

## Measuring Financial Market Stress

The recent public debate over financial regulatory reform has been heated and involved. Some have argued that we need an agency charged with monitoring financial market developments that are deemed to pose a risk to the entire financial system—or to firms deemed systemically important. Presumably, one of the requirements of such a systemic risk regulator would be to measure financial market “stress.”

There are many ways to measure financial market stress. One is to look at an interest rate spread designed to measure default risk, such as the difference between yields on a “risky asset” (e.g., corporate bonds) and a “risk-free” asset (e.g., U.S. Treasury securities). However, financial stress can also arise in other dimensions. One type of risk prominent in the recent financial crisis was the inability of many financial institutions to secure funding to finance their short-term liabilities, such as repurchase agreements (repos). This type of risk is known as “liquidity risk.”<sup>1</sup>

To overcome a potential problem of focusing solely on one indicator at the expense of others, some economists have combined several indicators designed to measure financial market stress into one summary variable, like an index number. A recent example of such an index is the Kansas City Financial Stress Index (KCFSI),<sup>2</sup> which is a measure constructed by the Federal Reserve Bank of Kansas City that uses 11 financial market variables. However, one potential limitation of the KCFSI is its use of *monthly* data. Significant developments in the financial markets often occur much more frequently (e.g., the difficulties associated with Bear Stearns and Lehman Brothers), so a more “real-time” index might be better. The trade-off for a higher-frequency index, of course, is greater volatility, and thus, perhaps, noise.

The chart plots a financial stress index constructed by the Federal Reserve Bank of St. Louis (STLFSI); it is based on 18 weekly data series. There are seven interest rate series, six yield spreads, and five other financial series that begin in late 1993. Principal components analysis is used to construct the STLFSI, which is similar to the construction for the KCFSI.<sup>3</sup>

To gauge whether the STLFSI can be used to measure the degree of financial stress in the market, the chart plots vertical lines at three key events over the past several years. These are (i) the Russian debt moratorium in August 1998 that helped to precipitate the Asian financial

crisis and the associated collapse in the U.S. hedge fund Long-Term Capital Management; (ii) the decision by the Paris-based BNP Paribas banking group in August 2007 to suspend redemptions from three of its mutual funds with significant holdings of U.S. asset-backed securities; and (iii) the bankruptcy of the investment bank Lehman Brothers in September 2008. In each instance, the STLFSI seemed to accurately capture the subsequent turmoil and financial stress. In one sense, the STLFSI and the KCFSI can be thought of as coincident indexes rather than as leading indexes—that is, they are designed to measure developments as they occur. In another sense, however, they have leading indicator properties because rising levels of financial stress, as recently seen, can portend economic turmoil and disruption.

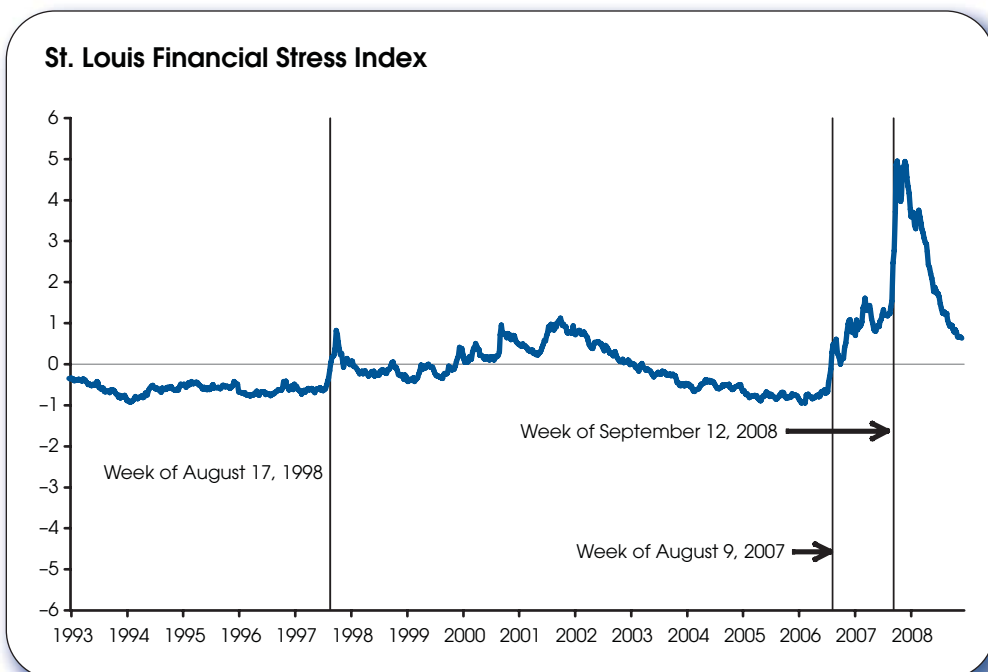
Although the STLFSI suggests the level of financial stress in the markets has declined significantly since September 2008, the stress level still remains modestly higher than average.

—Kevin L. Kliesen and Douglas C. Smith

<sup>1</sup> See Sengupta, Rajdeep and Tam, Yu Man. “The LIBOR-OIS Spread as a Summary Indicator.” Federal Reserve Bank of St. Louis *Monetary Trends*, November 2008; <http://research.stlouisfed.org/publications/mt/20081101/cover.pdf>.

<sup>2</sup> See the KSFSI at [www.kansascityfed.org/home/subwebnav.cfm?level=3&theID=11150&SubWeb=10681](http://www.kansascityfed.org/home/subwebnav.cfm?level=3&theID=11150&SubWeb=10681).

<sup>3</sup> See the online appendix at <http://research.stlouisfed.org/publications/net/NETJan2010Appendix.pdf> for more details about the construction of the STLFSI, the data series used, and an interpretation of the scaling of the vertical axis.



Views expressed do not necessarily reflect official positions of the Federal Reserve System.

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## Conventions used in this publication:

1. Except where otherwise noted, solid shading indicates recessions, as determined by the National Bureau of Economic Research. The NBER has not yet determined the end of the recession that began in December 2007; however, the hatched shading shows that the recession ended in July 2009. We made this determination based on a statistical model for dating business cycle turning points developed by Marcelle Chauvet and Jeremy Piger (“A Comparison of the Real-Time Performance of Business Cycle Dating Methods,” *Journal of Business and Economic Statistics*, 2008, 26, 42-49). For more information, see [http://www.uoregon.edu/~jpiger/us\\_recession\\_probs.htm](http://www.uoregon.edu/~jpiger/us_recession_probs.htm).
2. *Percent change* refers to simple percent changes. *Percent change from year ago* refers to the percent change from the same month or quarter during the previous year. *Compounded annual rate of change* shows what the growth rate would be over an entire year if the same simple percent change continued for four quarters or twelve months. The compounded annual rate of change of  $x$  between the previous quarter  $t-1$  and the current quarter  $t$  is:  $[(x_t/x_{t-1})^4 - 1] \times 100$ . For monthly data replace 4 with 12.
3. All data with significant seasonal patterns are adjusted accordingly, unless labeled NSA.

We welcome your comments addressed to:

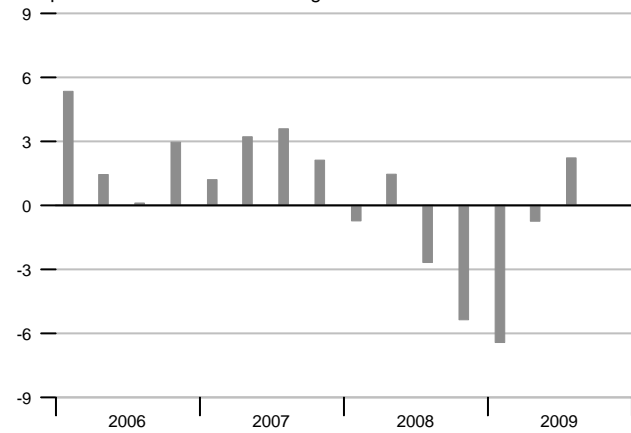
Editor, *National Economic Trends*  
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or to:

[stlsFRED@stls.frb.org](mailto:stlsFRED@stls.frb.org)

