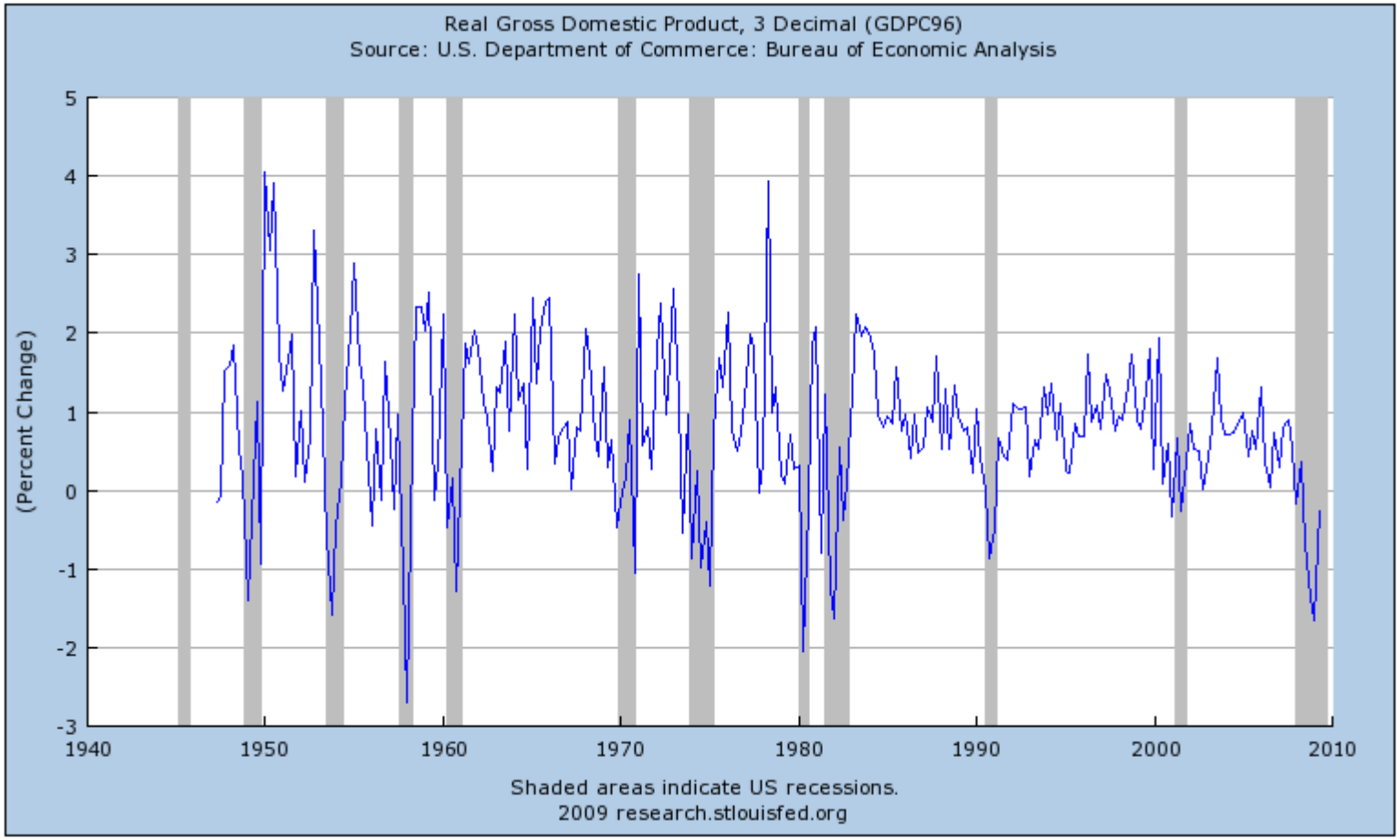
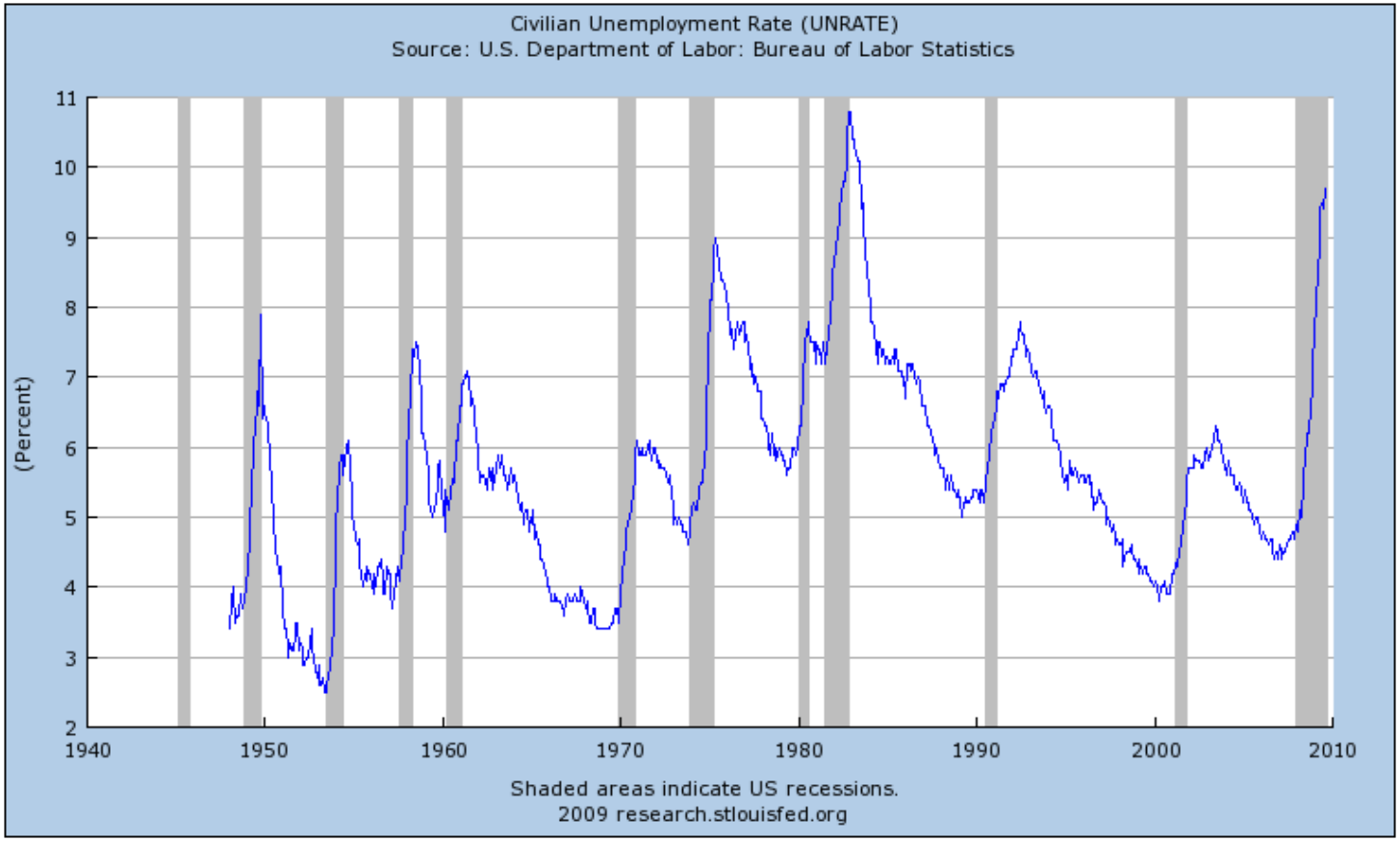
Higher Education and the Business Cycle


