Growth in the US: A Macro and Global Perspective

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Columbia Business School Executive Education Program
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US Economic Recovery

**Summer’s Outlook Cools Off**

Economists have become more pessimistic about second-quarter growth...

Expected quarterly change at an annual rate in second-quarter GDP; adjusted for inflation

3%

...as sales at retailers and restaurants faltered in June...

Monthly change, retail and food-services sales excluding motor vehicles and parts and gasoline

2%

...and trade data reflect a global slump...

Change from a year earlier in the value of trade in goods and services, three-month moving averages

20%

...even as the pace of private-industry job growth remains steady.

Monthly gain in private-industry jobs, in thousands

300

Note: Data are seasonally adjusted. Sources: Commerce Department (retail sales, trade); WSJ July survey of economists (forecasts); Labor Department (jobs)

The Wall Street Journal
US Economic Recovery

- **2008**
- **2010**
- **2012**
- **2014**
- **2016**
- **2018**
- **2020**

**JOB GAP (MILLIONS)**

- **208K JOBS PER MONTH**
- **321K JOBS PER MONTH**
- **472K JOBS PER MONTH**

**TRY YOUR OWN NUMBER**

What if we added blank thousand
Exacerbated by European Debt Crisis

Monthly Unemployment Rates in Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>June 2011</th>
<th>June 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>3.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4.1%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>6.0%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>4.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Malta</td>
<td>6.7%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Belgium</td>
<td>7.1%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Finland</td>
<td>7.8%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Slovenia</td>
<td>8.0%</td>
<td>8.2%</td>
</tr>
<tr>
<td>France</td>
<td>9.6%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Cyprus</td>
<td>7.6%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Italy</td>
<td>8.1%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Estonia</td>
<td>13.6%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Euro area</td>
<td>10.0%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Slovakia</td>
<td>13.5%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Ireland</td>
<td>14.4%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Portugal</td>
<td>12.6%</td>
<td>15.4%</td>
</tr>
<tr>
<td>Greece</td>
<td>16.2%</td>
<td>22.5%</td>
</tr>
<tr>
<td>Spain</td>
<td>21.2%</td>
<td>24.8%</td>
</tr>
</tbody>
</table>

In many of the euro-zone’s ‘periphery’ economies—Greece, Ireland, Italy, Spain and Portugal—the debt crisis and the resulting austerity measures continue to push up already high unemployment rates.

Note: Estonia’s rates are as of March of each year and Greece’s are as of April. Source: Eurostat
Prospect of China Slowdown

Weaker Prospects

China’s employers are growing less optimistic. Percentage of firms anticipating adding workers minus the percentage planning cuts.

Note: Survey for the third quarter of 2013 conducted among 4,241 employers in China
Source: Manpower Group

The Wall Street Journal
Monetary Policy Interventions

All Federal Reserve Banks - Total Assets, Eliminations from Consolidation (WALCL)
Source: Board of Governors of the Federal Reserve System

Shaded areas indicate US recessions.
2013 research.stlouisfed.org
Fiscal Policy Interventions

Federal Debt: Total Public Debt as Percent of Gross Domestic Product (GFDEGDQ188S)
Source: Federal Reserve Bank of St. Louis, The White House: Office of Management and Budget

Shaded areas indicate US recessions.
2013 research.stlouisfed.org
1. Long Run Economic Growth

2. Recessions and Recoveries

3. Monetary and Fiscal Policy Interventions

4. Fiscal Policy Case
US Economic Growth in Perspective

Sources: Johnston and Williamson (2003), UN database, purchasing power parity (PPP) exchange rates
World Growth in Perspective

FIGURE 3.1 Economic Growth over the Very Long Run in Six Countries

Source: Jones (2011)
GDP: A Supply-Demand View

SUPPLY
- Innovation and Technology
- Capital
- Labor

PRODUCTION OF GOODS AND SERVICES

DEMAND
- Consumption
- Investment
- Government Expenditure
- Net Exports
Growth in Long Run is Driven by Supply

- Drivers of long run growth: Supply
  - Technological progress
  - Investment in capital stock
  - Increases in labor force participation

- Sustained growth cannot be driven by demand
  - e.g., consumption merely reflects the increase in income

- Policy may or may not affect long run growth
  - Monetary policy is neutral
  - Fiscal policy is not
Factor #1: Technological Progress (Most Important)

Source: http://classes.dma.ucla.edu/Winter09/9-1/blog/b
FIGURE 3.
Cost of Computing Power Equal to an iPad 2

Note: The iPad2 has computing power equal to 1600 million instructions per second (MIPS). Each data point represents the cost of 1600 MIPS of computing power based on the power and price of a specific computing device released that year.
Source: Moravec n.d.
Diffusion Improves Efficiency

FIGURE 5.
Labor Productivity Growth

basic necessities (Hausman and Leibtag 2005).