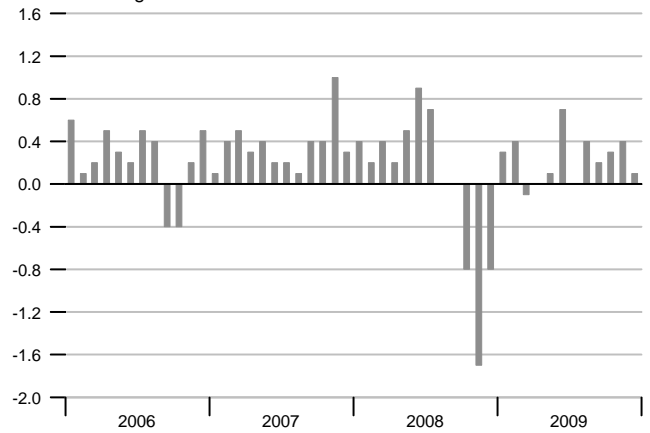
### Real GDP Growth

Compounded annual rates of change



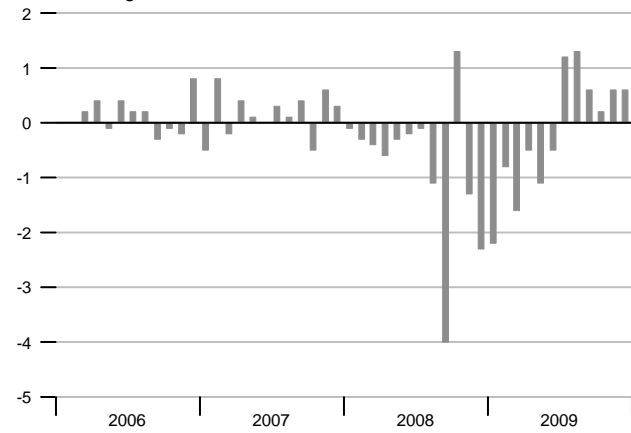
### Consumer Price Index

Percent change



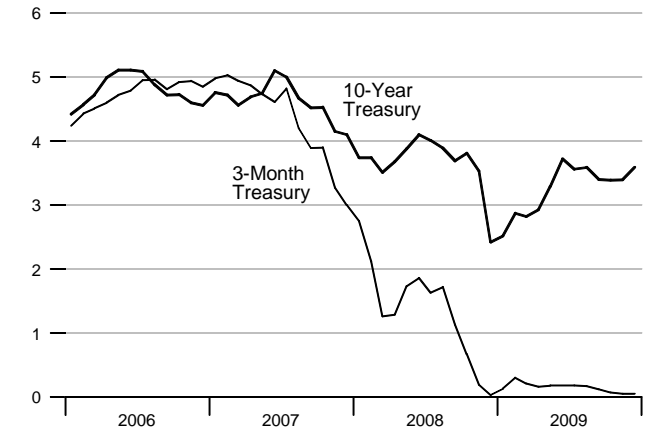
### Industrial Production

Percent change



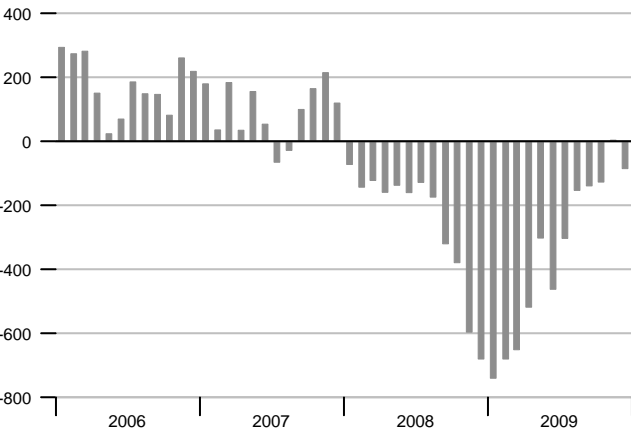
### Interest Rates

Percent



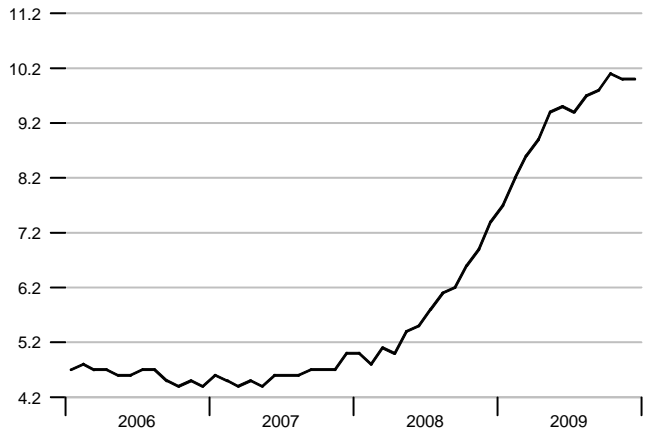
### Change in Nonfarm Payrolls

Thousands



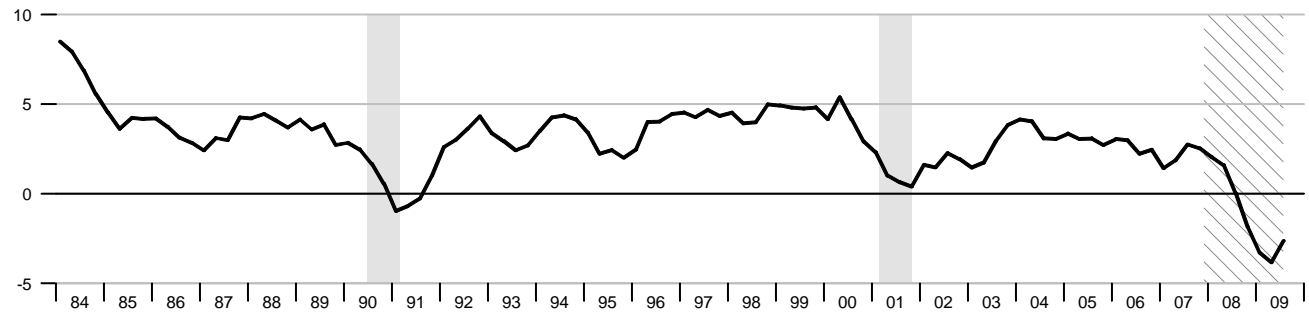
### Unemployment Rate

Percent of labor force



### Real Gross Domestic Product

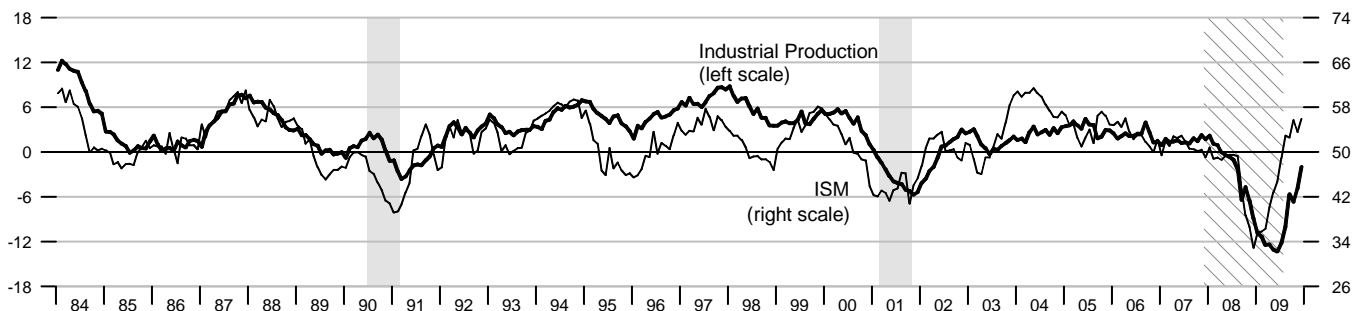
Percent change from year ago



### Industrial Production and Institute for Supply Management (ISM) Indexes

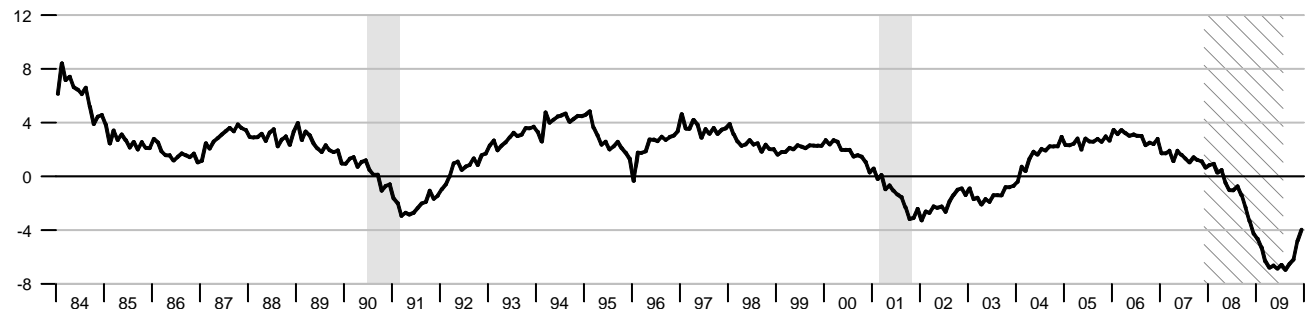
Percent change from year ago

Index



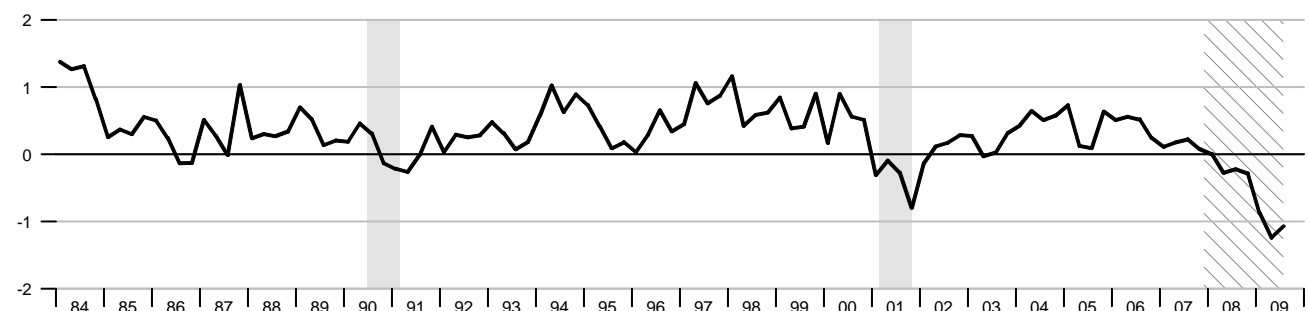
### Aggregate Private Nonfarm Hours

Percent change from year ago

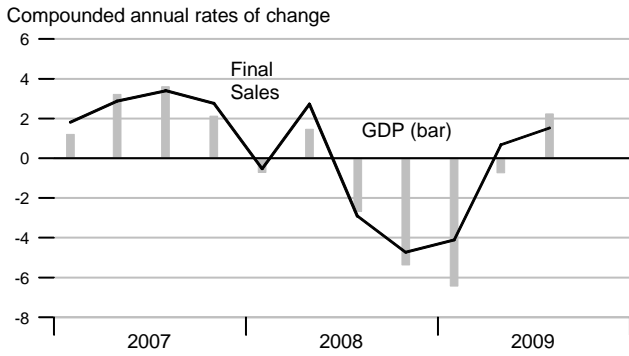


### Real Change in Private Inventories

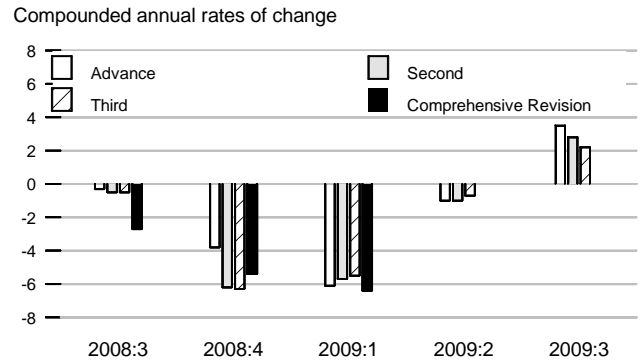
Percent of GDP



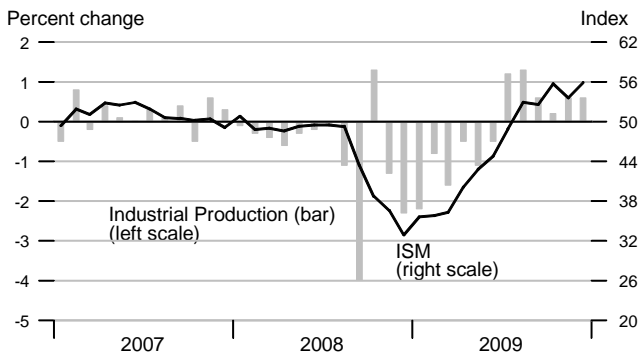
### Real Final Sales and GDP



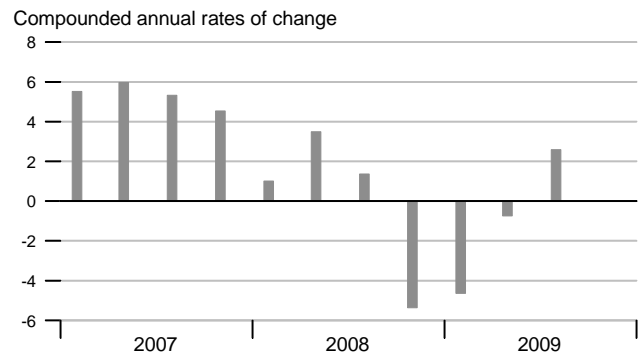
### Real GDP Revisions



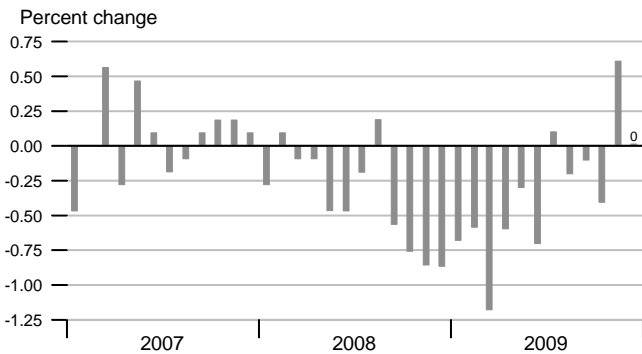
### Industrial Production and ISM Index



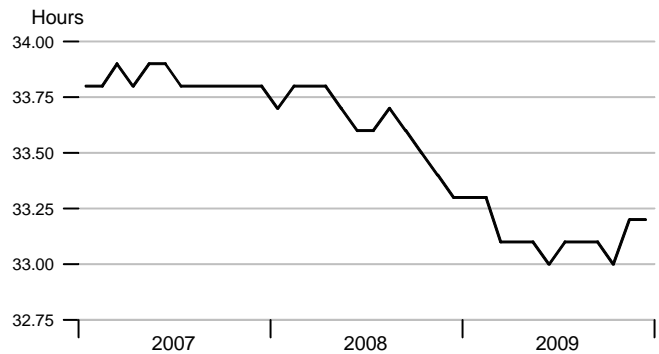
### Nominal Gross Domestic Product



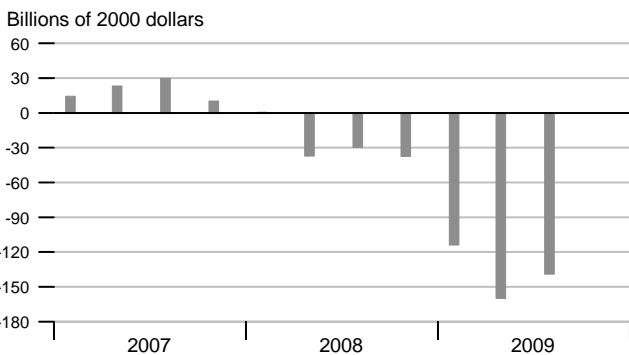
### Aggregate Private Nonfarm Hours



### Average Weekly Private Nonfarm Hours



### Real Change in Private Inventories

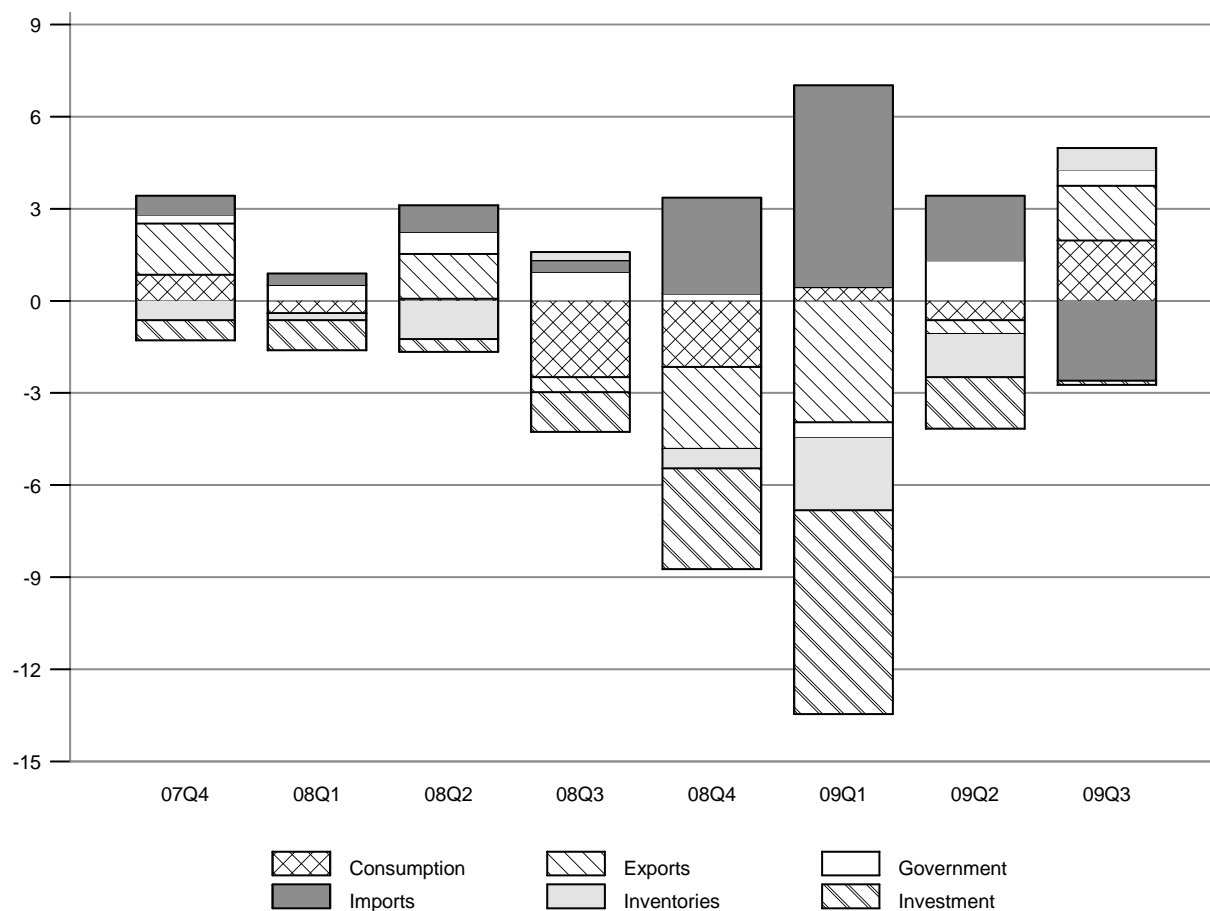


### Inventory-Sales Ratio



## Contribution of Components to Real GDP Growth

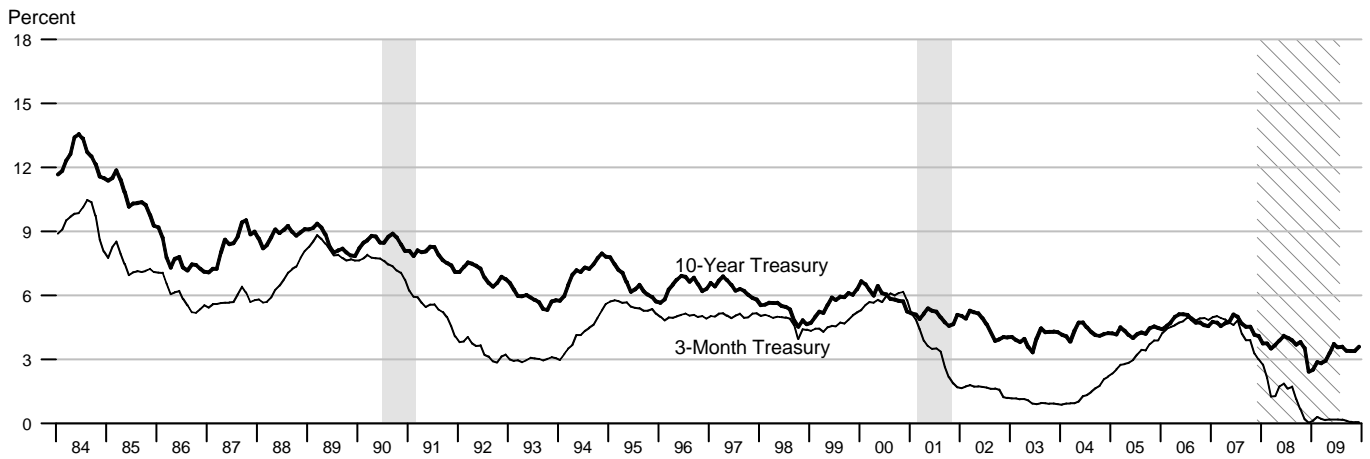
Percentage points at compounded annual rates



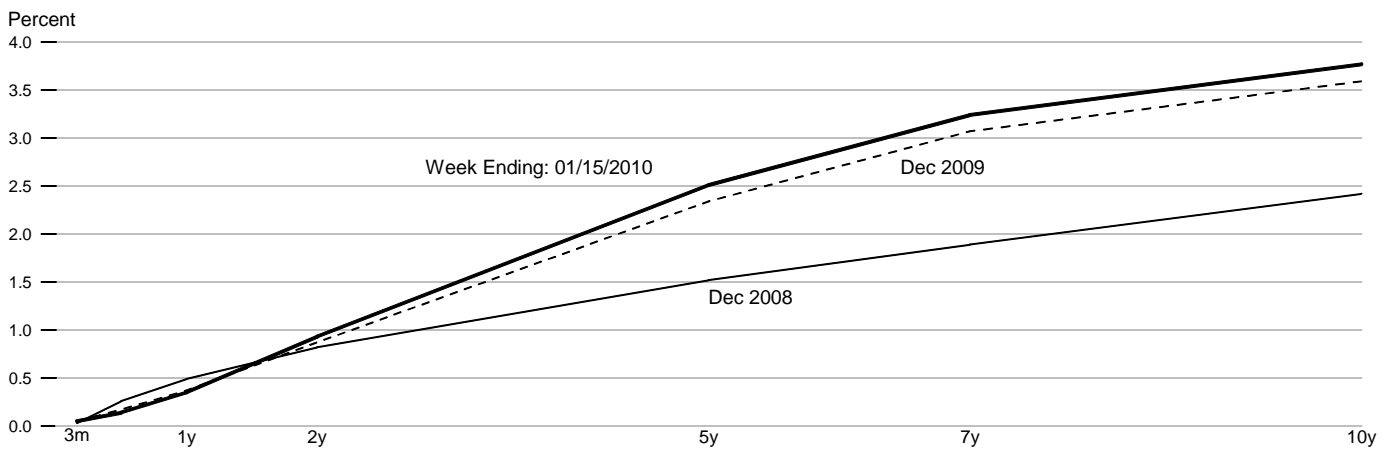
## Contributions to Real GDP Growth Rate

	2007	2008				2009		
	4th	1st	2nd	3rd	4th	1st	2nd	3rd
<b>Final Sales</b>	2.75	-0.51	2.71	-2.94	-4.73	-4.07	0.68	1.55
<b>Consumption</b>	0.86	-0.39	0.06	-2.49	-2.15	0.44	-0.62	1.96
<b>Fixed Investment</b>	-0.66	-0.99	-0.41	-1.30	-3.28	-6.62	-1.68	-0.15
Nonresidential	0.78	0.25	0.19	-0.73	-2.47	-5.29	-1.01	-0.59
Residential	-1.44	-1.24	-0.60	-0.57	-0.81	-1.33	-0.67	0.43
<b>Government</b>	0.31	0.51	0.71	0.95	0.24	-0.52	1.33	0.55
Federal	0.19	0.56	0.55	0.93	0.49	-0.33	0.85	0.62
State and Local	0.12	-0.05	0.15	0.01	-0.25	-0.19	0.48	-0.08
<b>Net Exports</b>	2.24	0.36	2.35	-0.10	0.45	2.64	1.65	-0.81
Exports	1.65	-0.02	1.47	-0.48	-2.67	-3.95	-0.45	1.78
Imports	0.60	0.38	0.88	0.38	3.12	6.58	2.09	-2.59
<b>Change in Inventory</b>	-0.63	-0.21	-1.25	0.26	-0.64	-2.36	-1.42	0.69
<b>Residual</b>	-0.01	0.12	0.06	0.07	-0.22	0.02	0.02	0.03
<b>Real GDP Growth</b>	2.12	-0.72	1.46	-2.68	-5.37	-6.43	-0.74	2.24

