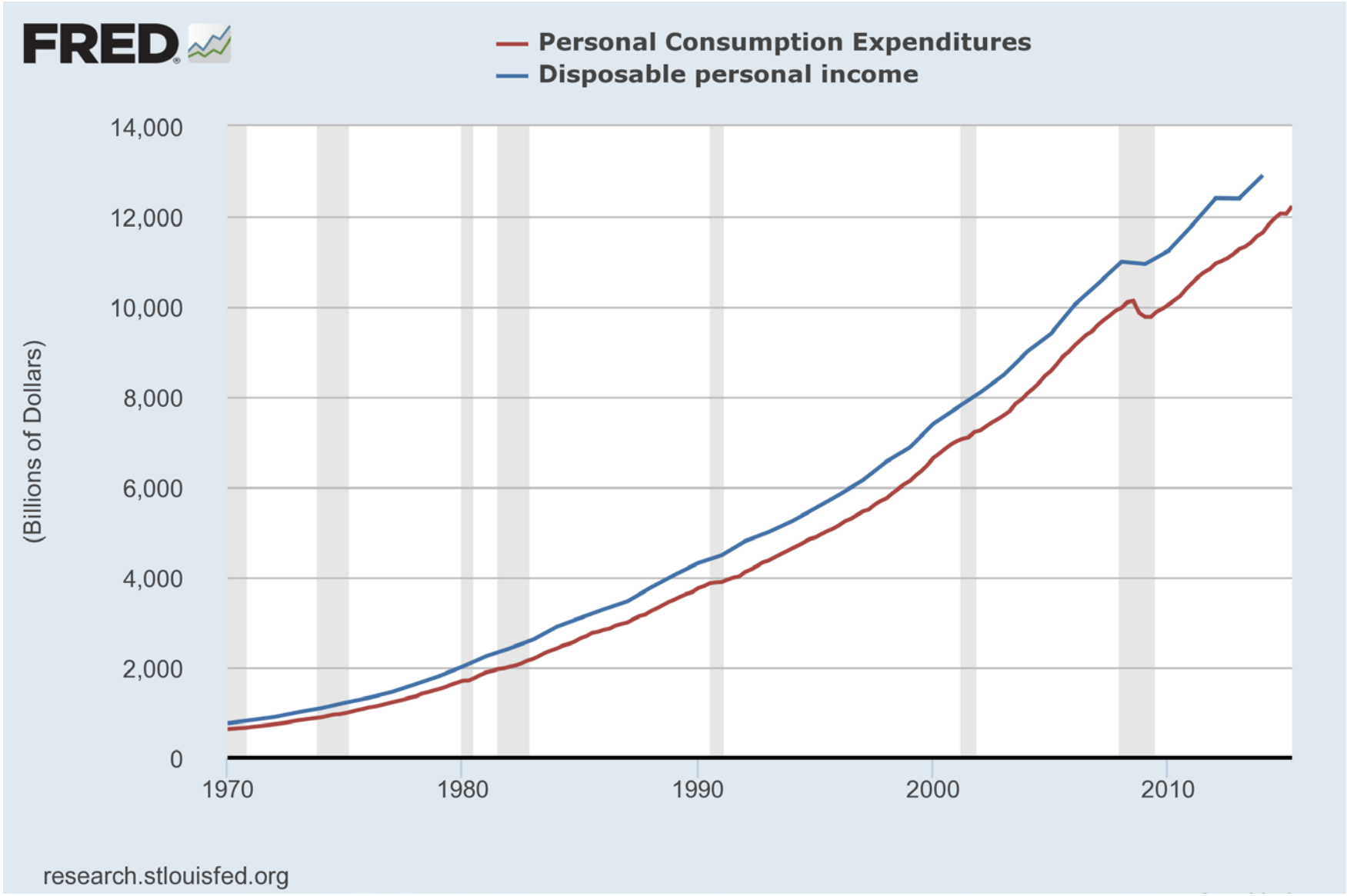
Slight modification: Income => Disposable income

$$Y - C - T = S^{PR}$$

$$Y - T = C + S^{PR}$$

$$Y_D = C + S^{PR}$$

C and Y_D, total values



Other Variables

- Wealth
  - If W ↑ => C ↑
    - Wealth effect
  - E.g. bank accounts, house value, stocks and bonds
- Real interest rates, r
  - If r ↓=> Cost of borrowing ↓ => Durable goods purchases ↑
  - If r ↓ => Refinance loans at lower r => Mortgage payments ↓ => disposable income ↑ => C ↑

