



## Predicting Consumption: A Lesson in Real-Time Data

Continuing crises in U.S. housing and financial markets have increased concerns about an impending recession, which typically involves two quarters of negative GDP growth. All recessions since the early 1950s, except the one in 2001, included a contraction in personal consumption expenditures (PCE). Because roughly 70 percent of the country's GDP can be attributed to PCE on goods and services, any contraction in consumption expenditures weighs heavily on economic growth.

The Bureau of Economic Analysis (BEA) measures GDP and, two months after the end of each quarter, releases its GDP estimates for that quarter.<sup>1</sup> In addition to releasing data on total output, the BEA releases data on each component of GDP: PCE, investment, government expenditures, and net exports. Unlike the other components, PCE estimates are also released monthly as part of the BEA's "Personal Income and Outlays" report. Quarterly PCE is the average of monthly PCE over the three months in the quarter, and both monthly and quarterly data are subsequently revised multiple times.

These monthly PCE releases have been spotlighted recently: As it turns out, the PCE measure for the second month of a given quarter is close to the measure for the entire quarter. For example, the PCE for February 2008 (reported March 28) was \$8,365.5 billion; the advance release of 2008:Q1 PCE (reported May 1) was \$8,369.1 billion. The rationale for using the second month as a proxy for a quarter's average is simple: It is available sooner—one month before the advance release of the quarterly figure. It is also quite reliable: On average, the economy tends to grow; if the growth rate of consumption from month to month within a quarter is constant, the PCE for the second month is close to that quarter's average.

The chart plots the approximated (second-month) and actual growth rates of PCE since 1991 using real-time data: That is, the growth rates at each point on the chart are computed using only the data that would have been available

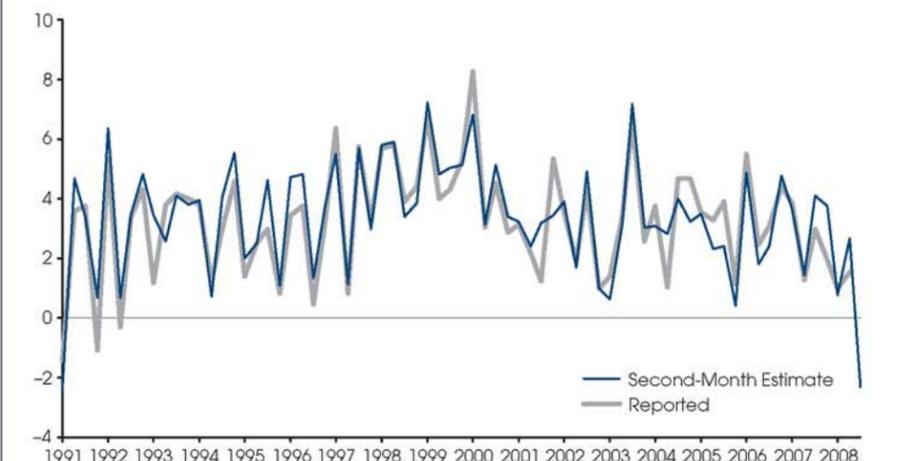
to a researcher at the time of the estimate. The approximated measure for 2008:Q3 is -2.3 percent, suggesting the first decline in PCE since the fourth quarter of 1991. On average, the second-month PCE is close to the reported quarterly data; however, it under predicts the advance release by an average of 0.15 percentage points over the sample. The correlation between the two series in the chart is 0.90.

Most of the difference between the two series disappears when data are revised. In fact, the actual quarterly PCE growth rate and the approximation using second-month data is almost perfect, differing by only 0.03 percentage points when both growth rates are computed using current data. In summary, this simple calculation can provide a quite accurate picture of the quarterly consumption growth rate a month ahead of the BEA's first official release. In addition, the use of real-time (or unrevised) data is essential for evaluating the performance of this or any calculation.