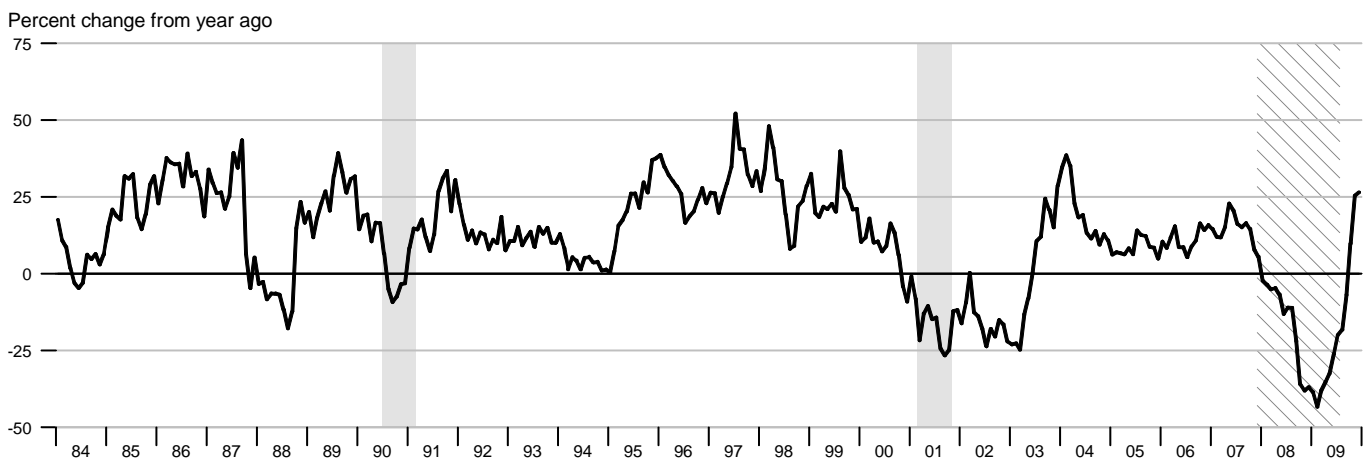
### Interest Rates



### Treasury Yield Curve

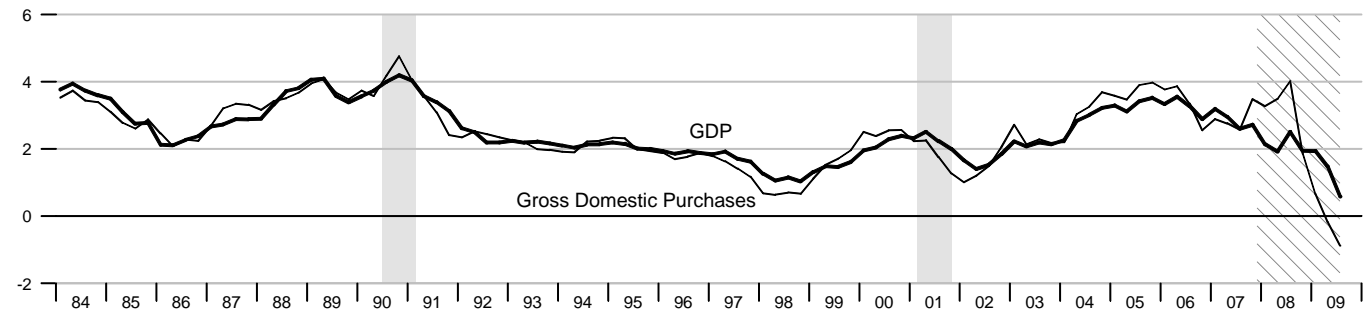


### Standard and Poor's 500 Index with Reinvested Dividends



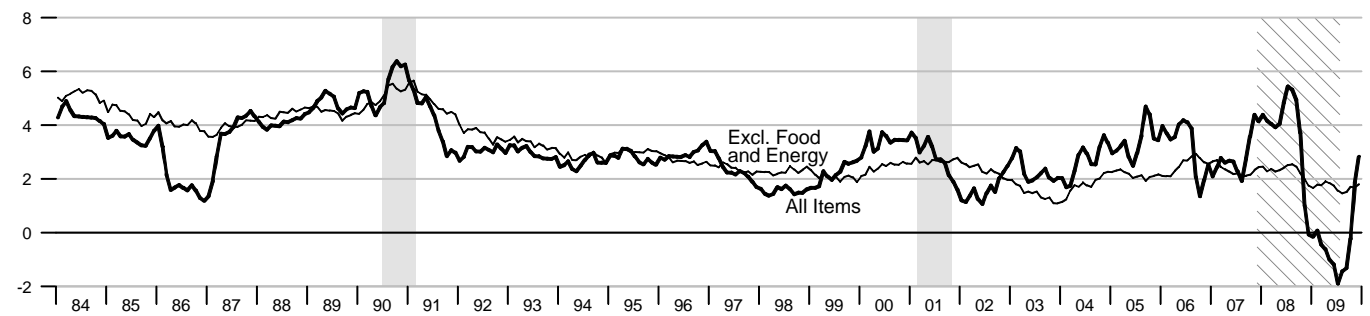
### NIPA Chain Price Indexes

Percent change from year ago



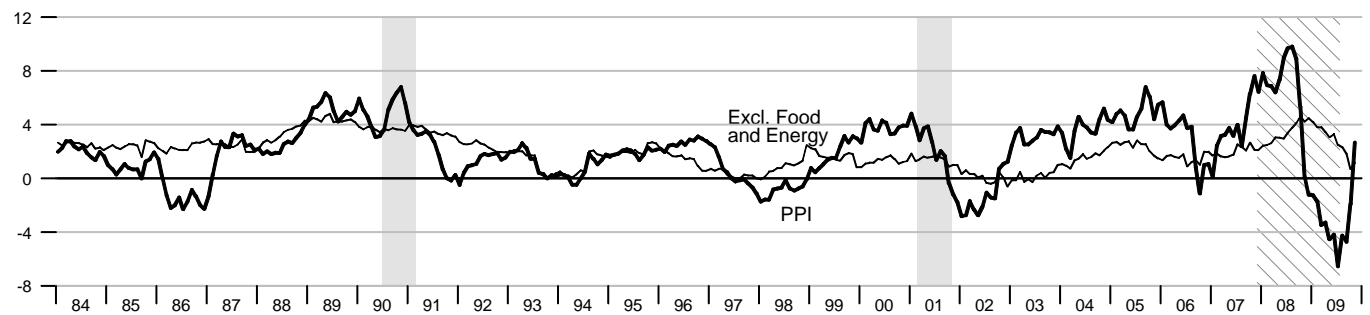
### Consumer Price Index

Percent change from year ago



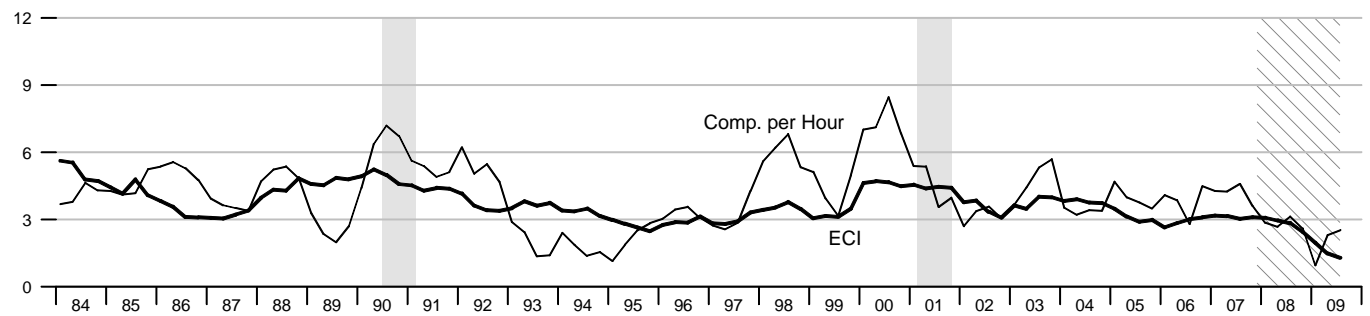
### Producer Price Index, Finished Goods

Percent change from year ago



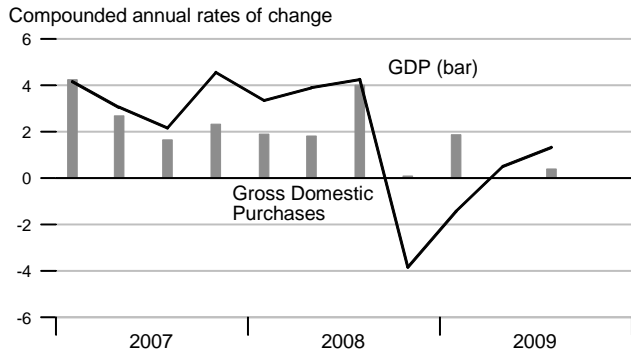
### Employment Cost Index and Compensation per Hour

Percent change from year ago

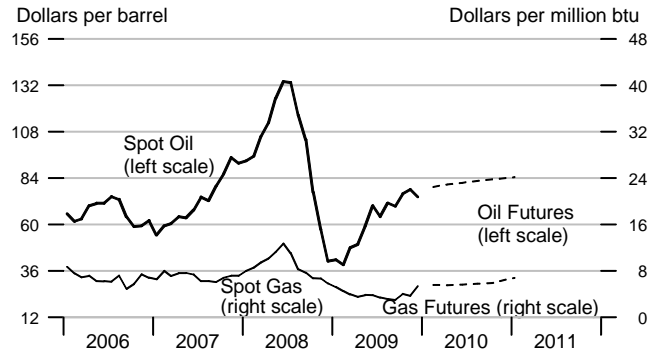




### NIPA Chain Price Indexes

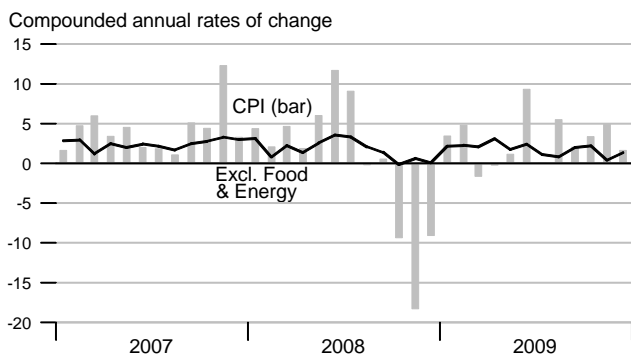


### Oil & Natural Gas Prices: Spot & Futures

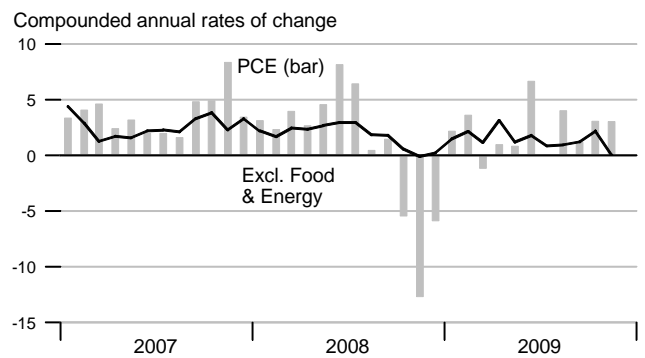


Note: Futures prices as of 12/31/2009.

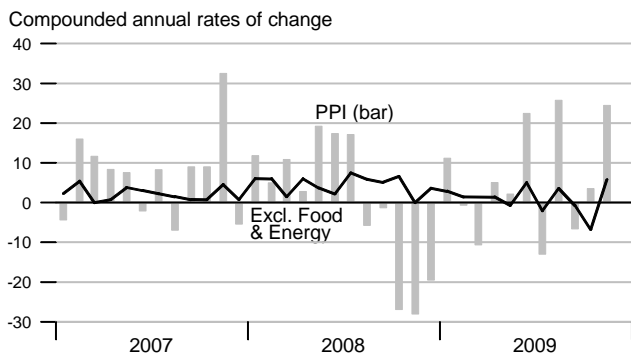
### Consumer Price Index



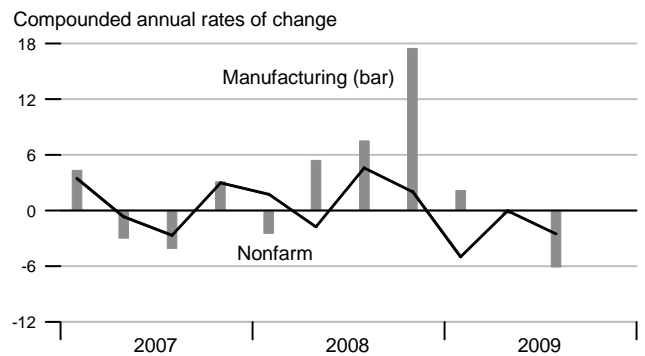
### Consumption Chain Price Index



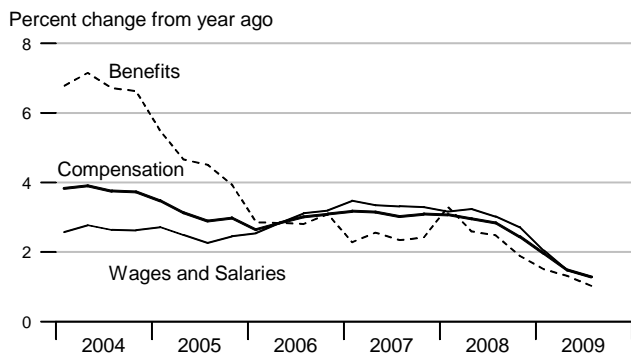
### Producer Price Index, Finished Goods