IV. Investment

Recall:

- I = ΔK => GDP/cap increases
- I fluctuates a lot during business cycles
  - Procyclical: If economic boom => I increases
- I components
  - Residential Investment: Housing
  - (≈75%) Business Fixed Investment: Plant, equipment, buildings, and machinery
  - Inventories: Intermediate goods, finished goods waiting to be sold

Investment

- If r ↓=> Cost of borrowing ↓ =>
  - Households borrow to invest in new housing
  - Firms borrow more to invest in K
  - Inventories are cheaper to hold => Inventories increase
- Other factors that affect investment
  - Y_D ↑ => C ↑=> Firms invest in more capacity => I shifts out
  - Corporate tax rates ↓ => After-tax profits ↑ => I shifts out

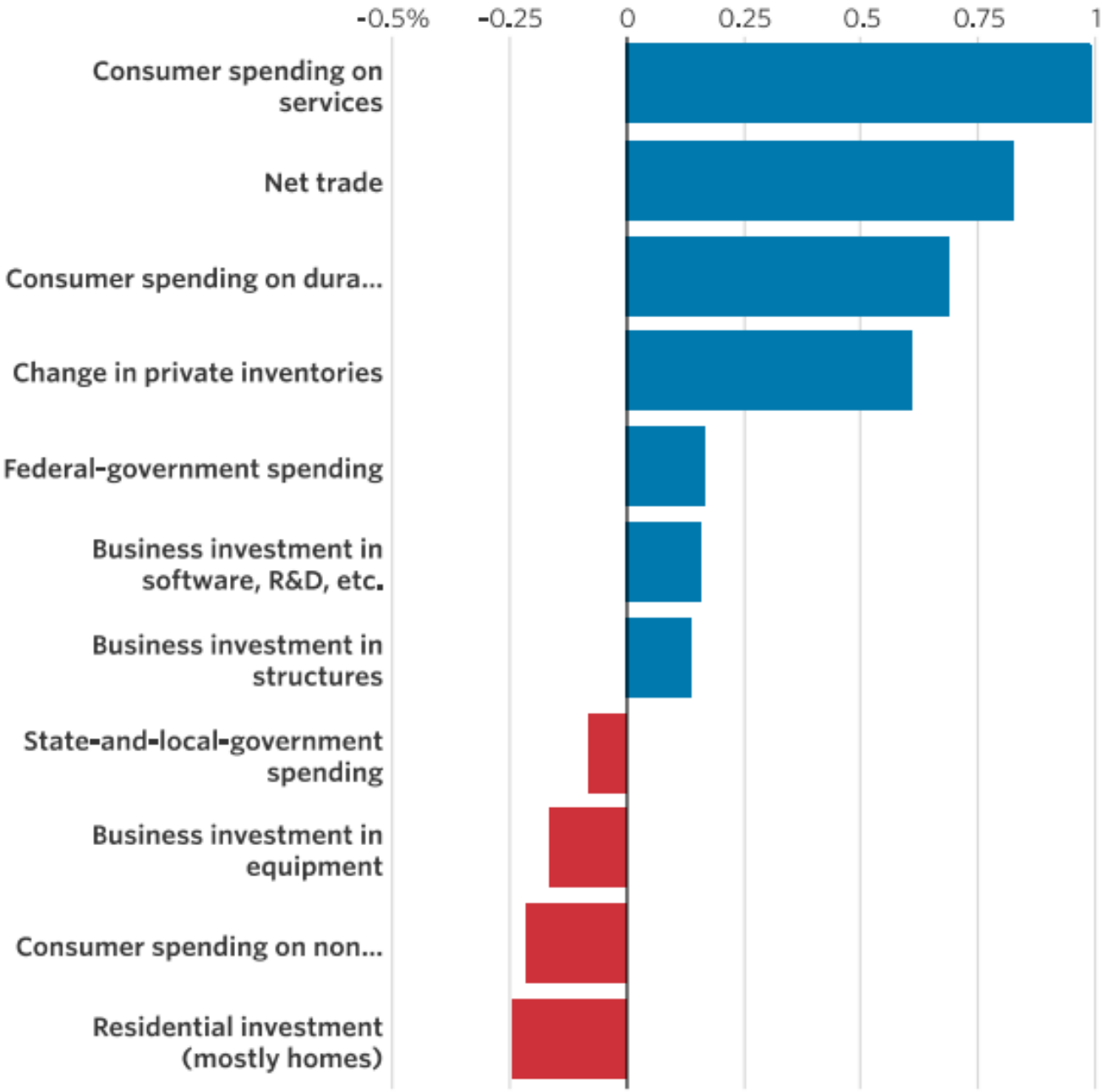
Current Event

- "U.S. Economy Roars Back, Grew 2.9% in Third Quarter," WSJ, 10-30-16

- Aggregate expenditure side

$$Y = C + I + G + NX$$

- Summary
  - High growth in Business Inventories and Exports (soybeans)
  - Slower growth in C, Business Investment, Housing


-0.5%
-0.25
0
0.25
0.5
0.75
1
Consumer spending on services
Net trade
Consumer spending on dura...
Change in private inventories
Federal-government spending
Business investment in software, R&D, etc.
Business investment in structures
State-and-local-government spending
Business investment in equipment
Consumer spending on non...
Residential investment (mostly homes)

V. Aggregate Demand Slope

$$Y = C + I + G + NX$$

AD curve

- Relationship between:
  - P = Price level
  - Y = Quantity of (real) output demanded, in the economy

- AD curve slope: If P↓=> Y↑

AD curve: Slopes Downward