Real Gross Domestic Product, 3 Decimal (GDPC96)
Source: U.S. Department of Commerce: Bureau of Economic Analysis
(Percent Change)
5
4
3
2
1
0
-1
-2
-3
1940
1950
1960
1970
1980
1990
2000
2010
Shaded areas indicate US recessions.
2009 research.stlouisfed.org

During Economic Recessions

- Unemployment rises
- Employment (# of employees) falls
- Average workweek falls
- Retail sales decline
- Interest rates fall (usually)
- Inflation rate falls (usually)
- Spending on consumer durables declines
- Construction declines


Civilian Unemployment Rate (UNRATE)
Source: U.S. Department of Labor: Bureau of Labor Statistics
(Percent)
11
10
9
8
7
6
5
4
3
2
1940
1950
1960
1970
1980
1990
2000
2010
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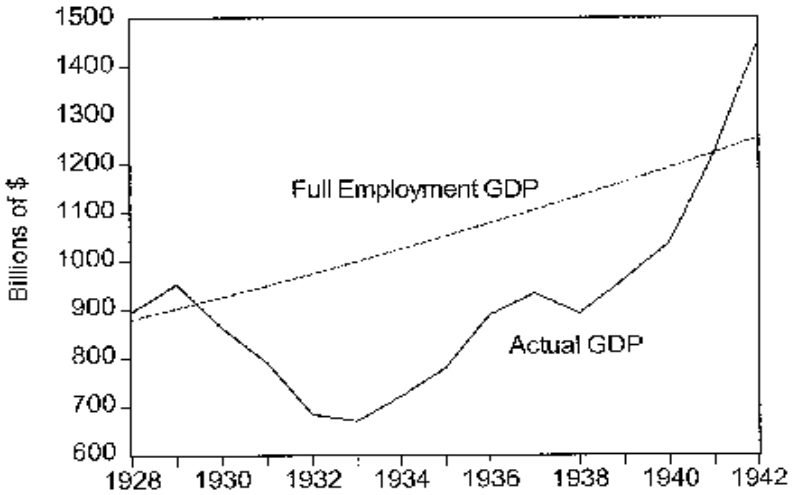
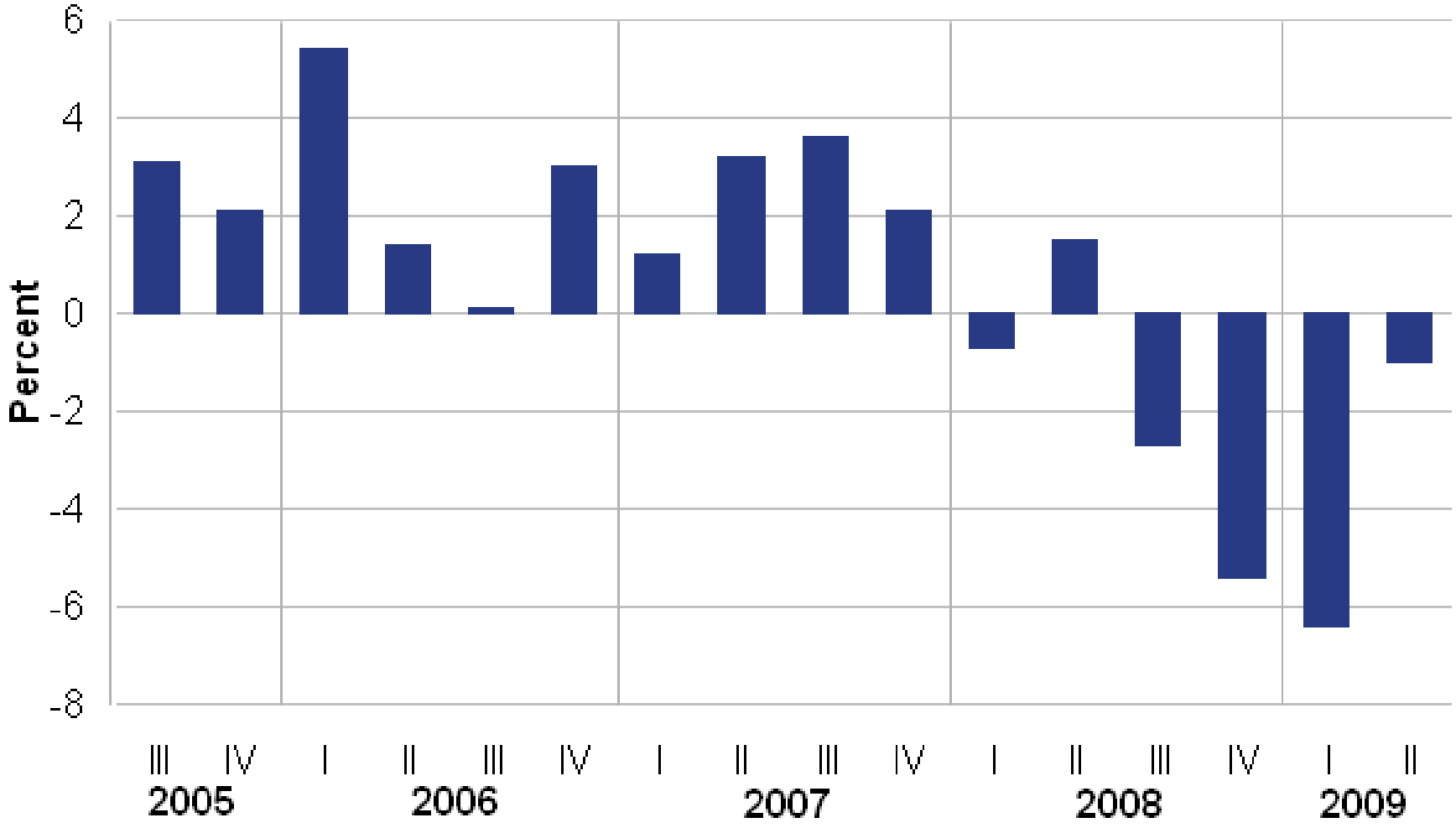