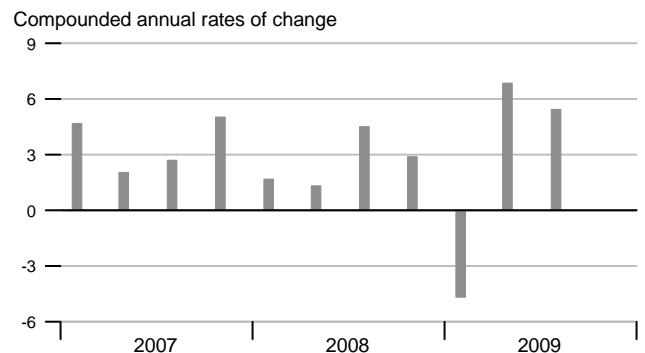
### Unit Labor Cost



### Employment Cost Index

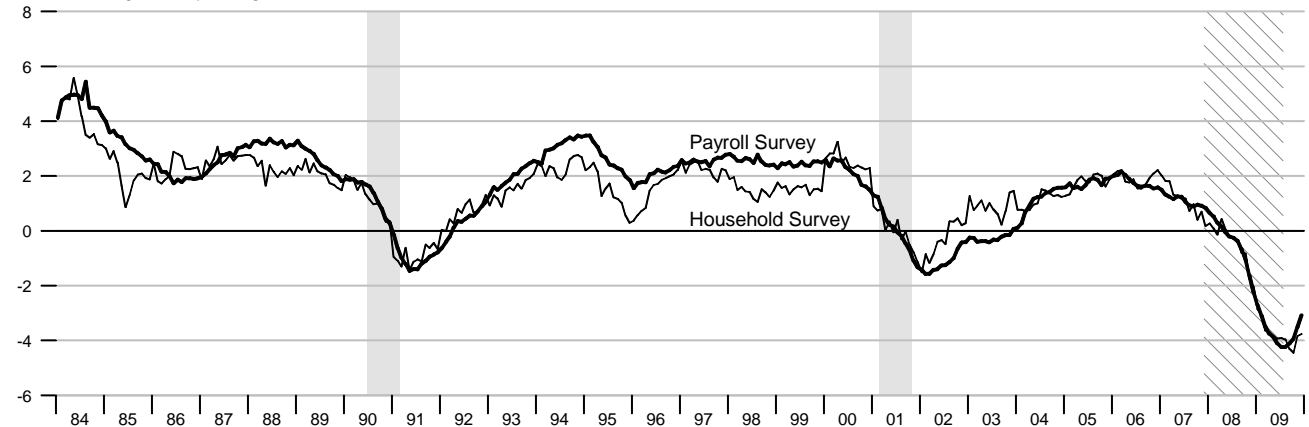


### Compensation per Hour



### Employment

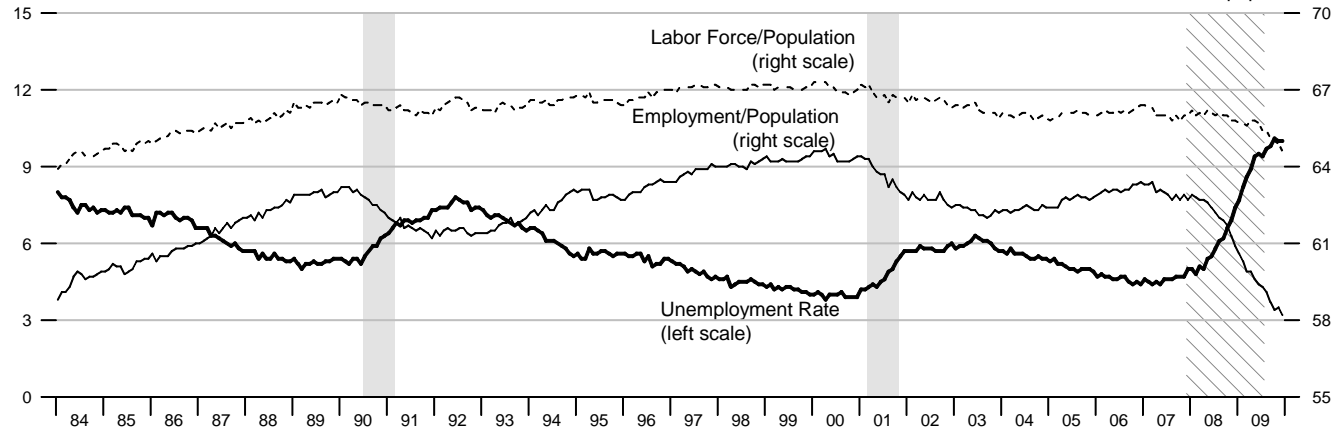
Percent change from year ago



### Unemployment, Labor Force Participation, and Employment Rates

Percent of labor force

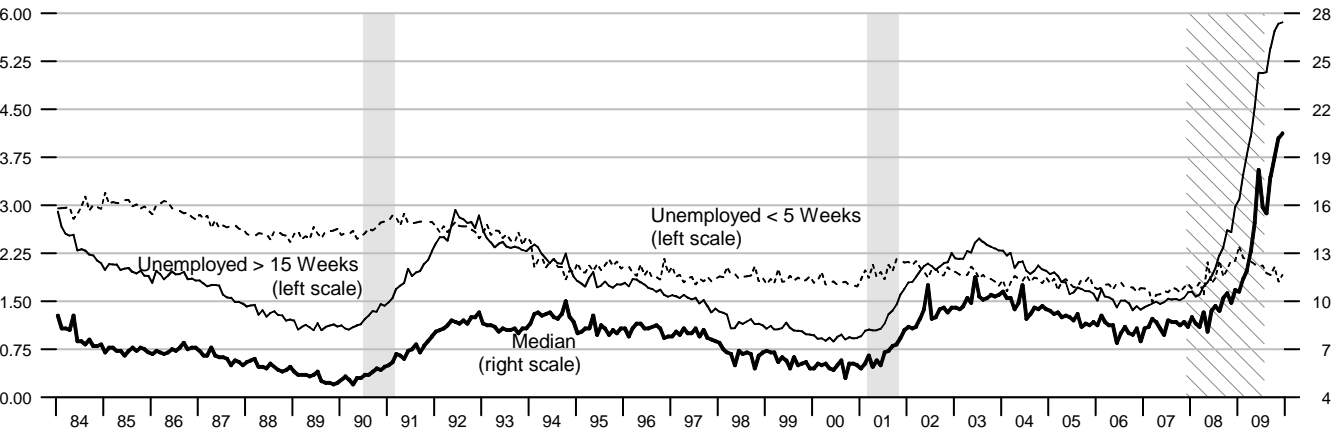
Percent of population



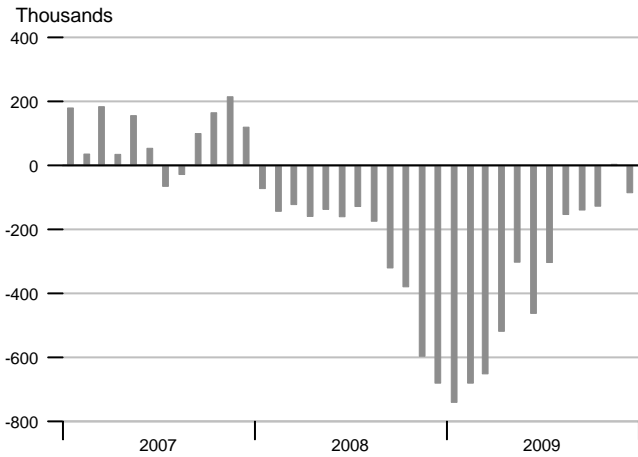
### Duration of Unemployment

Percent of labor force

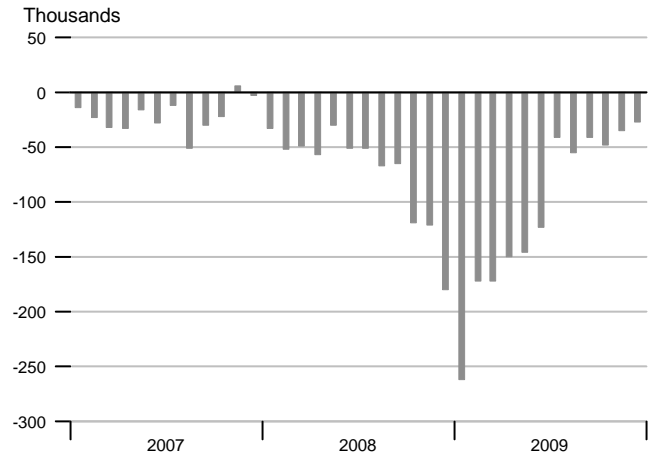
Weeks



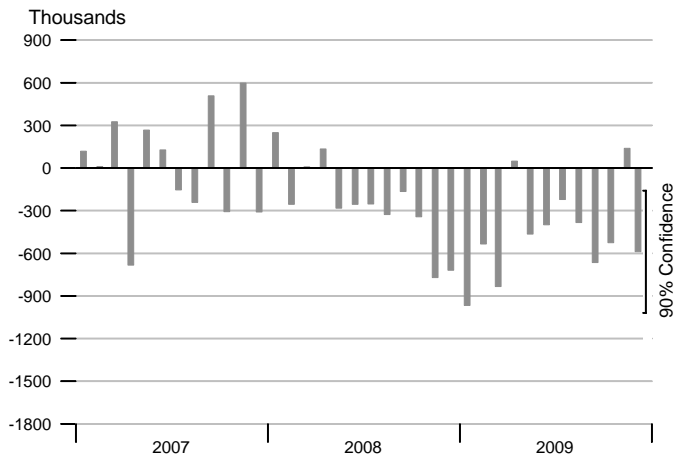
### Change in Nonfarm Payrolls



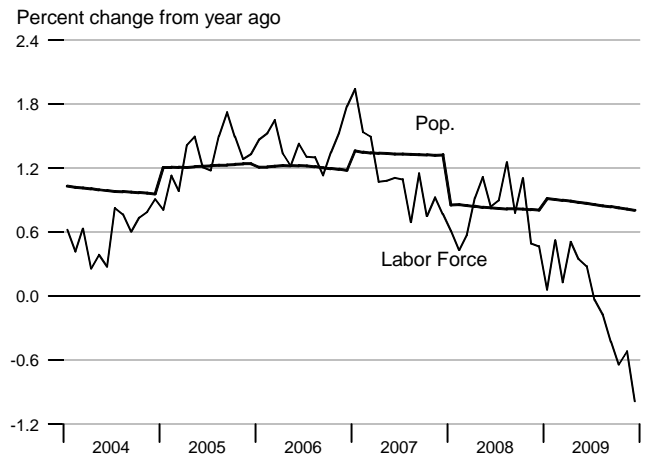
### Change in Manufacturing Payrolls



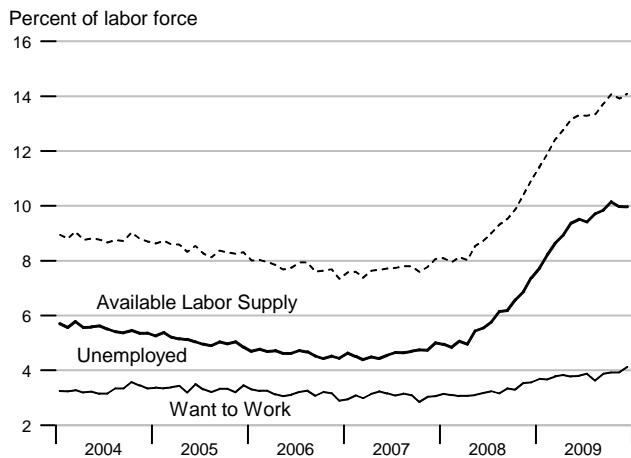
### Change in Household Employment



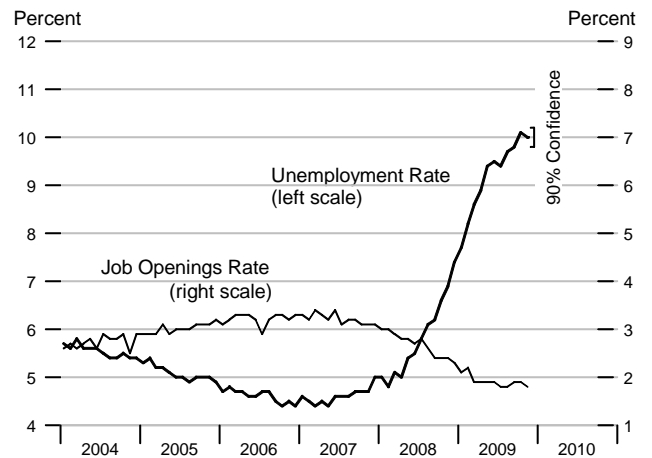
### Labor Force and Population



### Available Labor Supply and Components

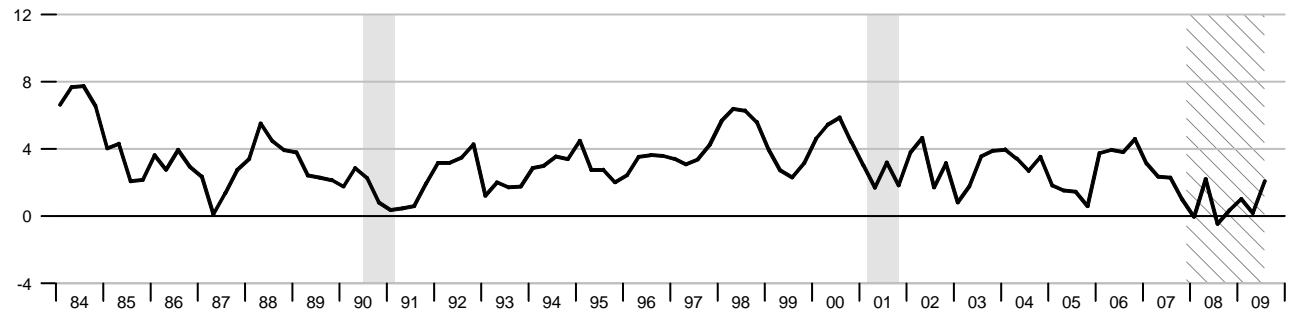


### Unemployment Rate & Job Openings Rate



### Real Disposable Personal Income

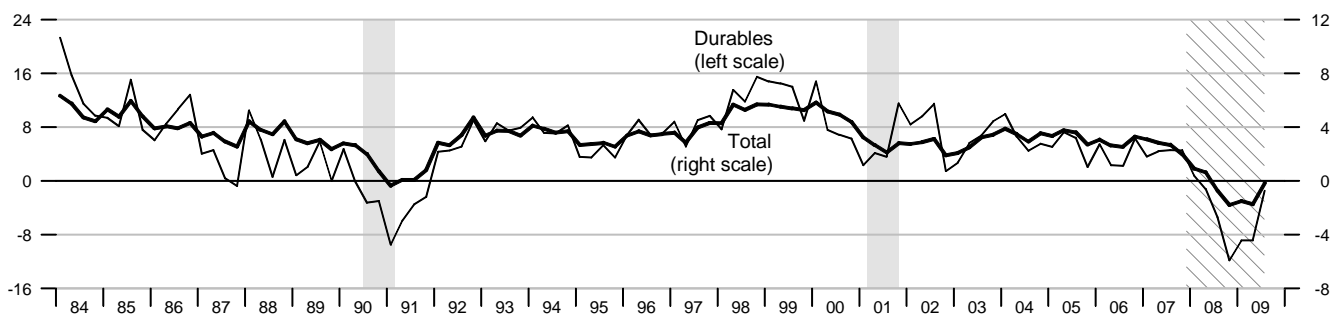
Percent change from year ago, quarterly data



### Real Consumption

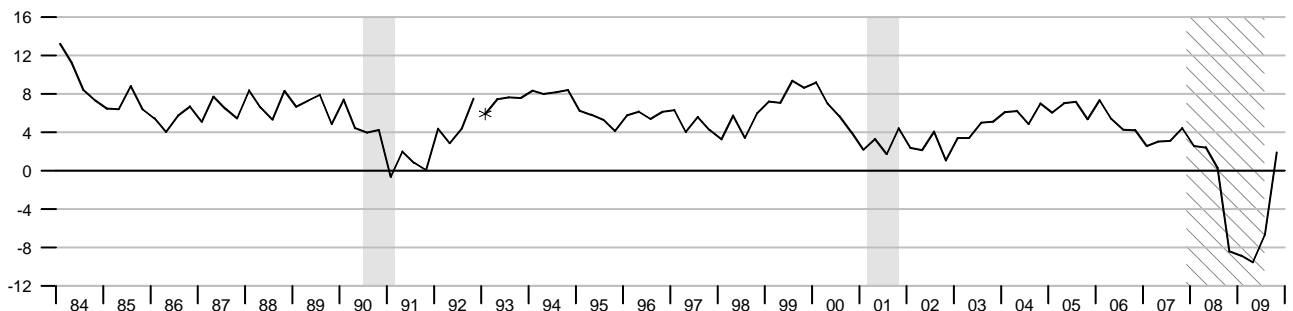
Percent change from year ago, quarterly data

Percent change from year ago, quarterly data



### Retail and Food Services Sales

Percent change from year ago, quarterly average

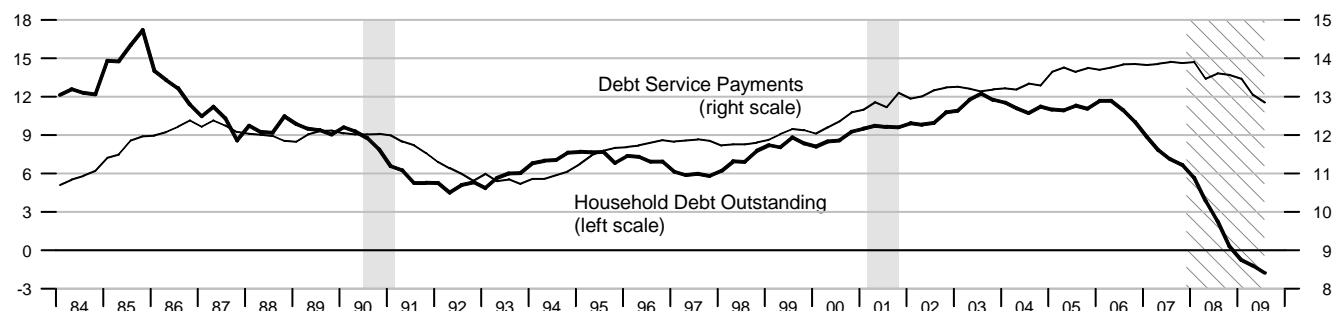


\*Data from Jan. 1992 to the present are on a NAICS basis; data prior to Jan. 1992 are on an SIC basis and are not strictly comparable (see End Note).

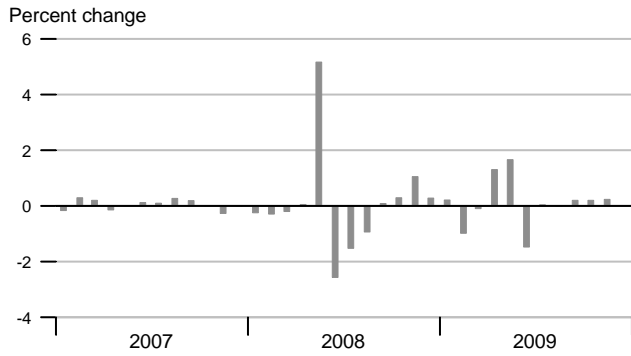
### Debt Service Payments and Household Debt Outstanding

Percent change from year ago, quarterly data

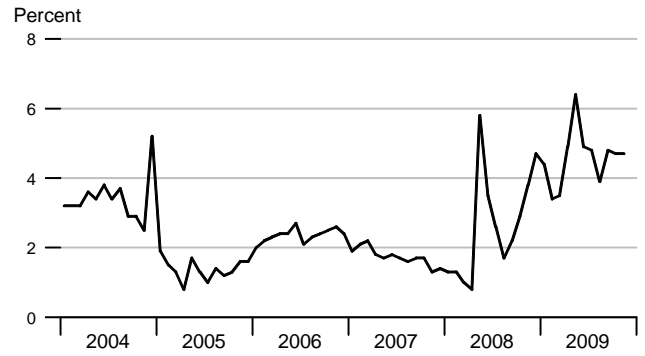
Percent of disposable personal income



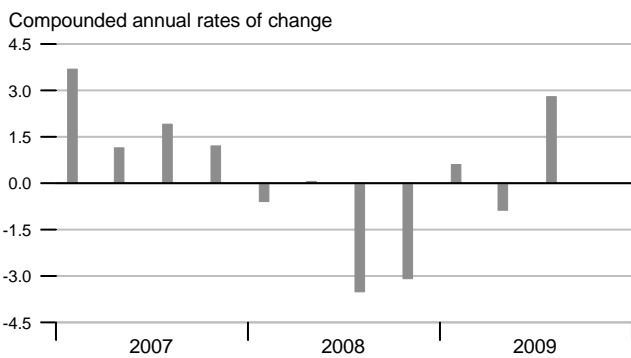
### Real Disposable Personal Income



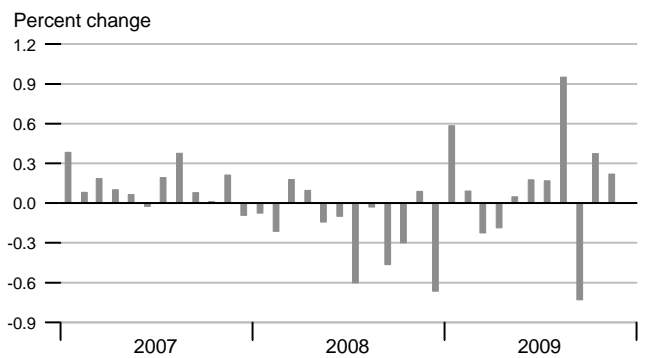
### Personal Saving Rate



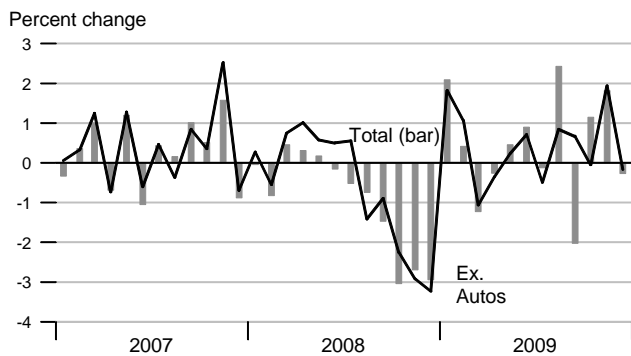
### Real Consumption



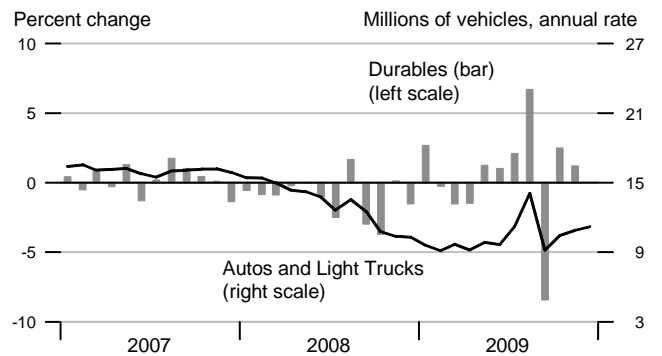
### Real Consumption



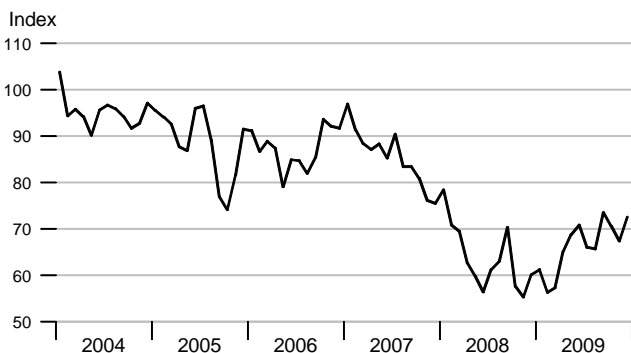
### Retail & Food Services



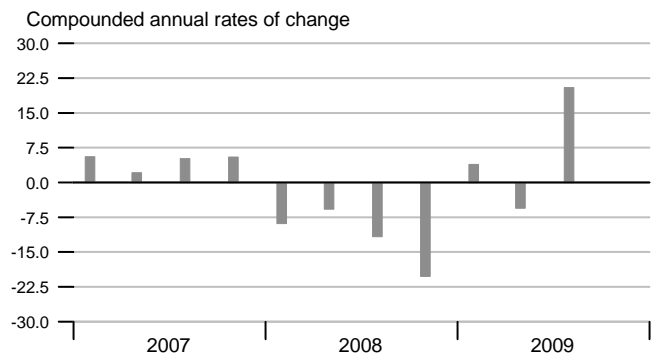
### Real Durables Consumption & Vehicle Sales