—Riccardo DiCecio and Charles S. Gascon

<sup>1</sup> Both the GDP and the "Personal Income and Outlays" releases are available at <http://www.bea.gov/national/index.htm>. The current release schedule for the National Economic Accounts is available at [http://www.bea.gov/newsreleases/news\\_release\\_sort\\_national.htm](http://www.bea.gov/newsreleases/news_release_sort_national.htm).

Annualized Growth Rate of Real Personal Consumption Expenditures



NOTE: At time of publication, the actual 2008:Q3 data had not been reported by the BEA; only the second-month estimate is reported in the chart.  
SOURCE: Authors' calculations with real-time ALFRED data; <http://alfred.stlouisfed.org/>.

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## Conventions used in this publication:

1. Shaded areas indicate recessions, as determined by the National Bureau of Economic Research.
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.

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## Notes

*Pages 4, 5: Final Sales* is gross domestic product (GDP) minus change in private inventories. **Advance, Preliminary, and Final 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 2000 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. The 30-year constant maturity series was discontinued by the Treasury Department as of Feb. 18, 2002. **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 CCAAdj (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  $\%(C)$  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 (CCAAdj)** 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.

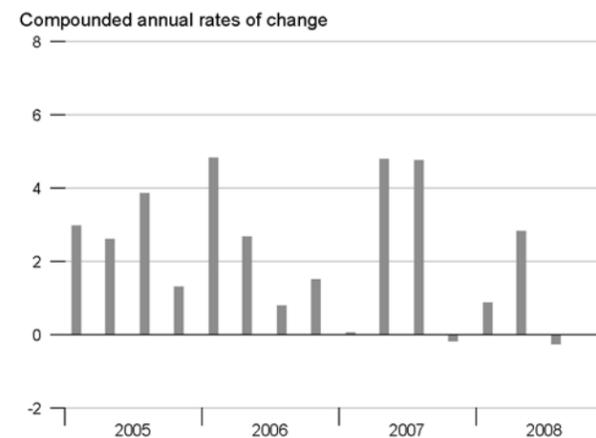
*Federal Reserve Board*  
 Index of industrial production, treasury yields, exchange rates, capacity utilization, household debt.

*The Survey Research Center, The University of Michigan*  
 Consumer sentiment index.

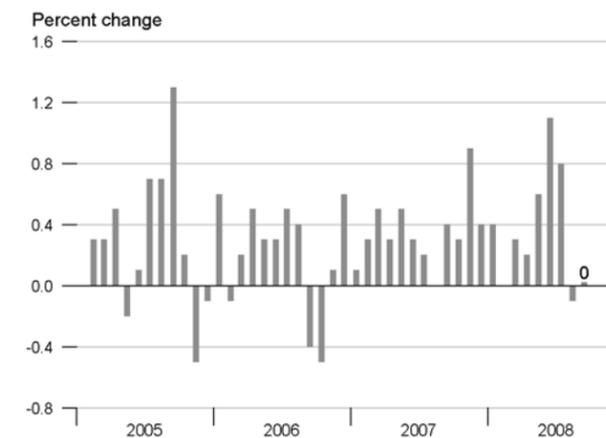
*Organization for Economic Cooperation and Development (OECD)*  
 GDP for major trading partners (not available on FRED).