1500
1400
1300
1200
1100
1000
900
800
700
600
Billions of $
Full Employment GDP
Actual GDP
1928
1930
1932
1934
1936
1938
1940
1942

Quarter-to-Quarter Growth in Real GDP



Real GDP growth is measured at seasonally adjusted annual rates.

U.S. Bureau of Economic Analysis

- Business cycle’s major channels of influence on higher education include:

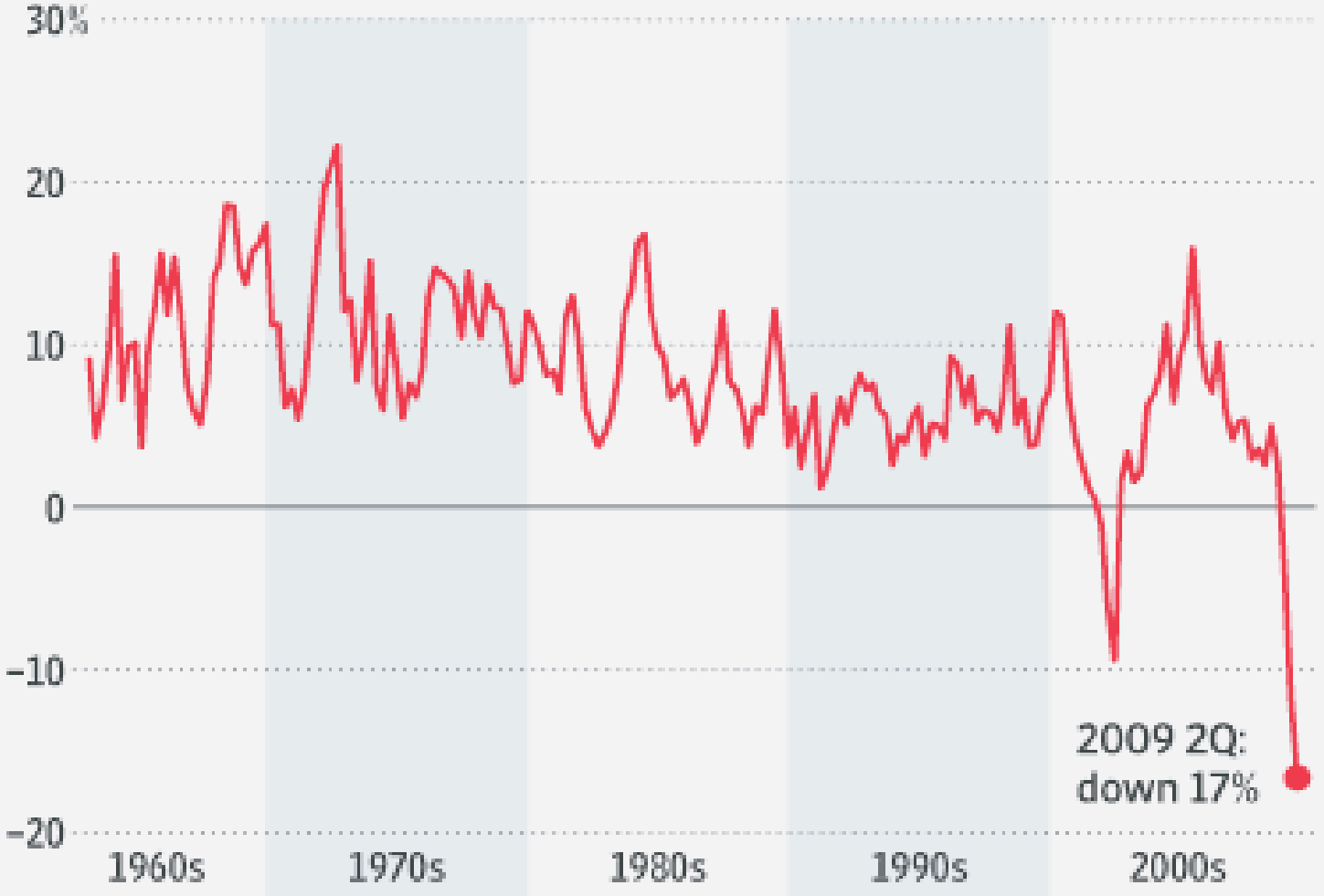
- Impact on State Budgets
- Impact on Household Wealth
- Impact on Demand for Education