Index of Productivity (1987=1)

1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

Total Nonfarm Business
Warehouse Clubs and Supercenters
Electronic Shopping and Mail-Order Houses

Note: Warehouse clubs and supercenters are defined as stores retailing a general line of groceries in combination with general lines of other products.
Source: BLS.
Factor #2: Capital Accumulation

Exhibit E.2

Capital stock per capita in China and India is very low compared with that of developed countries.

Capital stock vs. GDP per capita by country and year, 1980–2008
$ thousand, sample of selected countries, constant 2005 prices and exchange rates

1 Stock of net fixed assets at the end of the year, assuming 5 percent depreciation rate for all the assets.

SOURCE: McKinsey Insights China; McKinsey Global Economic Growth Database; McKinsey Global Institute
Countries that Invest More are Richer

Income per person v. Investment 2010

Source: PWT 7.1 as of Jan 2013
Higher Return to Investment in Poorer Countries

Investment and Consumption in China

Source: CEIC. Jan 2013
So Poorer Countries Can Grow Faster than Richer Ones

GDP per capita relative to US

Sources: Penn World Tables 7.1; Maddison Data (2008)
Poorer Regions Also Grow Faster within Countries

Figure 1. Convergence of Personal Income across U.S. States: 1880 Income and Income Growth from 1880 to 1988

Annual growth rate, 1880–1988 (percent)

Sources: Bureau of Economic Analysis (1984), Easterlin (1960a, 1960b), and Survey of Current Business, various issues. The postal abbreviation for each state is used to plot the figure. Oklahoma, Alaska, and Hawaii are excluded from the analysis.
Factor #3: Labor Force Participation

Labor Force Participation Rate in the US

Source: Bureau of Labor Statistics
Reduction Reflects Changing Demographics

Expected increase in proportion of eightysomethings

<table>
<thead>
<tr>
<th>Country</th>
<th>2013</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3.8%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Canada</td>
<td>4.1%</td>
<td>9.7%</td>
</tr>
<tr>
<td>France</td>
<td>5.8%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Germany</td>
<td>5.4%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Italy</td>
<td>6.3%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>7.3%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4.2%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5.2%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>5.0%</td>
<td>9.8%</td>
</tr>
<tr>
<td>UK</td>
<td>4.8%</td>
<td>9.5%</td>
</tr>
<tr>
<td>US</td>
<td>3.7%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

Sources: Credit Suisse, The Economist
Differences Across Countries Reflect Regulation, Taxation, Culture

Source: Vincent and Yared (2013)
1. Long Run Economic Growth

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3. Monetary and Fiscal Policy Interventions

4. Fiscal Policy Case
Growth and Business Cycles

Recession 60
Recession 74-75
Recession 80
Recession 90-91
Recession 2001
The Great Recession 2007-2009

Source: Bureau of Economic Analysis
Real GDP Growth
(U.S. quarterly)

Source: Bureau of Economic Analysis
GDP: A Supply-Demand View

Supply:
- Innovation and Technology
- Capital
- Labor

Demand:
- Consumption
- Investment
- Government Expenditure
- Net Exports

Production of Goods and Services

Supply and Demand Interaction
Fluctuations are Driven Primarily by Demand

• Drivers of **short run** fluctuations: Demand
  • Household consumption
  • Business investment and residential construction
  • Government spending
  • Export demand (important in emerging economies)

• Supply accommodates demand with employment adjustment
  • Eventually labor market adjusts back to fundamental

• Monetary and fiscal policy can affect demand
How Employment Accommodates Demand: GDP Growth and Changes in Unemployment

Source: Bureau of Labor Statistics
Unemployment Rate Fluctuates around Natural Rate

Source: Bureau of Labor Statistics
Economy Eventually Adjusts back to Fundamental Trough Peak
Consumer Sentiments Can Push Demand
Financial Stress Can Stifle Consumption and Investment

Kansas City Financial Stress Index (KCFSI)
Source: Federal Reserve Bank of Kansas City

Shaded areas indicate US recessions.
2013 research.stlouisfed.org
Exchange Rate Fluctuations Impact Net Exports

*From boom to bust*
Argentina’s GDP, % change on a year earlier

Sources: IMF; J.P. Morgan

- 1991
- 1994
- 1996
- 1998
- 2000
- 2002

Tequila Crisis
Brazil Devaluation
Today

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Monetary Policy: Baby-Sitting Coop Example

• 150 couples exchanging baby-sitting services via coupons

• Shortage of coupons leads to problems
  • Demand shock in the form of financial stress
  • People aware of coupon shortage are reluctant to use them
  • Fall in “GBP” (Gross Baby-sitting Product)
  • Baby-sitting coop fell into recession!