	Consumer Price Index					Consumer Price Index less Food and Energy					Producer Price Index Finished Goods				
	Index	Percent change				Index	Percent change				Index	Percent change			
		Monthly/quarterly	Annual rate	Year ago	Year to date		Monthly/quarterly	Annual rate	Year ago	Year to date		Monthly/quarterly	Annual rate	Year ago	
2003	184.000			2.3		193.225		1.5		143.3		3.2			
2004	188.908			2.7		196.633		1.8		148.5		3.6			
2005	195.283			3.4		200.875		2.2		155.7		4.9			
2006	201.583			3.2		205.933		2.5		160.3		3.0			
2007	207.345			2.9		210.731		2.3		166.6		3.9			
2006	1	199.433	0.4	1.8	3.7	1.8	203.667	0.6	2.5	2.1	2.5	159.6	0.1	0.6	4.5
	2	201.267	0.9	3.7	3.9	2.7	205.400	0.9	3.4	2.5	3.0	160.8	0.8	3.0	4.3
	3	203.200	1.0	3.9	3.3	3.1	206.867	0.7	2.9	2.8	2.9	161.1	0.2	0.8	2.8
	4	202.433	-0.4	-1.5	1.9	1.9	207.800	0.5	1.8	2.7	2.7	159.8	-0.8	-3.3	0.3
2007	1	204.269	0.9	3.7	2.4	3.7	208.975	0.6	2.3	2.6	2.3	162.7	1.9	7.6	2.0
	2	206.566	1.1	4.6	2.6	4.1	210.025	0.5	2.0	2.3	2.2	166.2	2.1	8.8	3.4
	3	207.989	0.7	2.8	2.4	3.7	211.309	0.6	2.5	2.1	2.3	166.9	0.4	1.6	3.6
	4	210.555	1.2	5.0	4.0	4.0	212.615	0.6	2.5	2.3	2.3	170.5	2.2	9.1	6.7
2008	1	212.796	1.1	4.3	4.2	4.3	213.931	0.6	2.5	2.4	2.5	174.3	2.2	9.2	7.1
	2	215.426	1.2	5.0	4.3	4.7	214.919	0.5	1.9	2.3	2.2	178.8	2.6	10.6	7.6
	3	218.958	1.6	6.7	5.3	5.4	216.612	0.8	3.2	2.5	2.5	182.5	2.1	8.6	9.4
2006	Sep	202.900	-0.4	-5.2	2.1	3.2	207.300	0.2	2.3	2.9	3.0	160.0	-1.4	-15.7	0.9
	Oct	201.900	-0.5	-5.8	1.4	2.2	207.600	0.1	1.8	2.8	2.8	158.1	-1.2	-13.4	-1.2
	Nov	202.100	0.1	1.2	1.9	2.1	207.700	0.0	0.6	2.6	2.6	160.1	1.3	16.3	0.9
	Dec	203.300	0.6	7.4	2.6	2.6	208.100	0.2	2.3	2.6	2.6	161.1	0.6	7.8	1.1
2007	Jan	203.552	0.1	1.5	2.1	1.5	208.608	0.2	3.0	2.7	3.0	160.9	-0.1	-1.5	0.2
	Feb	204.158	0.3	3.6	2.4	2.6	209.085	0.2	2.8	2.7	2.9	162.9	1.2	16.0	2.6
	Mar	205.098	0.5	5.7	2.8	3.6	209.233	0.1	0.9	2.5	2.2	164.4	0.9	11.6	3.2
	Apr	205.751	0.3	3.9	2.6	3.7	209.650	0.2	2.4	2.4	2.3	165.5	0.7	8.3	3.2
	May	206.700	0.5	5.7	2.7	4.1	209.978	0.2	1.9	2.2	2.2	166.5	0.6	7.5	3.7
	Jun	207.246	0.3	3.2	2.6	3.9	210.446	0.2	2.7	2.2	2.3	166.6	0.1	0.7	3.2
	Jul	207.708	0.2	2.7	2.4	3.7	210.926	0.2	2.8	2.2	2.3	167.5	0.5	6.7	4.0
	Aug	207.749	0.0	0.2	1.9	3.3	211.265	0.2	1.9	2.1	2.3	166.1	-0.8	-9.6	2.3
	Sep	208.509	0.4	4.5	2.8	3.4	211.737	0.2	2.7	2.1	2.3	167.0	0.5	6.7	4.4
	Oct	209.055	0.3	3.2	3.5	3.4	212.115	0.2	2.2	2.2	2.3	167.9	0.5	6.7	6.2
	Nov	210.930	0.9	11.3	4.4	4.1	212.626	0.2	2.9	2.4	2.4	172.3	2.6	36.4	7.6
	Dec	211.680	0.4	4.4	4.1	4.1	213.103	0.2	2.7	2.4	2.4	171.4	-0.5	-6.1	6.4
2008	Jan	212.516	0.4	4.8	4.4	4.8	213.765	0.3	3.8	2.5	3.8	173.4	1.2	14.9	7.8
	Feb	212.571	0.0	0.3	4.1	2.6	213.851	0.0	0.5	2.3	2.1	174.0	0.3	4.2	6.8
	Mar	213.301	0.3	4.2	4.0	3.1	214.176	0.2	1.8	2.4	2.0	175.6	0.9	11.6	6.8
	Apr	213.743	0.2	2.5	3.9	3.0	214.398	0.1	1.3	2.3	1.8	176.1	0.3	3.5	6.4
	May	215.132	0.6	8.1	4.1	4.0	214.832	0.2	2.5	2.3	2.0	178.6	1.4	18.4	7.3
	Jun	217.403	1.1	13.4	4.9	5.5	215.526	0.3	3.9	2.4	2.3	181.7	1.7	22.9	9.1
	Jul	219.181	0.8	10.3	5.5	6.2	216.230	0.3	4.0	2.5	2.5	183.9	1.2	15.5	9.8
	Aug	218.880	-0.1	-1.6	5.4	5.1	216.650	0.2	2.4	2.5	2.5	182.2	-0.9	-10.5	9.7
	Sep	218.813	-0.0	-0.4	4.9	4.5	216.956	0.1	1.7	2.5	2.4	181.5	-0.4	-4.5	8.7