- Fact: state budgets have become increasingly tied to the business cycle

- Why? Because state tax revenue has become more sensitive to income

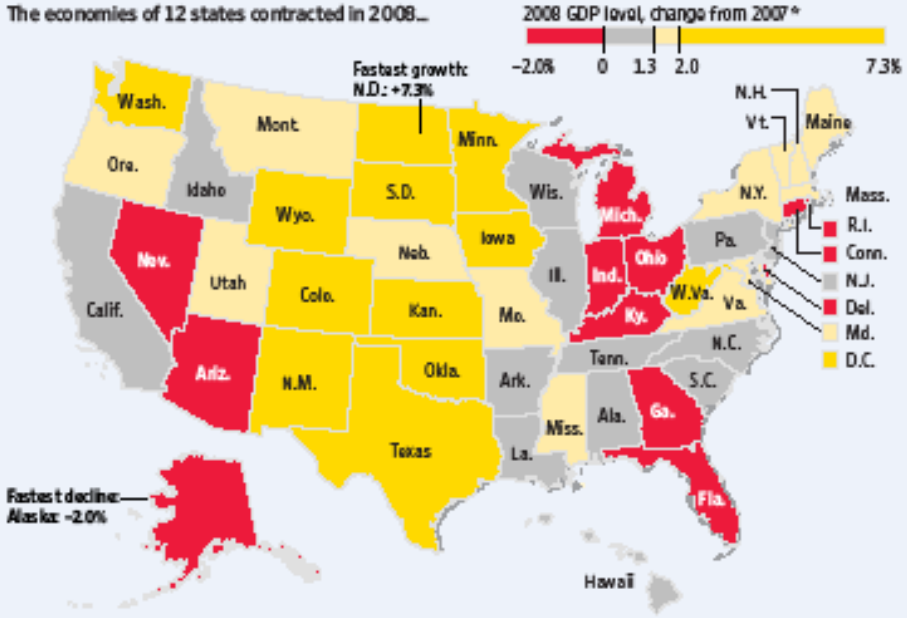
Cash Crunch

Quarterly state tax revenue, change from a year earlier

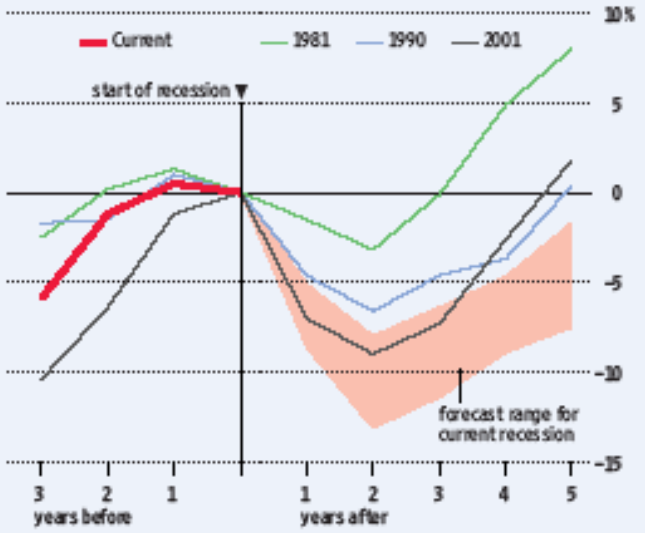


Source: Census Bureau

State of the States | Gross domestic product and tax revenue



*Inflation-adjusted †Adjusted for population growth, inflation and legislative changes



Sources: Commerce Department (GDP); Rockefeller Institute (taxes)

- According to McGranahan & Mattoon at the Federal Reserve Bank of Chicago, from 1980-1997, a 1% change in the state business cycle changed per capita tax revenue by 0.7 %