• Baby-sitting price naturally declines to new level
  • Money shortage is eventually neutral and has no effect
  • Is there any way to prevent deflation?
Solution: Print More Coupons
Monetary Policy Transmission Mechanism

Central Bank

FFR, Short Term Rates

Long Term Treasury Rates

Mortgage rates

Corporate and Consumer Rates

Households and Businesses

Consumption and Investment
The Crisis: A Broken Transmission

Central Bank

Consumption and Investment

Households and Businesses

Mortgage rates

Corporate and Consumer Rates

Long Term Treasury Rates

FFR, Short Term Rates

The Crisis: A Broken Transmission

Consumption and Investment -> Households and Businesses

Mortgage rates -> Corporate and Consumer Rates

Corporate and Consumer Rates -> Long Term Treasury Rates

FFR, Short Term Rates -> Central Bank

The picture shows a car accident with a red car colliding with a traffic light, symbolizing the crisis and the broken transmission.
Unconventional Monetary Policy

Central Bank

- Mortgage rates
- Corporate and Consumer Rates
- Consumption and Investment
- Households and Businesses

FFR, Short Term Rates
Long Term Treasury Rates
Quantitative Easing

The Fed's Balance Sheet ($ billions)

- **QE1**
- **QE2**
- **QE3**
Expected Inflation Yield Curve

Principles for Optimal Monetary Policy

- **Goal:** Keep inflation stable and unemployment near fundamental

- **Technique:** Expand if there is slack. Contract if over-heated
  - Slack without expansion leads to high unemployment, low inflation
  - Over-heating without contraction to low unemployment, high inflation

- **Challenges:**
  - Determining how much slack or over-heating there is can be difficult
  - Policies take time to become effectual
  - Requires a lot of central bank credibility. Otherwise too much inflation
American Recovery and Reinvestment Act of 2009

- $288 B * Tax Relief
- $111 B Infrastructure and Science
- $144 B * State and Local Fiscal Relief
- $59 B Health Care
- $81 B Protecting the Vulnerable
- $43 B Energy
- $53 B Education and Training
- $8 B Other

Another Tool: Fiscal Policy
The Fiscal Consequences of the Recession: Public Debt

In percent of GDP

1. Includes cumulated deficit for 2008-12, debt-increasing equity participations in companies and the impact of GDP growth.
2. Cumulated deficits correspond to mainland only.

Source: OECD Economic Outlook 88 database.
Fiscal Policy Has Short and Long Run Consequences

• Fiscal stimulus raises **short run** GDP by impacting demand
  • Reduction in taxes boosts consumption and investment
  • Increase in spending boosts government employment
  • **Fiscal multiplier:** $ increase in GDP from $1 increase in govt spending

• Fiscal policy expansion affects **long run** GDP by changing supply
  • **Crowding out effect:** Higher interest rates discourage private investment
  • Expectation of higher future taxes stifles investment, employment, innovation
  • Government spending and infrastructure can improve business environment

• Questions for policymakers
  • How much do we value the short run versus the long run?
  • What is the relative value of different types of policies for each horizon?
Disagreement over Value of Fiscal Stimulus
Disagreement over Size of Fiscal Multiplier

Fiscal Multiplier Estimate by Date of Research Publication

Source: Ramey (2011)
Tends to be Associated with Higher Interest Rates

Source: Reinhart, Reinhart, and Rogoff (2012)
Interest Rate Impact Depends on the Demand for Bonds

Figure 10

Who Owns Our Debt?
(Debt Held by Public, 1970-2011)

- Foreign Holdings: 46%
  - 1970: $283 billion
  - 1990: $2.4 trillion
  - 2011: $9.7 trillion as of July 2011

Source: U.S. Department of Treasury
Prospect of High Future Taxes Can Discourage Domestic Activity
Debt Overhang Can Also Lead to Policy Uncertainty

Figure 1: Index of Economic Policy Uncertainty
(Jan 1985 – Mar 2013)

Notes: Index of Policy-Related Economic Uncertainty composed of 4 series: monthly news articles containing uncertain or uncertainty, economic or economy, and policy relevant terms (scaled by the smoothed number of articles containing ‘today’); the number of tax laws expiring in coming years, and a composite of IQ ranges for quarterly forecasts of federal, state, and local government expenditures and 1-year CPI from the Phil. Fed Survey of Forecasters. Weights: 1/2 News-based, 1/6 tax expirations, 1/6 CPI disagreement, 1/6 expenditures disagreement after each index normalized to have a standard-deviation of 1. Data from Jan 1985-Mar 2013. Index normalized mean 100 from 1985-2009. Data at www.policyuncertainty.com.

Source: Baker, Bloom, and Davis (2013)
Deeper Question About Optimal Long Run Size of Government

Onwards, ever upwards
Government spending, % of GDP

- France
- Sweden
- Britain
- United States
- Germany
- Japan
- Average*

Sources: Vito Tanzi and Ludger Schuknecht; IMF; OECD
*Average of 13 countries in table 1
Takeaways from Today

- **Drivers of long run growth:** Supply
  - Technological progress
  - Investment in capital stock
  - Increases in labor force participation

- **Drivers of short run fluctuations:** Demand
  - Household consumption
  - Business investment and residential construction
  - Government spending
  - Export demand (important in emerging economies)

- **Policy interventions affect short run demand**
  - Monetary policy is neutral in the long run
  - Fiscal policy has a long run impact
Today

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