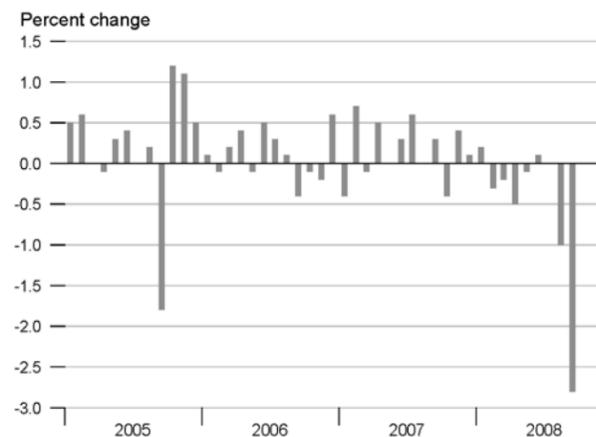
Real GDP Growth



Consumer Price Index



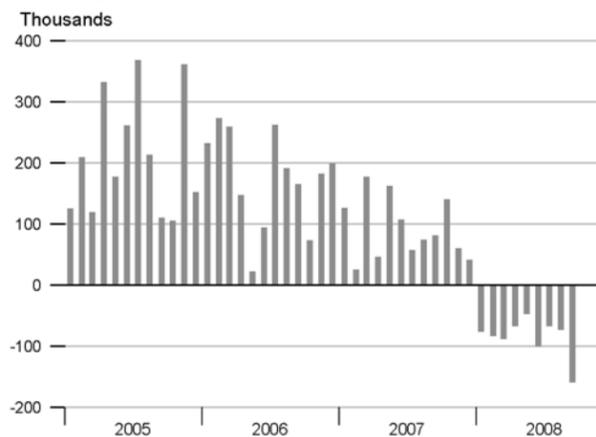
Industrial Production



Interest Rates



Change in Nonfarm Payrolls

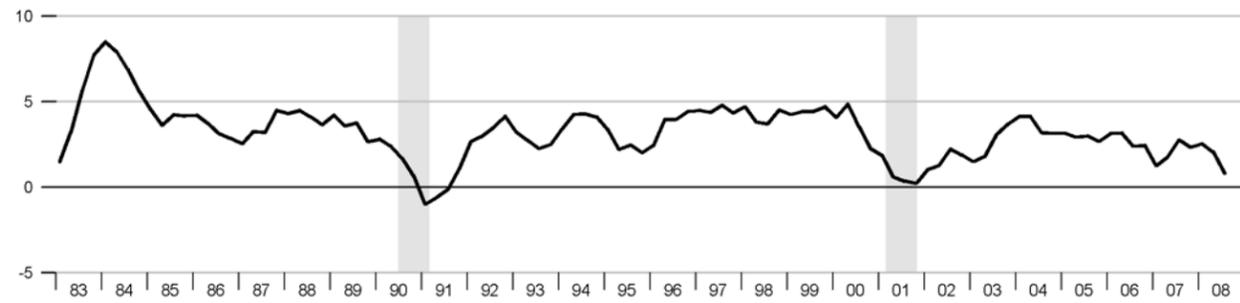


Unemployment Rate



**Real Gross Domestic Product**

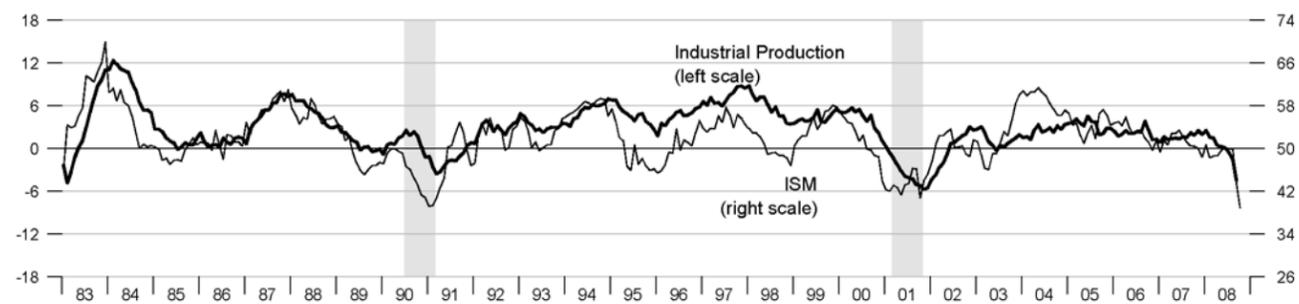
Percent change from year ago



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

Percent change from year ago

Index



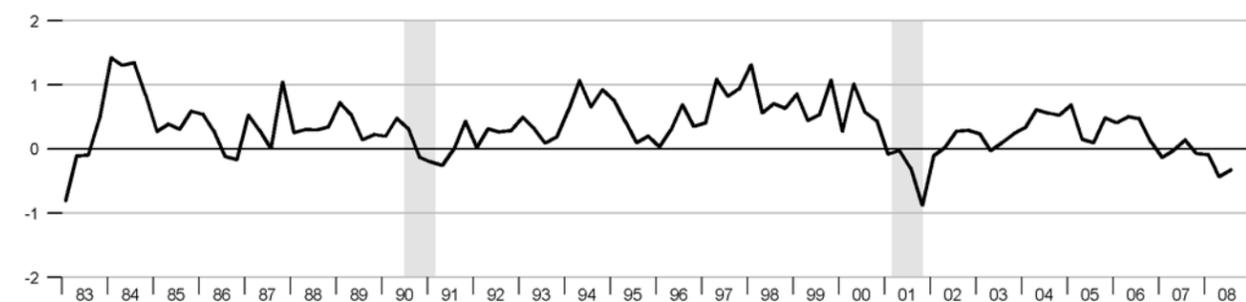
**Aggregate Private Nonfarm Hours**

Percent change from year ago



**Real Change in Private Inventories**

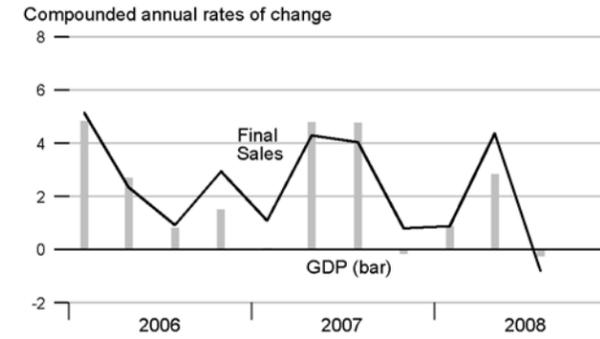
Percent of GDP



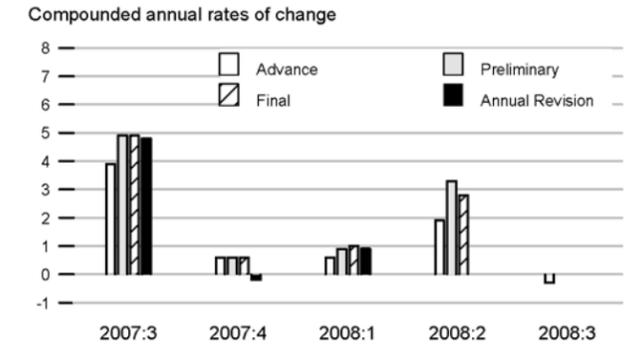
	Unempl. Rate	Retail and Food Services Sales			Industrial Production			Treasury Yields			
		Billions of dollars	Percent change		Index	Percent change		(Percent)			
			Monthly/quarterly	Annual rate	Year ago		Monthly/quarterly	Annual rate	Year ago	3-mo	10-yr
2003	6.0	3614.120			4.2	101.2448			1.2	1.01	4.02
2004	5.5	3832.862			6.1	103.7644			2.5	1.37	4.27
2005	5.1	4078.592			6.4	107.2099			3.3	3.15	4.29