- From 1998-2008, a 1% change in the state business cycle changed tax revenue by 1.1 %

- Why?
- Increased dependence on personal income taxes, less dependence on business taxes, slow sales tax growth
- Higher marginal tax rates on income in some states
- Increased dependence on capital gains tax revenue

- An example:

- Ohio – top marginal income tax rate
- 1972-1981: 3.5 %
- 2008: 6.555 %
- This pattern is true in a number of states

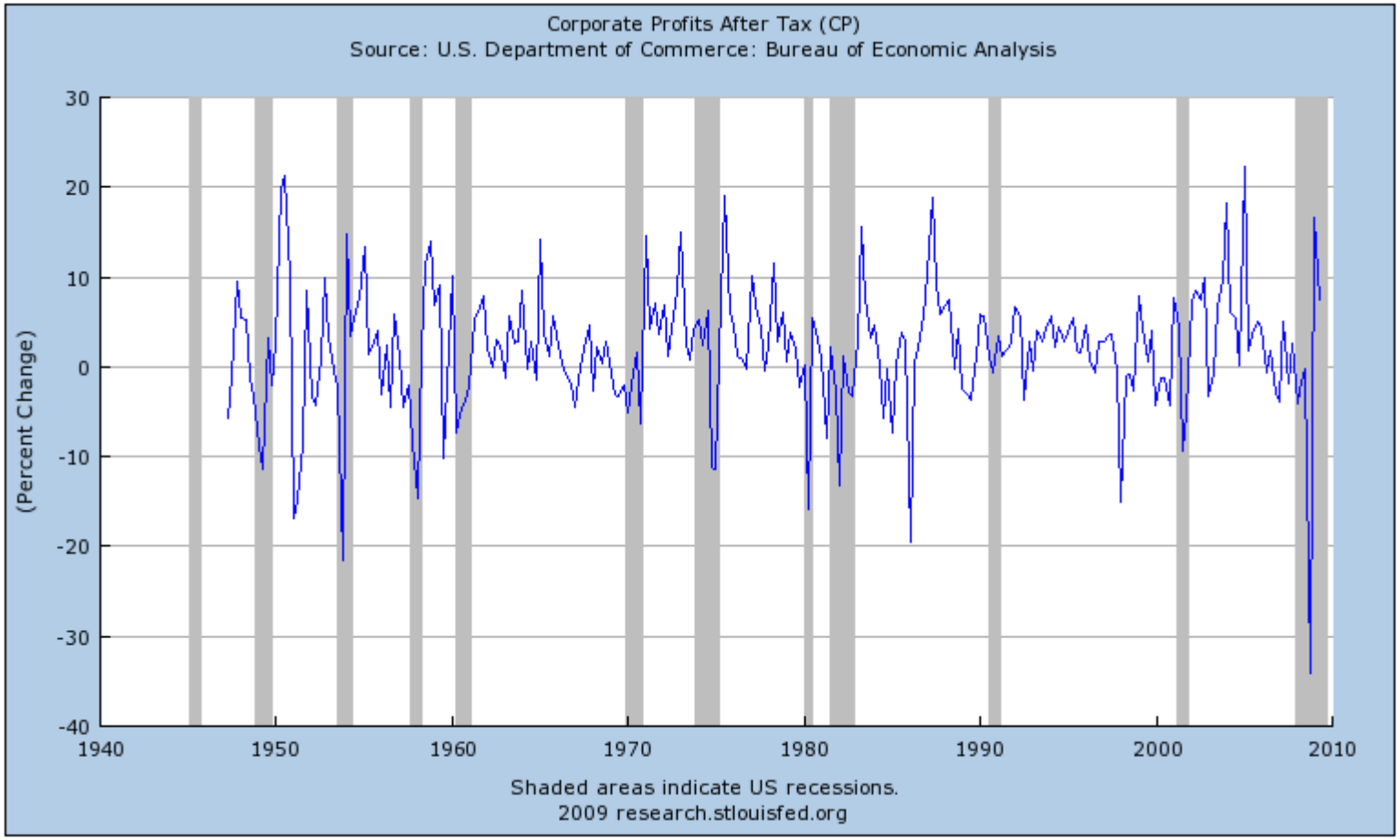
- Ohio tax returns: 1974-2006
- # of Ohio state tax returns filed: 1.4x higher
- Total adjusted federal gross income: 7.5x higher
- Average Ohio household income tax liability: 14.36x higher