### Consumer Sentiment (U. of Michigan)

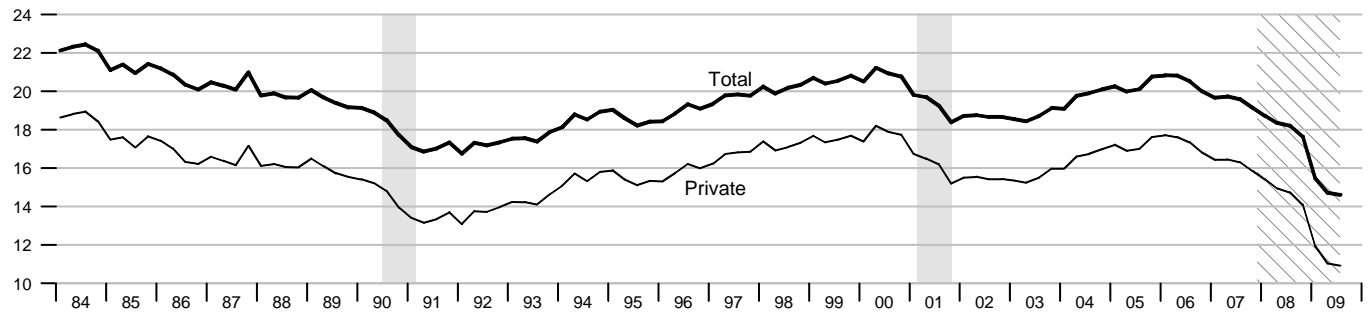


### Real Durables Consumption



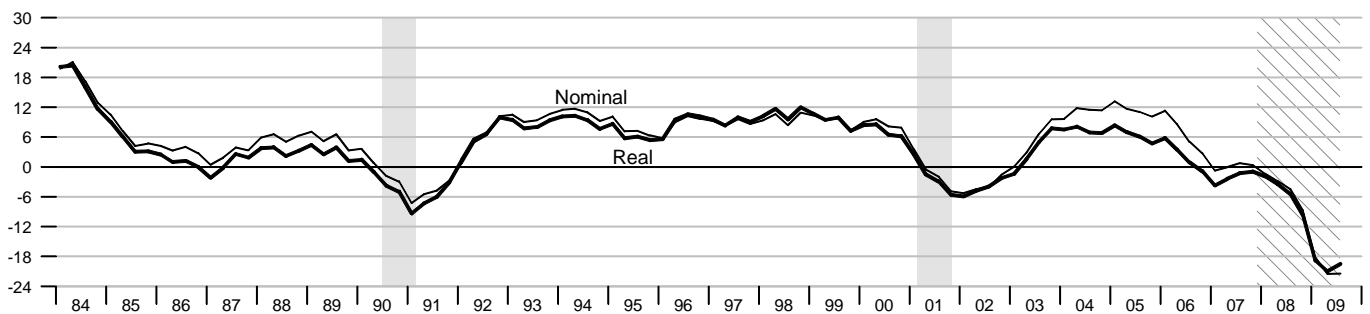
### Investment

Percent of nominal GDP



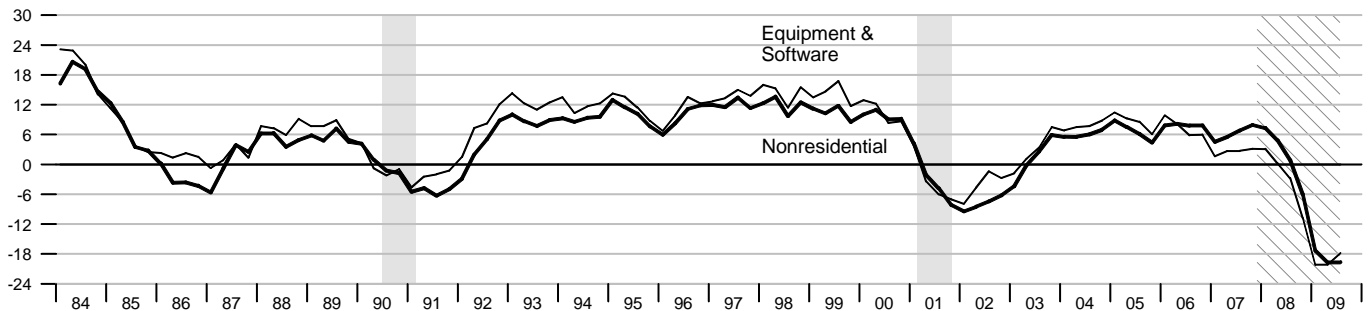
### Private Fixed Investment

Percent change from year ago



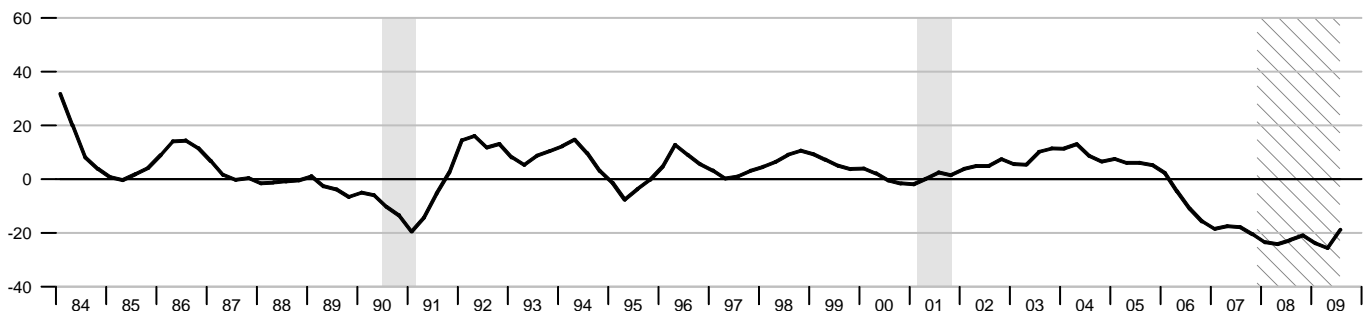
### Real Nonresidential Fixed and Equipment & Software Investment

Percent change from year ago

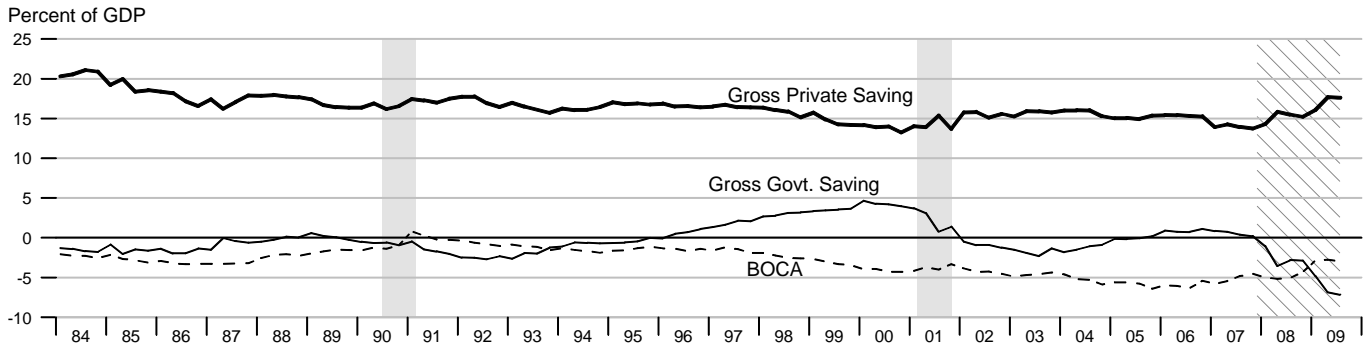


### Real Residential Fixed Investment

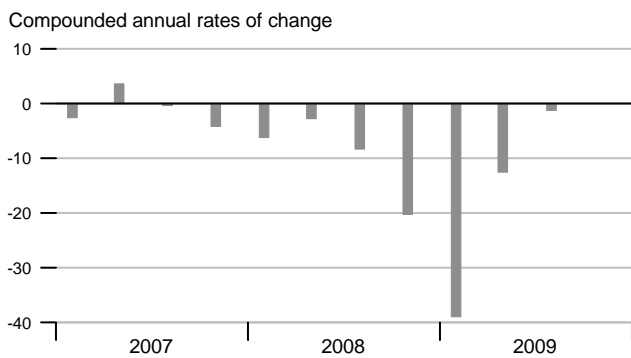
Percent change from year ago



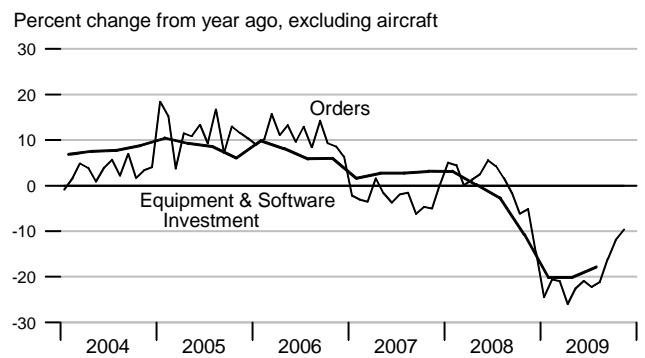
### Gross Saving Rates and Balance on Current Account (NIPA)



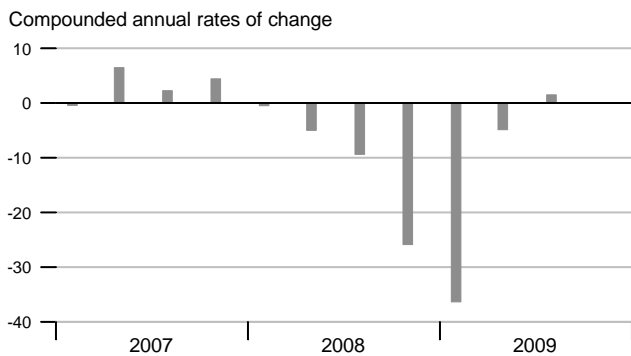
### Real Private Fixed Investment



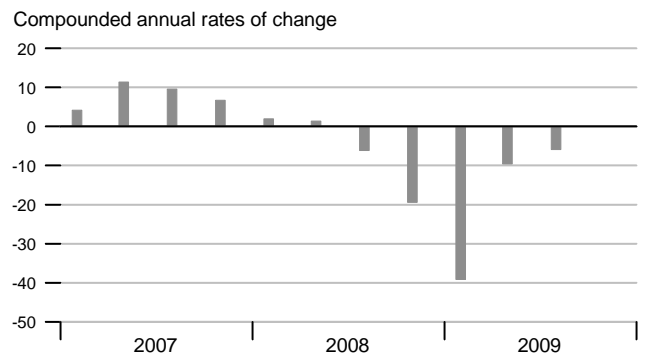
### Nondefense Capital Goods Orders



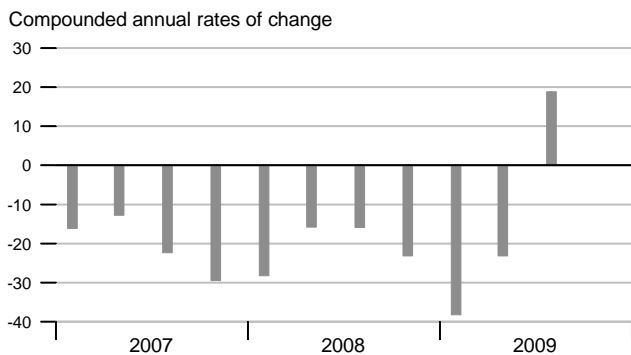
### Real Equipment & Software Investment



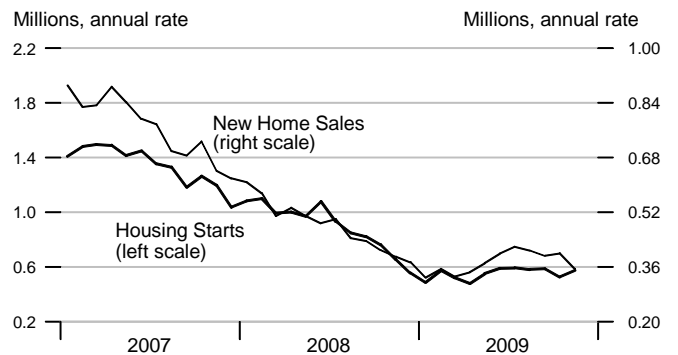
### Real Nonresidential Fixed Investment



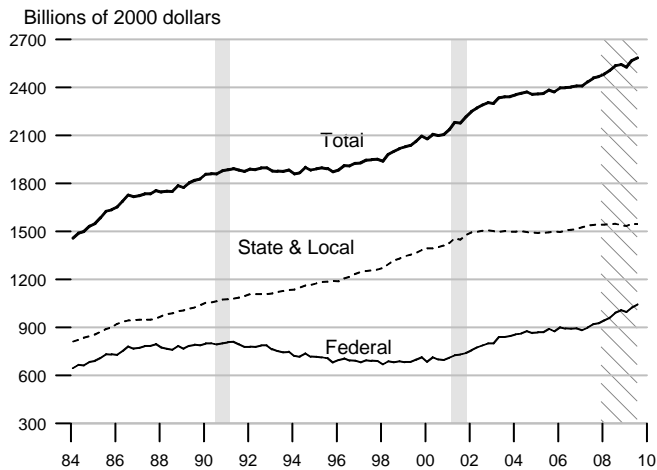
### Real Residential Fixed Investment



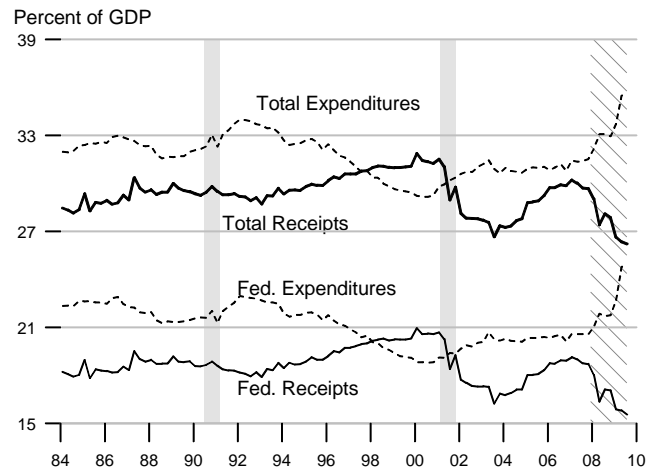
### Housing Starts and New Home Sales



**Govt. Consumption and Investment**



**Govt. Current Receipts and Expenditures**



**Government Budgets**

Billions of dollars

**National Income Accounts**

Calendar Years

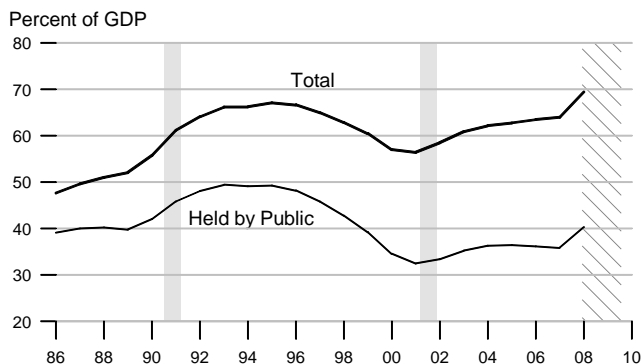
**Unified Budget**

Fiscal Years

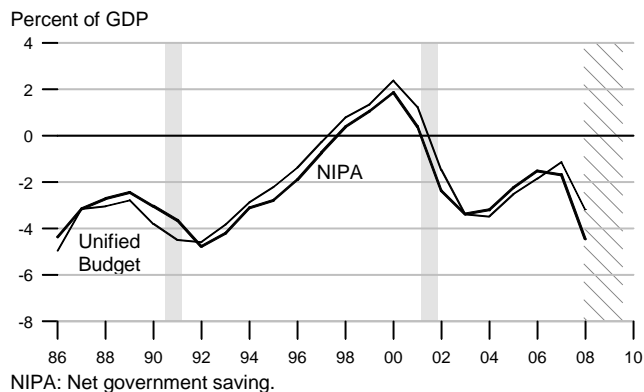
	State and Local			Federal			Federal		
	Receipts	Expenditures	Surplus or Deficit (-)	Receipts	Expenditures	Surplus or Deficit (-)	Receipts	Outlays	Surplus or Deficit (-)
1996	1045.1	1022.1	23.0	1526.4	1674.7	-148.3	1453.2	1560.6	-107.4
1997	1099.5	1063.2	36.3	1656.2	1716.3	-60.1	1579.4	1601.3	-21.9
1998	1164.5	1117.6	46.9	1777.9	1744.3	33.6	1722.0	1652.7	69.3
1999	1240.4	1198.6	41.8	1895.0	1796.2	98.8	1827.6	1702.0	125.6
2000	1322.6	1281.3	41.3	2057.1	1871.9	185.2	2025.5	1789.2	236.2
2001	1374.0	1389.9	-15.9	2020.3	1979.8	40.5	1991.4	1863.2	128.2
2002	1412.7	1466.8	-54.1	1859.3	2112.1	-252.8	1853.4	2011.2	-157.8
2003	1496.3	1535.1	-38.8	1885.1	2261.5	-376.4	1782.5	2160.1	-377.6
2004	1601.0	1609.3	-8.3	2013.9	2393.4	-379.5	1880.3	2293.0	-412.7
2005	1730.4	1704.5	25.9	2290.1	2573.1	-283.0	2153.9	2472.2	-318.3
2006	1829.7	1778.6	51.1	2524.5	2728.3	-203.8	2407.3	2655.4	-248.2
2007	1927.3	1905.6	21.7	2660.8	2897.2	-236.4	2568.2	2728.9	-160.7
2008	1974.2	2014.4	-40.2	2475.0	3117.6	-642.6	2524.3	2982.9	-458.6
2007Q4	1951.6	1952.9	-1.3	2682.9	2947.9	-265.0	606.2	713.0	-106.8
2008Q1	1963.7	1983.8	-20.1	2590.7	3024.2	-433.5	539.8	745.7	-205.9
2008Q2	1994.2	2019.8	-25.6	2372.1	3169.0	-796.9	787.9	761.0	26.9
2008Q3	1987.5	2046.5	-59.0	2489.5	3155.2	-665.7	590.0	758.9	-169.0
2008Q4	1951.4	2007.5	-56.1	2447.8	3121.9	-674.1	547.4	879.9	-332.5
2009Q1	1961.4	1998.0	-36.6	2251.3	3220.3	-969.0	442.4	891.3	-448.9
2009Q2	1989.3	2013.9	-24.6	2237.0	3505.9	-1269	598.8	903.7	-304.9
2009Q3	2003.6	2018.6	-15.0	2215.1	3542.1	-1327	515.9	845.4	-329.4



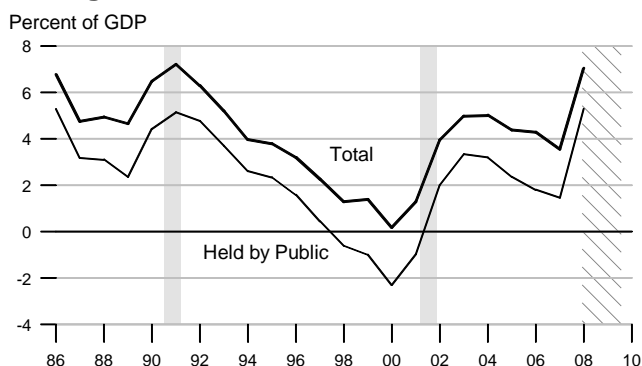
### Federal Debt



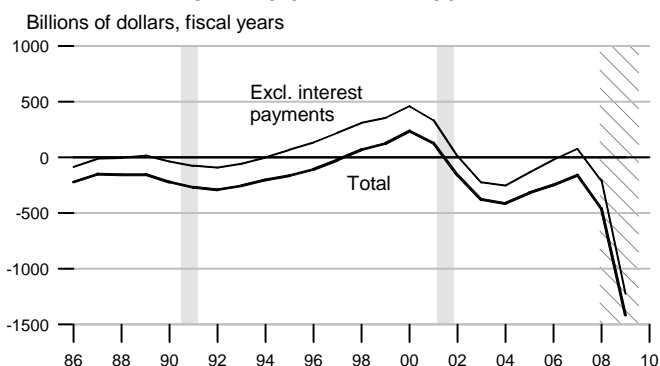
### Federal Surplus (+) / Deficit (-)