2006	4.6	4313.695			5.8	109.5711			2.2	4.73	4.79
2007	4.6	4488.464			4.1	111.3932			1.7	4.35	4.63
2006	1	1070.109	3.1	13.0	7.6	108.8526	0.8	3.2	2.1	4.39	4.57
	2	1075.965	0.5	2.2	6.0	109.5473	0.6	2.6	2.2	4.70	5.07
	3	1082.149	0.6	2.3	5.0	110.0689	0.5	1.9	2.8	4.91	4.90
	4	1085.472	0.3	1.2	4.6	109.8155	-0.2	-0.9	1.7	4.90	4.63
2007	1	1105.203	1.8	7.5	3.3	110.2336	0.4	1.5	1.3	4.98	4.68
	2	1119.377	1.3	5.2	4.0	111.0922	0.8	3.2	1.4	4.74	4.85
	3	1127.893	0.8	3.1	4.2	112.0778	0.9	3.6	1.8	4.30	4.73
	4	1135.991	0.7	2.9	4.7	112.1693	0.1	0.3	2.1	3.39	4.26
2008	1	1138.145	0.2	0.8	3.0	112.2848	0.1	0.4	1.9	2.04	3.66
	2	1148.626	0.9	3.7	2.6	111.3970	-0.8	-3.1	0.3	1.63	3.89
	3	1136.927	-1.0	-4.0	0.8	109.6831	-1.5	-6.0	-2.1	1.49	3.86
2006	Oct	359.706	0.1	1.6	4.5	109.7437	-0.1	-0.9	2.5	4.92	4.73
	Nov	360.428	0.2	2.4	4.0	109.5274	-0.2	-2.3	1.2	4.94	4.60
	Dec	365.338	1.4	17.6	5.3	110.1754	0.6	7.3	1.3	4.85	4.56
2007	Jan	365.610	0.1	0.9	2.1	109.7791	-0.4	-4.2	0.9	4.98	4.76
	Feb	368.271	0.7	9.1	3.6	110.5181	0.7	8.4	1.6	5.03	4.72
	Mar	371.322	0.8	10.4	4.1	110.4036	-0.1	-1.2	1.3	4.94	4.56