- California:
- Top marginal rate has stayed about the same over the past few decades, but a small number of very large earners in the state has led to a tax system where the top 1% of taxpayers (144,000 filers) account for about 50% of state's total tax revenue

- Going after the big fish means increased reliance on capital gains tax revenue
- In 2002, 75 % of capital gains were collected from taxpayers with $200,000 or more federal AGI
- 1999 California: 26.3 % of personal income tax revenue was from capital gains
- Revenue from this source is critically dependent on performance of the stock market and real estate values

- Stock market matters to higher education because of:
- Tax revenue to state government via capital gains tax
- Value of colleges' endowments
- Value of family college savings accounts
- Household wealth which influences the demand for higher education

- Stock prices are a procyclical leading economic indicator that depend on many factors including:
- Corporate profits
- Investors’ attitudes toward risk
- Interest rates


Corporate Profits After Tax (CP)
Source: U.S. Department of Commerce: Bureau of Economic Analysis
(Percent Change)
30
20
10
0
-10
-20
-30
-40
1940
1950
1960
1970
1980
1990
2000
2010
Shaded areas indicate US recessions.
2009 research.stlouisfed.org

- 1995 and 1997 rank among the five best one-year performances (% change) of the S&P 500
- 2002 and 2008 rank among the five worst one-year performances (% change) of the S&P 500
- i.e., by some measures the stock market has been more volatile in recent years – two major stock market crashes in the last 10 years