### Change in Federal Debt



### Federal Surplus (+) / Deficit (-), Unified Basis

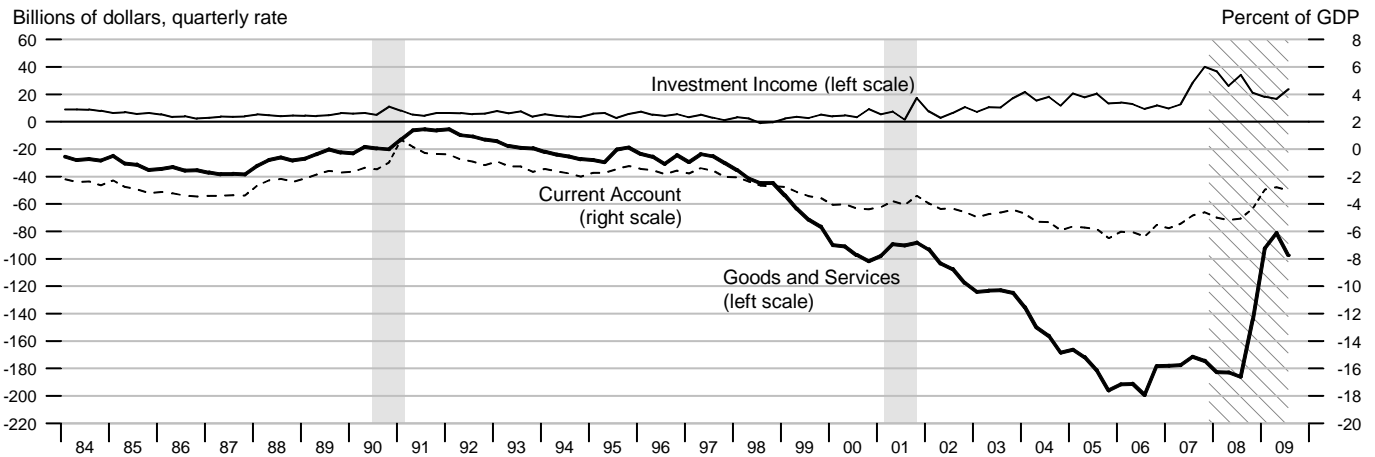


### Federal Government Debt

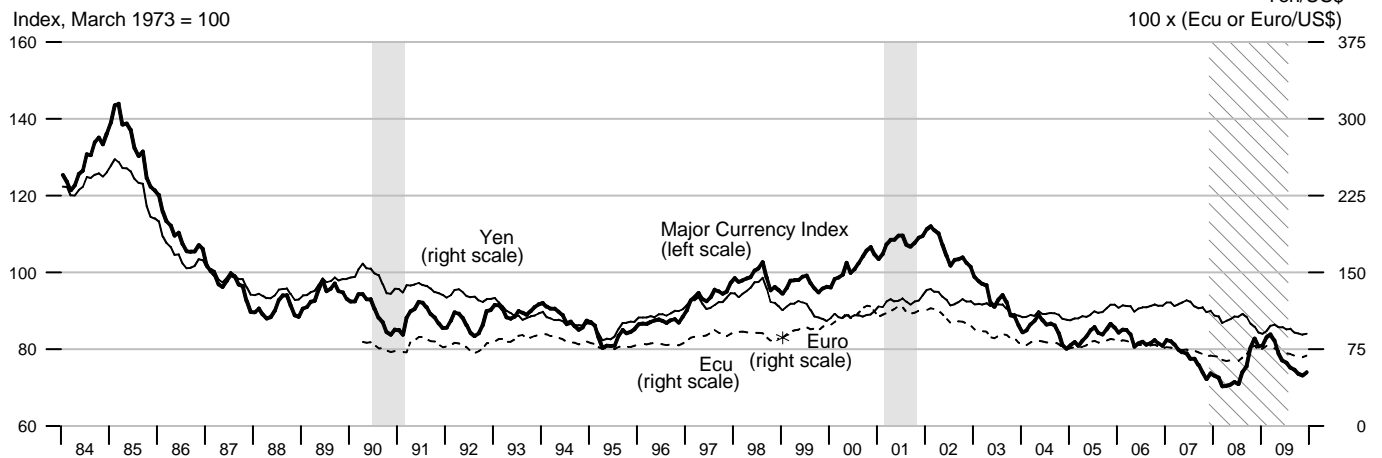
Billions of dollars, end of month or fiscal year  
Excludes Agency-issued debt

		Total Public Debt	Held by Agencies and Trusts	Held by Public		Held by Private Investors	
				Total	Federal Reserve Banks	Total	Foreign and International
2007		9007.7	3958.4	5049.2	779.6	4269.7	2237.2
2008		10024.7	4210.5	5814.2	476.6	5332.0	2799.5
2009		11909.8	4355.3	7554.5	769.2	6782.7	3497.0
2006	March	8371.2	3498.4	4872.8	758.5	4114.0	2084.5
	June	8420.0	3622.6	4797.5	766.4	4030.8	1979.8
	September	8507.0	3663.8	4843.2	768.9	4074.2	2027.3
	December	8680.2	3779.0	4901.2	778.9	4122.1	2105.0
2007	March	8849.7	3795.4	5054.3	780.9	4273.1	2196.7
	June	8867.7	3924.7	4943.0	790.5	4152.6	2193.9
	September	9007.7	3958.4	5049.2	779.6	4269.7	2237.2
	December	9229.2	4092.9	5136.3	740.6	4395.7	2352.9
2008	March	9437.6	4103.6	5334.0	591.2	4742.9	2507.5
	June	9492.0	4207.0	5285.0	478.8	4806.2	2587.2
	September	10024.7	4210.5	5814.2	476.6	5332.0	2799.5
	December	10699.8	4327.2	6372.7	475.9	5893.4	3076.3
2009	March	11126.9	4290.6	6836.3	492.3	6341.7	3264.7
	June	11545.3	4368.8	7176.5	656.5	6518.5	3382.1
	September	11909.8	4355.3	7554.5	769.2	6782.7	3497.0

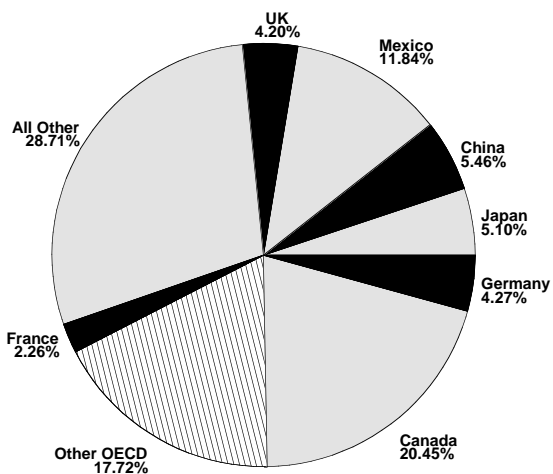
### Current Account, Trade and Investment Income Balances



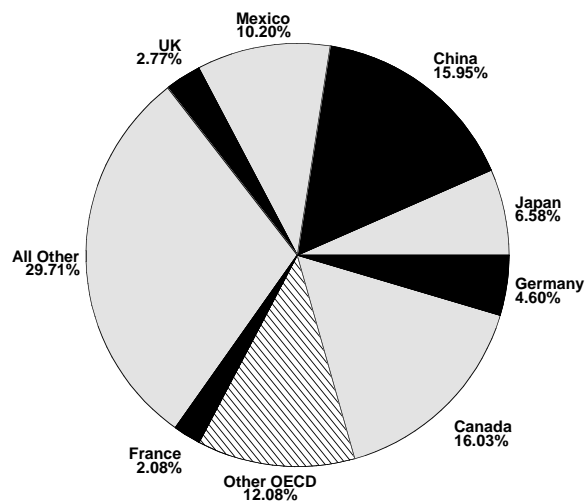
### Exchange Rates



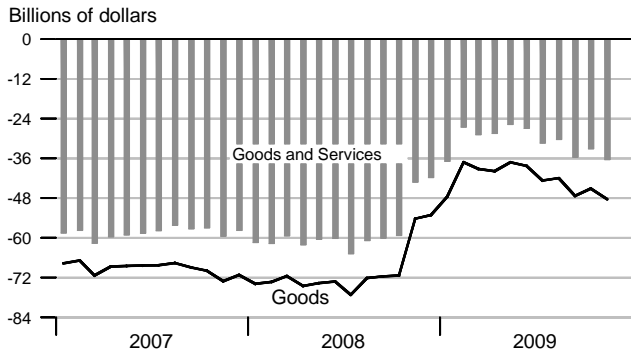
### Goods Export Shares, 2008



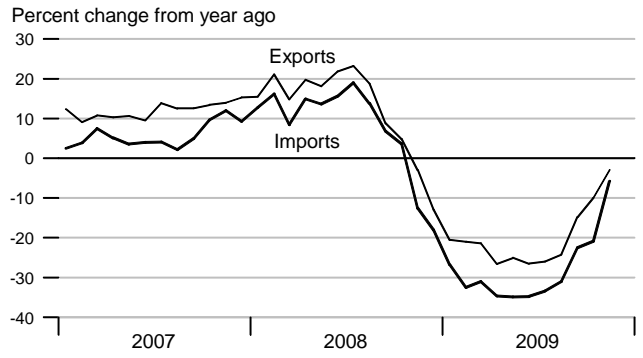
### Goods Import Shares, 2008



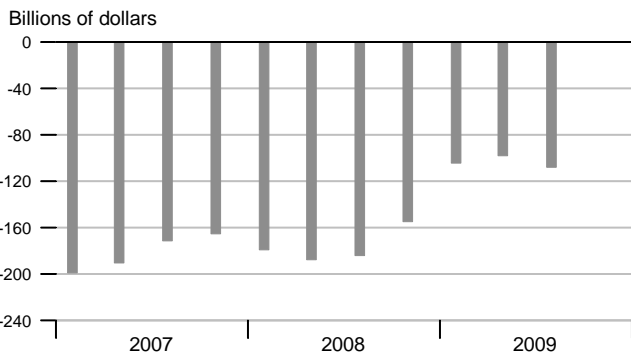
### Trade Balance



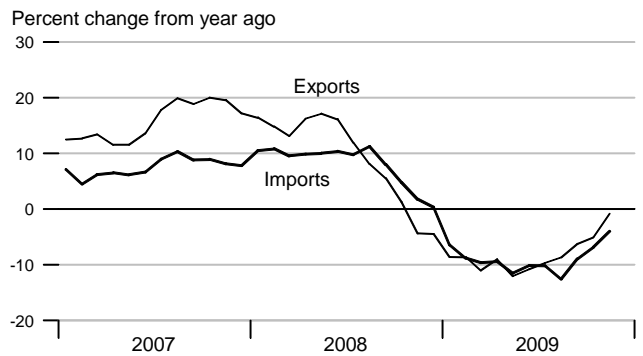
### Goods Trade



### Current Account Balance

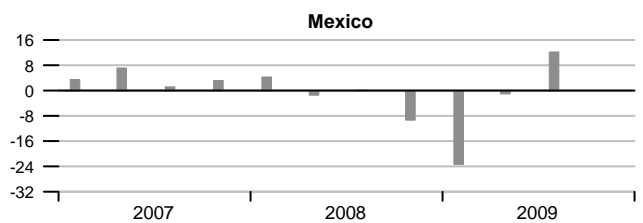
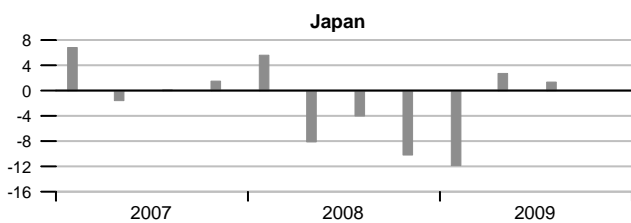
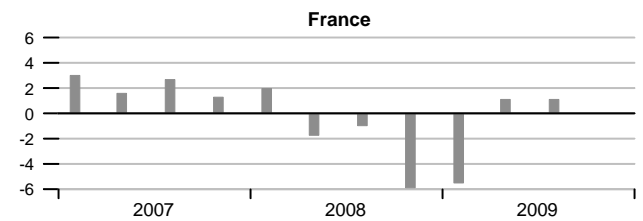
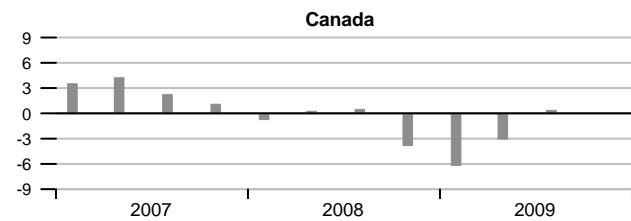
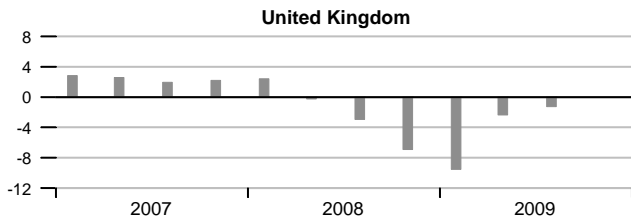


### Services Trade

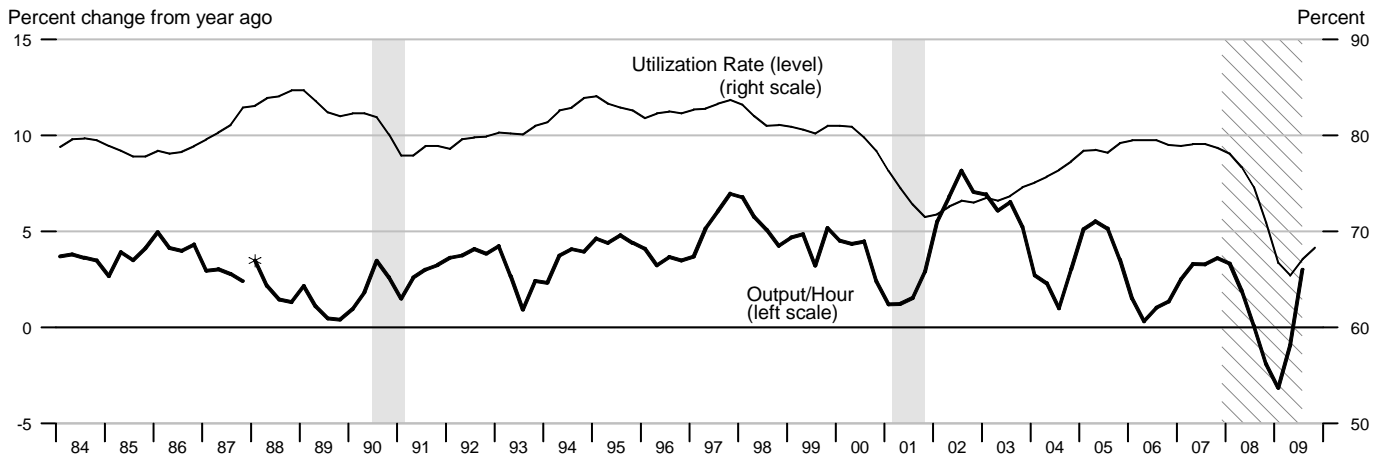


### Real GDP Growth of Major Trading Partners

Compounded annual rates of change

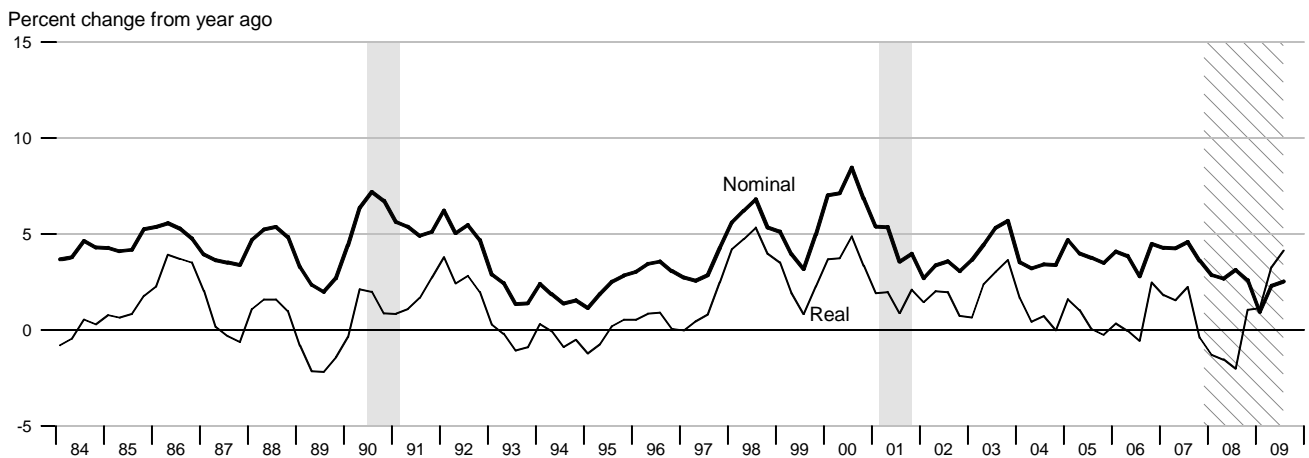


### Output per Hour and Capacity Utilization, Manufacturing

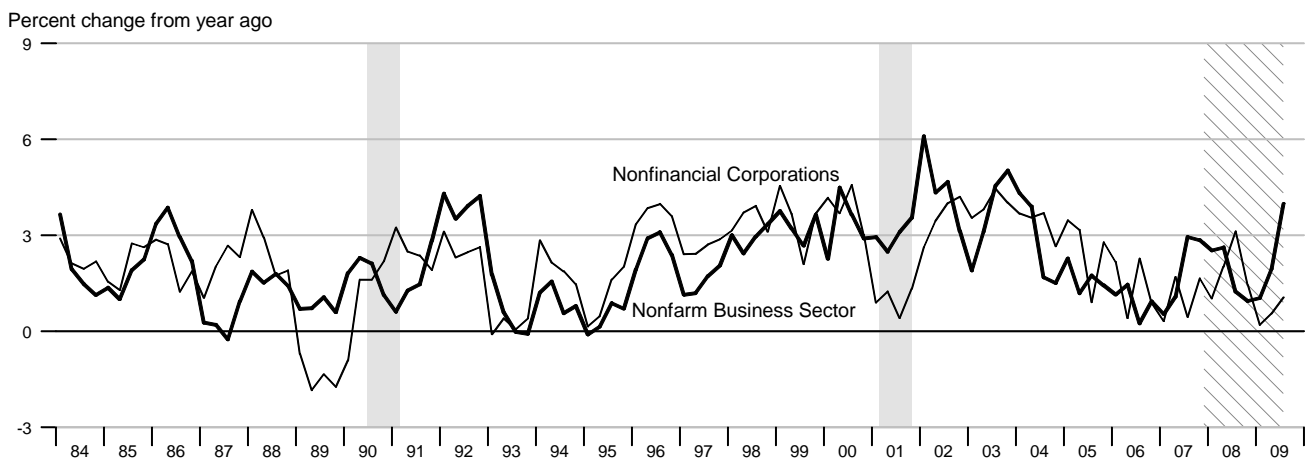


\*Data from 1987 to the present are on a NAICS basis; data prior to 1987 are on an SIC basis and are not strictly comparable (see End Note).