	Apr	370.568	-0.2	-2.4	3.1	110.9530	0.5	6.1	1.4	4.87	4.69
	May	376.206	1.5	19.9	5.0	110.9686	0.0	0.2	1.5	4.73	4.75
	Jun	372.603	-1.0	-10.9	4.0	111.3551	0.3	4.3	1.4	4.61	5.10
	Jul	374.270	0.4	5.5	3.7	112.0024	0.6	7.2	1.7	4.82	5.00
	Aug	374.253	-0.0	-0.1	3.4	111.9712	-0.0	-0.3	1.6	4.20	4.67
	Sep	379.370	1.4	17.7	5.6	112.2598	0.3	3.1	2.2	3.89	4.52
	Oct	376.802	-0.7	-7.8	4.8	111.8262	-0.4	-4.5	1.9	3.90	4.53
	Nov	381.280	1.2	15.2	5.8	112.2962	0.4	5.2	2.5	3.27	4.15
	Dec	377.909	-0.9	-10.1	3.4	112.3855	0.1	1.0	2.0	3.00	4.10
2008	Jan	380.019	0.6	6.9	3.9	112.5704	0.2	2.0	2.5	2.75	3.74
	Feb	378.106	-0.5	-5.9	2.7	112.2604	-0.3	-3.3	1.6	2.12	3.74
	Mar	380.020	0.5	6.2	2.3	112.0235	-0.2	-2.5	1.5	1.26	3.51
	Apr	380.788	0.2	2.5	2.8	111.4410	-0.5	-6.1	0.4	1.29	3.68
	May	383.769	0.8	9.8	2.0	111.2978	-0.1	-1.5	0.3	1.73	3.88
	Jun	384.069	0.1	0.9	3.1	111.4523	0.1	1.7	0.1	1.86	4.10
	Jul	381.578	-0.6	-7.5	2.0	111.4349	-0.0	-0.2	-0.5	1.63	4.01
	Aug	379.876	-0.4	-5.2	1.5	110.3603	-1.0	-11.0	-1.4	1.72	3.89
	Sep	375.473	-1.2	-13.1	-1.0	107.2540	-2.8	-29.0	-4.5	1.13	3.69
	Oct									0.67	3.81