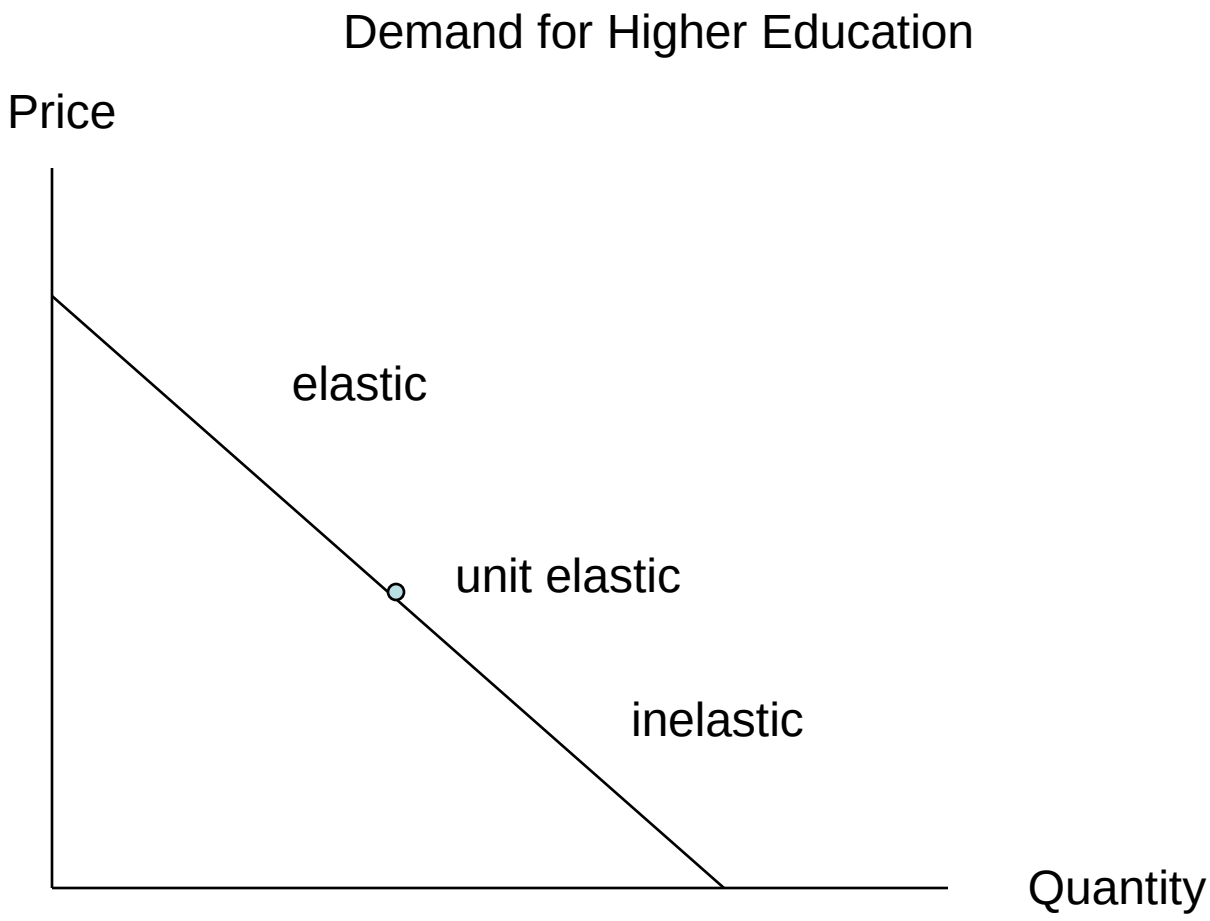
Why?

- Attitudes toward risk?
- More short-term traders?
- Increased numbers of stockholders?

- Demand for higher education depends on income and wealth
- Increased prosperity and the “return to education” have stimulated the demand for higher education
- However, as education has become more expensive, economic theory predicts that the rising real price causes demand to fall (all else being equal)

- With respect to the sensitivity of the demand for higher education to changes in prices:
- Higher prices have caused an increased number of substitutes (online and box colleges)

- Economic theory predicts that the sensitivity of demand to price rises as
- The price rises relative to income
- the number of substitutes increases
- time passes


Demand for Higher Education
Price
elastic
unit elastic
inelastic
Quantity

P	Q	Spending (PxQ)
1	9	9
2	8	16
3	7	21
4	6	24
5	5	25 (max revenue)
6	4	24
7	3	21
8	2	16
9	1	9

- In the elastic range, a 10 % increase in price causes quantity demanded to fall by MORE than 10 percent which means total spending on the product FALLS.

Conclusions

- The business cycle matters a great deal to higher education
- The “great moderation” might be over
- Stock prices have exhibited increased volatility in recent years
- Rapid tuition increases have made the demand for higher education more sensitive to prices

- If you haven’t already done so, fasten your seat belts for what could be a long, wild ride

- If want a copy of this presentation, send an e-mail to me at:
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