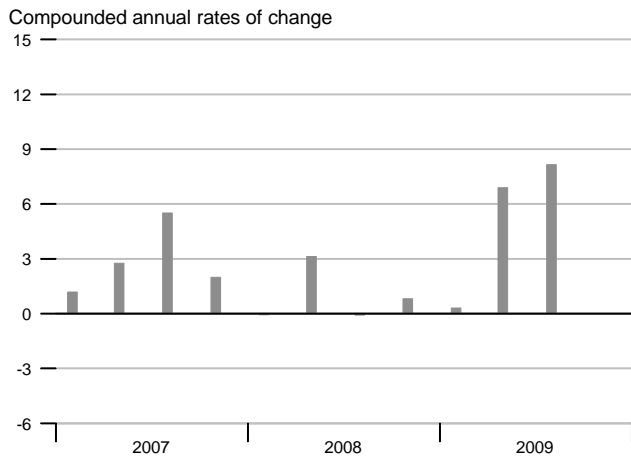
### Nonfarm Compensation per Hour



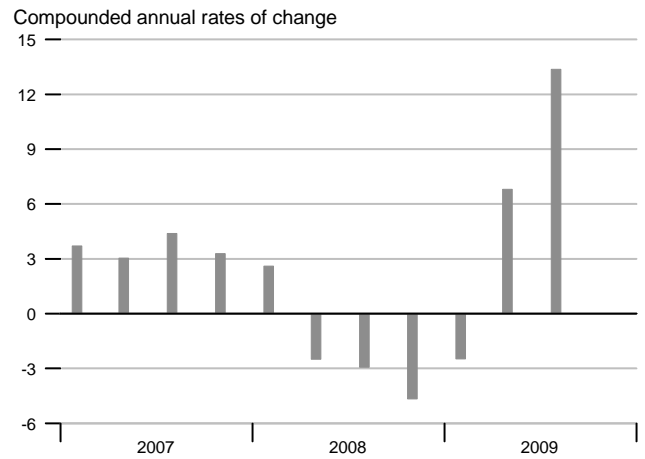
### Output per Hour, Nonfarm Business and Nonfinancial Corporations



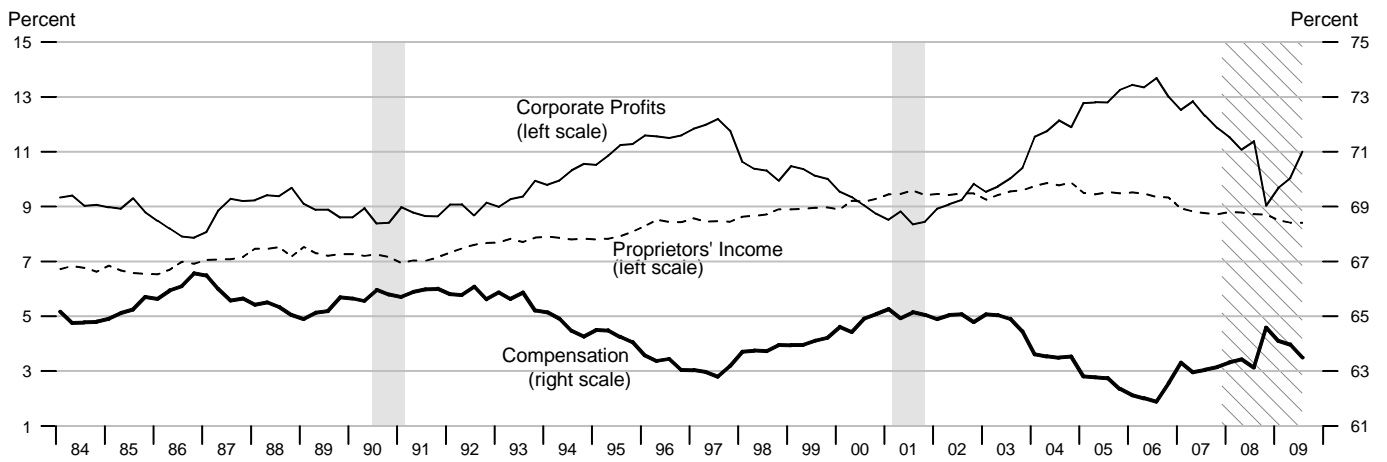
### Nonfarm Output per Hour



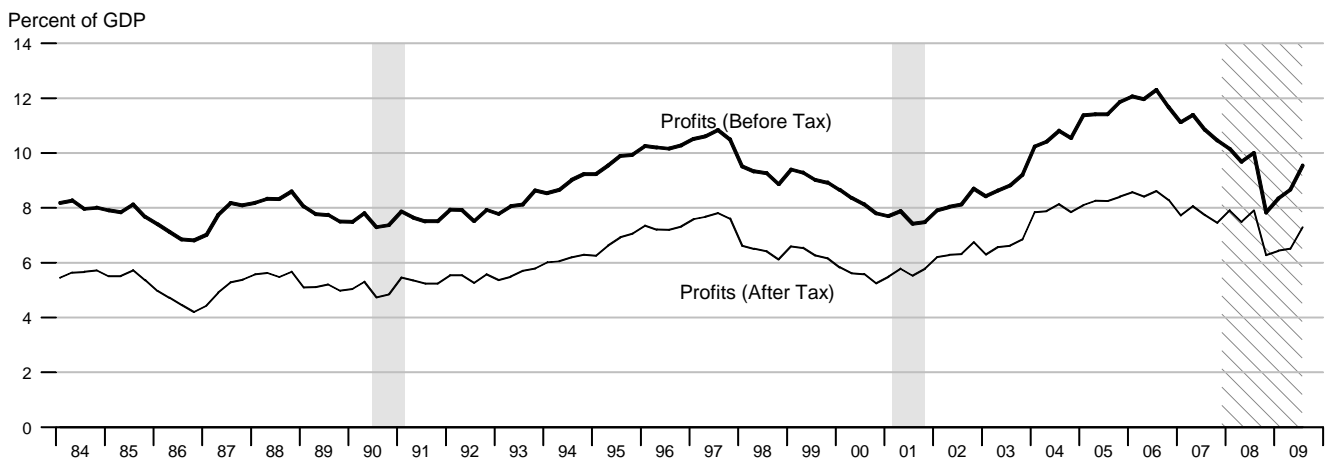
### Manufacturing Output per Hour



### Selected Component Shares of National Income



### Corporate Profits





	GDP Chain Price Index			Employment Cost Index			ECI: Wages			ECI: Benefits		
	Index	Percent change		Index	Percent change		Index	Percent change		Index	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
2005	100.000		3.3	99.2		3.1	99.2		2.5	99.2		4.6
2006	103.263		3.3	102.1		2.9	102.1		2.9	102.1		2.9
2007	106.221		2.9	105.2		3.1	105.5		3.4	104.5		2.4
2008	108.481		2.1	108.2		2.8	108.7		3.0	107.2		2.6
2006 1	102.071	3.0	3.3	100.8	2.4	2.6	100.8	2.8	2.5	100.8	2.0	2.9
2	102.980	3.6	3.6	101.6	3.2	2.8	101.6	3.2	2.8	101.6	3.2	2.8
3	103.763	3.1	3.3	102.5	3.6	3.0	102.5	3.6	3.1	102.5	3.6	2.8
4	104.237	1.8	2.9	103.3	3.2	3.1	103.3	3.2	3.2	103.4	3.6	3.1
2007 1	105.327	4.2	3.2	104.0	2.7	3.2	104.3	3.9	3.5	103.1	-1.2	2.3
2	106.026	2.7	3.0	104.8	3.1	3.1	105.0	2.7	3.3	104.2	4.3	2.6
3	106.460	1.6	2.6	105.6	3.1	3.0	105.9	3.5	3.3	104.9	2.7	2.3
4	107.072	2.3	2.7	106.5	3.5	3.1	106.7	3.1	3.3	105.9	3.9	2.4
2008 1	107.577	1.9	2.1	107.2	2.7	3.1	107.6	3.4	3.2	106.5	2.3	3.3
2	108.061	1.8	1.9	107.9	2.6	3.0	108.4	3.0	3.2	106.9	1.5	2.6
3	109.130	4.0	2.5	108.6	2.6	2.8	109.1	2.6	3.0	107.5	2.3	2.5
4	109.155	0.1	1.9	109.1	1.9	2.4	109.6	1.8	2.7	107.9	1.5	1.9
2009 1	109.661	1.9	1.9	109.3	0.7	2.0	109.8	0.7	2.0	108.1	0.7	1.5
2	109.656	-0.0	1.5	109.5	0.7	1.5	110.0	0.7	1.5	108.3	0.7	1.3
3	109.763	0.4	0.6	110.0	1.8	1.3	110.5	1.8	1.3	108.6	1.1	1.0
	Exports			Imports			Nonfarm Output per Hour			Nonfarm Compensation per Hour		
	Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Index	Percent change		Index	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
2005	1305.057		6.7	2027.790		6.1	136.233		1.7	162.793		4.0
2006	1422.020		9.0	2151.204		6.1	137.520		0.9	168.985		3.8
2007	1546.124		8.7	2193.827		2.0	140.063		1.8	176.041		4.2
2008	1629.262		5.4	2123.523		-3.2	142.611		1.8	180.965		2.8
2006 1	1388.773	16.5	8.8	2121.325	7.8	6.5	137.507	2.8	1.2	167.102	5.5	4.1
2	1412.067	6.9	8.3	2144.880	4.5	6.6	137.702	0.6	1.5	167.980	2.1	3.9
3	1414.069	0.6	8.5	2170.548	4.9	7.2	137.031	-1.9	0.2	168.567	1.4	2.8
4	1473.171	17.8	10.2	2168.061	-0.5	4.1	137.839	2.4	0.9	172.266	9.1	4.5
2007 1	1485.881	3.5	7.0	2190.837	4.3	3.3	138.246	1.2	0.5	174.247	4.7	4.3
2	1504.758	5.2	6.6	2188.125	-0.5	2.0	139.187	2.8	1.1	175.133	2.0	4.3
3	1569.896	18.5	11.0	2208.336	3.7	1.7	141.067	5.5	2.9	176.302	2.7	4.6
4	1623.961	14.5	10.2	2188.007	-3.6	0.9	141.761	2.0	2.8	178.478	5.0	3.6
2008 1	1623.423	-0.1	9.3	2174.293	-2.5	-0.8	141.737	-0.1	2.5	179.222	1.7	2.9
2	1670.431	12.1	11.0	2146.478	-5.0	-1.9	142.834	3.1	2.6	179.813	1.3	2.7
3	1655.183	-3.6	5.4	2134.428	-2.2	-3.3	142.807	-0.1	1.2	181.809	4.5	3.1
4	1568.010	-19.5	-3.4	2038.891	-16.7	-6.8	143.099	0.8	0.9	183.107	2.9	2.6
2009 1	1434.549	-29.9	-11.6	1821.043	-36.4	-16.2	143.209	0.3	1.0	180.921	-4.7	0.9
2	1419.458	-4.1	-15.0	1749.826	-14.7	-18.5	145.617	6.9	1.9	183.949	6.9	2.3
3	1478.825	17.8	-10.7	1836.247	21.3	-14.0	148.497	8.1	4.0	186.402	5.4	2.5

		Household Survey Employment				Nonfarm Payroll Employment				Nonfarm Aggregate Hours			
		Thousands	Change	Percent change		Thousands	Change	Percent change		Index	Percent change		
				Annual rate	Year ago			Annual rate	Year ago		Monthly rate	Annual rate	Year ago
2005		141710	2470	1.8		133699	2280	1.7		102.7		2.6	
2006		144414	2704	1.9		136098	2398	1.8		105.8		3.0	
2007		146042	1629	1.1		137604	1507	1.1		107.3		1.4	
2008		145363	-680	-0.5		137046	-558	-0.4		106.2		-1.0	
2009		139881	-5482	-3.8		132003	-5043	-3.7		99.8		-6.0	
2007	1	146148	587	1.6	1.9	137265	498	1.5	1.4	106.8	0.2	0.8	1.8
	2	145906	-242	-0.7	1.3	137557	292	0.9	1.2	107.3	0.4	1.8	1.5
	3	145935	29	0.1	1.0	137595	38	0.1	1.0	107.3	0.0	0.0	1.3
	4	146180	246	0.7	0.4	138000	406	1.2	0.9	107.7	0.4	1.5	1.0
2008	1	146253	73	0.2	0.1	137943	-57	-0.2	0.5	107.5	-0.1	-0.5	0.7
	2	146032	-221	-0.6	0.1	137509	-434	-1.3	-0.0	106.9	-0.6	-2.3	-0.3
	3	145241	-791	-2.2	-0.5	137004	-505	-1.5	-0.4	106.1	-0.7	-2.8	-1.1
	4	143924	-1317	-3.6	-1.5	135727	-1277	-3.7	-1.6	104.1	-1.9	-7.4	-3.3
2009	1	141587	-2337	-6.3	-3.2	133662	-2065	-5.9	-3.1	101.7	-2.3	-8.9	-5.4
	2	140459	-1128	-3.1	-3.8	132125	-1537	-4.5	-3.9	99.7	-2.0	-7.8	-6.8
	3	139339	-1120	-3.2	-4.1	131262	-863	-2.6	-4.2	99.0	-0.6	-2.5	-6.7
	4	138138	-1201	-3.4	-4.0	130965	-297	-0.9	-3.5	98.9	-0.1	-0.5	-5.0
2007	Dec	146173	-310	-2.5	0.2	138152	120	1.0	0.8	107.8	0.1	1.1	0.7
2008	Jan	146421	248	2.1	0.3	138080	-72	-0.6	0.7	107.5	-0.3	-3.3	0.8
	Feb	146165	-256	-2.1	0.1	137936	-144	-1.2	0.5	107.6	0.1	1.1	0.9
	Mar	146173	8	0.1	-0.1	137814	-122	-1.1	0.3	107.5	-0.1	-1.1	0.3
	Apr	146306	133	1.1	0.4	137654	-160	-1.4	0.2	107.4	-0.1	-1.1	0.5
	May	146023	-283	-2.3	0.0	137517	-137	-1.2	-0.1	106.9	-0.5	-5.4	-0.5
	Jun	145768	-255	-2.1	-0.2	137356	-161	-1.4	-0.2	106.4	-0.5	-5.5	-1.0
	Jul	145515	-253	-2.1	-0.3	137228	-128	-1.1	-0.3	106.2	-0.2	-2.2	-1.0
	Aug	145187	-328	-2.7	-0.3	137053	-175	-1.5	-0.4	106.4	0.2	2.3	-0.7
	Sep	145021	-166	-1.4	-0.8	136732	-321	-2.8	-0.7	105.8	-0.6	-6.6	-1.4
	Oct	144677	-344	-2.8	-0.8	136352	-380	-3.3	-1.1	105.0	-0.8	-8.7	-2.3
	Nov	143907	-770	-6.2	-1.8	135755	-597	-5.1	-1.6	104.1	-0.9	-9.8	-3.3
	Dec	143188	-719	-5.8	-2.0	135074	-681	-5.9	-2.2	103.2	-0.9	-9.9	-4.3
2009	Jan	142221	-967	-7.8	-2.9	134333	-741	-6.4	-2.7	102.5	-0.7	-7.8	-4.7
	Feb	141687	-534	-4.4	-3.1	133652	-681	-5.9	-3.1	101.9	-0.6	-6.8	-5.3
	Mar	140854	-833	-6.8	-3.6	133000	-652	-5.7	-3.5	100.7	-1.2	-13.3	-6.3
	Apr	140902	48	0.4	-3.7	132481	-519	-4.6	-3.8	100.1	-0.6	-6.9	-6.8
	May	140438	-464	-3.9	-3.8	132178	-303	-2.7	-3.9	99.8	-0.3	-3.5	-6.6
	Jun	140038	-400	-3.4	-3.9	131715	-463	-4.1	-4.1	99.1	-0.7	-8.1	-6.9
	Jul	139817	-221	-1.9	-3.9	131411	-304	-2.7	-4.2	99.2	0.1	1.2	-6.6
	Aug	139433	-384	-3.2	-4.0	131257	-154	-1.4	-4.2	99.0	-0.2	-2.4	-7.0
	Sep	138768	-665	-5.6	-4.3	131118	-139	-1.3	-4.1	98.9	-0.1	-1.2	-6.5
	Oct	138242	-526	-4.5	-4.4	130991	-127	-1.2	-3.9	98.5	-0.4	-4.7	-6.2
	Nov	138381	139	1.2	-3.8	130995	4	0.0	-3.5	99.1	0.6	7.6	-4.8
	Dec	137792	-589	-5.0	-3.8	130910	-85	-0.8	-3.1	99.1	0.0	0.0	-4.0