V. Aggregate Demand Slope

1. P & C:
   a) Wealth Effect: If P↓=> Value of Money (1/P)↑ => Real value of cash ↑ => C ↑
   b) Interest-Rate Effect on C: Future class
2. P & I: Interest-Rate Effect
   – If P↓=> Households hold less cash to buy G&S => S^{PR}↑ => i ↓ (and r ↓) => I ↑
3. P & NX: Exchange Rate Effect
   – If P↓=> Households hold less cash to buy G&S => S^{PR}↑ => i ↓ (and r ↓) => NCO ↑ => E↓ => NX ↑

VI. Liquidity Market

- Liquidity Market = (SR) Money Market
  - Keynes Theory of Liquidity Preference
  - (X,Y) axis labels: (M, i)
- Building Block Model
  - Useful later in AD/AS model
- Focus on how i affects:
  - AE = C + I + G + NX

Money Supply (M^S)

- Assume the Fed controls M^S through FOMC
  - If the Fed wants to increase M^S
    - Buy or Sell T-bills?
- Practically:
  - Fed sets i, not M^S
  - Money supply can be difficult to control
    - E>>0 during 08 financial crisis
      - Firms do not want to expand their businesses (D of LF)
      - Banks do not want to make bad loans (S of LF)

Liquidity Market: Money Supply

Money Demand (M^D)

M^D = The amount of cash or liquidity you want to hold, at every nominal interest rate, i

- Holding liquidity:
  - Ben: Useful for purchasing G&S
  - Cost: i = Opportunity cost of cash
    - What could you have done with the cash in your pocket?

Money Demand (M^D)

- Factors that shift the M^D curve
  - P = Price level
    - If P ↑=> Households hold more cash to buy G&S
  - Y = Real GDP or real income
    - If Y ↑=> Households are richer, and hold more cash to buy G&S
  - **PxY** = Nominal GDP
    - See above

Liquidity Market: Money Demand