		Unempl. Rate	Retail and Food Services Sales				Industrial Production				Treasury Yields	
			Billions of dollars	Percent change			Index	Percent change			(Percent)	
				Monthly/ quarterly	Annual rate	Year ago			Monthly/ quarterly	Annual rate	Year ago	3-mo
2005		5.1	4078.223			6.4	107.2289			3.3	3.15	4.29
2006		4.6	4294.467			5.3	109.6790			2.3	4.73	4.79
2007		4.6	4435.842			3.3	111.3193			1.5	4.35	4.63
2008		5.8	4399.177			-0.8	108.8185			-2.2	1.37	3.67
2009		9.3	4137.365			-6.0	98.2951			-9.7	0.15	3.26
2007	1	4.5	1095.943	1.3	5.2	2.6	110.4694	0.5	1.8	1.3	4.98	4.68
	2	4.5	1101.816	0.5	2.2	3.0	111.1307	0.6	2.4	1.4	4.74	4.85
	3	4.6	1108.003	0.6	2.3	3.1	111.7206	0.5	2.1	1.4	4.30	4.73
	4	4.8	1130.080	2.0	8.2	4.4	111.9566	0.2	0.8	1.8	3.39	4.26
2008	1	5.0	1124.247	-0.5	-2.0	2.6	112.0106	0.0	0.2	1.4	2.04	3.66
	2	5.3	1128.726	0.4	1.6	2.4	110.7109	-1.2	-4.6	-0.4	1.63	3.89
	3	6.0	1111.269	-1.5	-6.0	0.3	108.1232	-2.3	-9.0	-3.2	1.49	3.86
	4	7.0	1034.935	-6.9	-24.8	-8.4	104.4294	-3.4	-13.0	-6.7	0.30	3.25
2009	1	8.2	1024.683	-1.0	-3.9	-8.9	99.0679	-5.1	-19.0	-11.6	0.21	2.74
	2	9.3	1021.129	-0.3	-1.4	-9.5	96.3971	-2.7	-10.4	-12.9	0.17	3.31
	3	9.6	1036.976	1.6	6.4	-6.7	98.0273	1.7	6.9	-9.3	0.16	3.52
	4	10.0	1054.577	1.7	7.0	1.9	99.6879	1.7	7.0	-4.5	0.06	3.46
2007	Dec	5.0	376.420	-0.9	-10.1	3.3	112.3962	0.3	3.7	1.7	3.00	4.10
2008	Jan	5.0	376.262	-0.0	-0.5	3.6	112.3389	-0.1	-0.6	2.2	2.75	3.74
	Feb	4.8	373.140	-0.8	-9.5	2.4	112.0435	-0.3	-3.1	1.1	2.12	3.74
	Mar	5.1	374.845	0.5	5.6	1.8	111.6495	-0.4	-4.1	0.9	1.26	3.51
	Apr	5.0	376.009	0.3	3.8	2.8	111.0012	-0.6	-6.7	-0.0	1.29	3.68
	May	5.4	376.662	0.2	2.1	1.8	110.6820	-0.3	-3.4	-0.4	1.73	3.88
	Jun	5.5	376.055	-0.2	-1.9	2.7	110.4494	-0.2	-2.5	-0.7	1.86	4.10
	Jul	5.8	374.103	-0.5	-6.1	1.7	110.3760	-0.1	-0.8	-1.0	1.63	4.01
	Aug	6.1	371.311	-0.7	-8.6	0.8	109.1570	-1.1	-12.5	-2.2	1.72	3.89
	Sep	6.2	365.855	-1.5	-16.3	-1.7	104.8367	-4.0	-38.4	-6.4	1.13	3.69
	Oct	6.6	354.744	-3.0	-30.9	-5.1	106.1626	1.3	16.3	-4.7	0.67	3.81
	Nov	6.9	345.175	-2.7	-28.0	-9.1	104.7607	-1.3	-14.7	-6.5	0.19	3.53
	Dec	7.4	335.016	-2.9	-30.1	-11.0	102.3650	-2.3	-24.2	-8.9	0.03	2.42
2009	Jan	7.7	342.017	2.1	28.2	-9.1	100.1154	-2.2	-23.4	-10.9	0.13	2.52
	Feb	8.2	343.438	0.4	5.1	-8.0	99.3397	-0.8	-8.9	-11.3	0.30	2.87
	Mar	8.6	339.228	-1.2	-13.8	-9.5	97.7486	-1.6	-17.6	-12.5	0.21	2.82
	Apr	8.9	338.344	-0.3	-3.1	-10.0	97.2344	-0.5	-6.1	-12.4	0.16	2.93
	May	9.4	339.873	0.5	5.6	-9.8	96.2033	-1.1	-12.0	-13.1	0.18	3.29
	Jun	9.5	342.912	0.9	11.3	-8.8	95.7537	-0.5	-5.5	-13.3	0.18	3.72
	Jul	9.4	342.489	-0.1	-1.5	-8.5	96.9493	1.2	16.1	-12.2	0.18	3.56
	Aug	9.7	350.800	2.4	33.3	-5.5	98.2523	1.3	17.4	-10.0	0.17	3.59
	Sep	9.8	343.687	-2.0	-21.8	-6.1	98.8802	0.6	7.9	-5.7	0.12	3.40
	Oct	10.1	347.641	1.2	14.7	-2.0	99.0909	0.2	2.6	-6.7	0.07	3.39
	Nov	10.0	353.951	1.8	24.1	2.5	99.6685	0.6	7.2	-4.9	0.05	3.40
	Dec	10.0	352.985	-0.3	-3.2	5.4	100.3043	0.6	7.9	-2.0	0.05	3.59

		Consumer Price Index					Consumer Price Index less Food and Energy					Producer Price Index Finished Goods			
		Percent change					Percent change					Percent change			
		Index	Monthly/ quarterly	Annual rate	Year ago	Year to date	Index	Monthly/ quarterly	Annual rate	Year ago	Year to date	Index	Monthly/ quarterly	Annual rate	Year ago
2005		195.3			3.4		200.9			2.2		155.8			4.9
2006		201.6			3.2		205.9			2.5		160.3			2.9
2007		207.3			2.9		210.7			2.3		166.6			3.9
2008		215.2			3.8		215.6			2.3		177.3			6.4
2009		214.6			-0.3		219.2			1.7					
2007	1	204.4	1.0	3.9	2.4	3.9	209.0	0.6	2.3	2.6	2.3	162.6	1.6	6.4	1.9
	2	206.5	1.0	4.2	2.6	4.0	210.1	0.5	2.1	2.3	2.2	166.0	2.0	8.5	3.4
	3	207.7	0.6	2.4	2.3	3.5	211.2	0.5	2.1	2.1	2.2	166.9	0.6	2.4	3.6
	4	210.7	1.4	5.8	4.0	4.0	212.6	0.7	2.7	2.3	2.3	171.0	2.4	10.1	6.8
2008	1	213.0	1.1	4.5	4.2	4.5	213.9	0.6	2.5	2.4	2.5	174.4	2.0	8.1	7.2
	2	215.4	1.1	4.5	4.3	4.5	215.0	0.5	2.0	2.3	2.3	178.5	2.4	9.9	7.6
	3	218.6	1.5	6.2	5.2	5.1	216.5	0.7	2.8	2.5	2.4	182.7	2.4	9.7	9.5
	4	213.9	-2.2	-8.3	1.5	1.5	216.8	0.2	0.6	2.0	2.0	173.4	-5.1	-19.0	1.4
2009	1	212.6	-0.6	-2.4	-0.2	-2.4	217.7	0.4	1.5	1.7	1.5	170.6	-1.6	-6.2	-2.2
	2	213.3	0.3	1.3	-0.9	-0.5	218.9	0.6	2.4	1.8	2.0	171.4	0.4	1.8	-4.0
	3	215.2	0.9	3.6	-1.6	0.8	219.8	0.4	1.5	1.5	1.8	173.3	1.1	4.5	-5.2
	4	217.1	0.8	3.4	1.5	1.5	220.6	0.4	1.5	1.7	1.7				
2007	Dec	211.7	0.3	3.3	4.2	4.2	213.2	0.2	3.0	2.4	2.4	171.8	-0.5	-5.4	6.4
2008	Jan	212.5	0.4	4.4	4.4	4.4	213.7	0.3	3.1	2.5	3.1	173.4	0.9	11.8	7.8
	Feb	212.9	0.2	2.1	4.2	3.2	213.9	0.1	0.8	2.3	2.0	174.1	0.4	5.0	6.9
	Mar	213.7	0.4	4.6	4.1	3.7	214.3	0.2	2.2	2.4	2.1	175.6	0.9	10.8	6.9
	Apr	214.0	0.2	1.9	3.9	3.2	214.5	0.1	1.4	2.3	1.9	176.0	0.2	2.8	6.4
	May	215.0	0.5	6.0	4.0	3.8	215.0	0.2	2.6	2.3	2.0	178.6	1.5	19.2	7.3
	Jun	217.0	0.9	11.7	4.8	5.1	215.6	0.3	3.5	2.4	2.3	181.0	1.3	17.4	9.0
	Jul	218.6	0.7	9.1	5.4	5.6	216.2	0.3	3.3	2.5	2.4	183.4	1.3	17.1	9.7
	Aug	218.6	-0.0	-0.2	5.3	4.9	216.5	0.2	2.1	2.5	2.4	182.5	-0.5	-5.7	9.8
	Sep	218.7	0.0	0.5	4.9	4.4	216.8	0.1	1.4	2.5	2.3	182.3	-0.1	-1.3	8.9
	Oct	216.9	-0.8	-9.4	3.7	2.9	216.8	-0.0	-0.1	2.2	2.0	177.6	-2.6	-26.9	5.3
	Nov	213.3	-1.7	-18.3	1.0	0.8	216.9	0.1	0.6	2.0	1.9	172.8	-2.7	-28.0	0.1
	Dec	211.6	-0.8	-9.1	-0.1	-0.1	216.9	0.0	0.1	1.7	1.7	169.7	-1.8	-19.5	-1.2
2009	Jan	212.2	0.3	3.4	-0.2	3.4	217.3	0.2	2.1	1.7	2.1	171.2	0.9	11.1	-1.3
	Feb	213.0	0.4	4.8	0.1	4.1	217.7	0.2	2.3	1.8	2.2	171.1	-0.1	-0.7	-1.7
	Mar	212.7	-0.1	-1.6	-0.4	2.2	218.0	0.2	2.1	1.8	2.2	169.5	-0.9	-10.7	-3.5
	Apr	212.7	-0.0	-0.2	-0.6	1.6	218.6	0.3	3.1	1.9	2.4	170.2	0.4	5.1	-3.3
	May	212.9	0.1	1.2	-1.0	1.5	218.9	0.1	1.7	1.8	2.3	170.5	0.2	2.1	-4.5
	Jun	214.5	0.7	9.3	-1.2	2.7	219.3	0.2	2.4	1.7	2.3	173.4	1.7	22.4	-4.2
	Jul	214.5	0.0	0.1	-1.9	2.4	219.5	0.1	1.1	1.6	2.1	171.4	-1.2	-13.0	-6.5
	Aug	215.4	0.4	5.5	-1.4	2.7	219.7	0.1	0.8	1.5	1.9	174.7	1.9	25.7	-4.3
	Sep	215.8	0.2	2.0	-1.3	2.7	220.1	0.2	2.0	1.5	2.0	173.7	-0.6	-6.7	-4.7
	Oct	216.4	0.3	3.4	-0.2	2.7	220.5	0.2	2.2	1.7	2.0	174.2	0.3	3.5	-1.9
	Nov	217.3	0.4	4.9	1.9	2.9	220.5	0.0	0.4	1.7	1.8	177.4	1.8	24.4	2.7
	Dec	217.5	0.1	1.6	2.8	2.8	220.8	0.1	1.4	1.8	1.8				

## Notes

Pages 4, 5: **Final Sales** is gross domestic product (GDP) minus change in private inventories. **Advance, Second, and Third GDP Growth Rates** are released during the first, second, and third months of the following quarter. Changes result from incorporation of more complete information. Real GDP is measured in 2005 dollars. The **ISM** (formerly Purchasing Managers') **Index** is a weighted average of diffusion indexes for new orders, production, supplier deliveries, inventories, and employment. **Aggregate and Average Weekly Hours** are paid hours of production and nonsupervisory employees. The **Inventory-Sales Ratio** uses nominal (current-dollar) inventory and sales data.

Page 6: For information on how to calculate the **Contribution** of a component to the overall GDP growth rate, see the October 1999 issue of the Survey of Current Business, p. 16. The sign is changed for **Imports**.

Page 7: Ten-year **Treasury Yields** are adjusted to constant maturity; three-month yields are secondary market averages. All rates used in the yield curves are adjusted to constant maturity. **Standard and Poor's 500 Index with Reinvested Dividends** shows the total return: capital gains plus dividends.

Pages 8, 9: **Oil** (West Texas intermediate) and **Natural Gas** (Henry Hub) spot and futures **prices** are listed in the *Wall Street Journal*. Spot prices are monthly averages of daily prices; futures prices are usually taken from the last trading day of the month. **Consumer Price Index** is for all urban consumers. The **Consumption Chain Price Index** is the index associated with the personal consumption expenditures component of GDP. The **Employment Cost Index (ECI)** covers private nonfarm employers. **ECI Compensation** refers to a fixed sample of jobs, while **Compensation per Hour** covers all workers in the nonfarm business sector in a given quarter. In both cases, compensation is wages and salaries plus benefits.

Pages 10, 11: Effective with the January 2008 **Employment Situation**, the establishment survey data for employment, hours, and earnings have been converted from the 2002 NAICS system to the 2007 NAICS system. For more information see <http://www.bls.gov/ces/>. **Nonfarm Payroll Employment** is counted in a survey of about 400,000 establishments (Current Employment Statistics). It excludes self-employed individuals and workers in private households, but double-counts individuals with more than one job. The **Household Survey** (Current Population Survey) of about 60,000 households provides estimates of civilian employment, unemployment rate, labor force participation rate, and employment-population ratio. **Population** is civilian, noninstitutional, 16 years and over. The 90 percent confidence intervals for the unemployment rate ( $\pm 0.2$  percentage points) and change in household survey employment ( $\pm 430,000$ ) measure uncertainty due to sample size. Because the household survey was changed in January 1994, data prior to this date are not strictly comparable. The Bureau of Labor Statistics announced several revisions to the Household Survey on Feb. 7, 2003, with the release of the January 2003 data. For more information, see [www.bls.gov/cps/](http://www.bls.gov/cps/). The **Job Openings rate** is the number of job openings on the last business day of the month as a percent of total employment plus job openings.

Page 13: The **Michigan Consumer Sentiment Index** shows changes in a summary measure of consumers' answers to five questions about their current and expected financial situation, expectations about future economic conditions, and attitudes about making large purchases. The survey is based on a representative sample of U.S. households.

Page 15: **Gross Private Saving** is the sum of personal saving, undistributed corporate profits with IVA and CCAj (see notes for pp. 18-19), and private wage accruals less disbursements. **Gross Government Saving** is net government saving (surplus/deficit) plus consumption of fixed capital. **Balance on Current Account (NIPA)** is net capital transfer payments to the rest of the world plus net lending or net borrowing (international trade and income flows).

Pages 16, 17: **Government Consumption and Investment** is current expenditures on goods and services, including capital consumption (depreciation) and gross investment, as reported in the NIPAs. The **Unified Federal Budget Surplus/Deficit** differs from **NIPA Basis** in four main ways: (1) NIPA excludes transactions involving existing assets; (2) NIPA outlays exclude government investment and include consumption of government capital, while unified budget outlays do the reverse; (3) NIPA accounts exclude Puerto Rico and U.S. territories; and (4) various timing issues are handled differently. **Outlays and Receipts** are from the NIPAs, except as noted. Since 1977, the federal **Fiscal Year** starts on October 1. Excluded agency debt was 0.6 percent of federal debt at the end of fiscal 1997. **Federal Debt Held by the Public** includes holdings of the Federal Reserve System and excludes holdings of the social security and other federal trust funds. Federal grants in aid to state and local governments appear in both state and local receipts and federal outlays.

Pages 18, 19: The **Trade Balance** (shown on a balance of payments basis) is the difference between exports and imports of goods (merchandise) and services. It is nearly identical in concept to the **Net Exports** component of GDP, but differs slightly in accounting details. The **Investment Income Balance** equals income received from U.S.-owned assets in other countries minus income paid on foreign-owned assets in the U.S. The investment income balance is nearly identical in concept to the difference between gross national product and gross domestic product, but differs in accounting details. The **Current Account Balance** is the trade balance plus the balance on investment income plus net unilateral transfers to the U.S. from other countries.

Pages 20, 21: **Output per Hour (Y/H)**, **Unit Labor Cost (C/Y)**, and **Compensation per Hour (C/H)** are indexes which approximately obey the following relationship:  $\%(Y/H) + \%(C/Y) = \%(C/H)$  with  $\%( )$  meaning percent changes. Unit labor cost is shown on page 9. **Real Compensation per Hour** uses the CPI to adjust for the effects of inflation. Nonfarm business accounted for about 77 percent of the value of GDP in 2000, while nonfinancial corporations accounted for about 54 percent. **Inventory Valuation Adjustments (IVA)** remove the effect of changes in the value of existing inventories from corporate profits and proprietors' income. (This change in value does not correspond to current production and therefore is not part of GDP). **Capital Consumption Adjustments (CCAdj)** increase profits and proprietors' income by the difference between estimates of economic depreciation and depreciation allowed by the tax code. Components of national income not shown are rental income of persons and net interest.

## Sources

*Bureau of Economic Analysis (BEA), U.S. Dept. of Commerce*

National income and product accounts, international trade and investment data (except by country), auto and light truck sales.

*Census Bureau, U.S. Dept. of Commerce*

Inventory-sales ratios, retail sales, capital goods orders, housing starts, exports and imports by country.

*Bureau of Labor Statistics (BLS), U.S. Dept. of Labor*

All employment-related data, employment cost index, consumer and producer price indexes, unit labor cost, output per hour, compensation per hour, multifactor productivity.

*United States Department of Treasury*

Unified budget receipts, outlays, deficit, debt.

*Federal Reserve Board*

Index of industrial production, treasury yields, exchange rates, capacity utilization, household debt.

*The Survey Research Center, The University of Michigan*

Consumer sentiment index.

*Organization for Economic Cooperation and Development (OECD)*

GDP for major trading partners (not available on FRED).