	Household Survey Employment				Nonfarm Payroll Employment				Nonfarm Aggregate Hours			
	Thousands	Change	Percent change		Thousands	Change	Percent change		Index	Monthly rate	Percent change	
			Annual rate	Year ago			Annual rate	Year ago			Annual rate	Year ago
2003	137729	1248		0.9	129996	-344		-0.3	98.6			-1.4
2004	139242	1512		1.1	131419	1423		1.1	100.2			1.6
2005	141716	2474		1.8	133695	2276		1.7	102.8			2.6
2006	144421	2706		1.9	136092	2397		1.8	105.7			2.9
2007	146049	1628		1.1	137618	1527		1.1	107.2			1.4
2006	1	143356	704	2.0	135383	722	2.2	2.1	104.9	0.9	3.8	3.2
	2	144083	727	2.0	135840	457	1.4	1.9	105.6	0.7	2.7	3.1
	3	144604	521	1.5	136354	514	1.5	1.7	106.0	0.4	1.7	2.8
	4	145642	1038	2.9	136789	434	1.3	1.6	106.4	0.3	1.4	2.4
2007	1	145983	340	0.9	137184	395	1.2	1.3	106.6	0.2	0.8	1.6
	2	145904	-78	-0.2	137500	316	0.9	1.2	107.2	0.5	2.1	1.5
	3	146019	115	0.3	137758	259	0.8	1.0	107.5	0.3	1.1	1.4
	4	146291	272	0.7	138031	272	0.8	0.9	107.7	0.2	1.0	1.3
2008	1	146070	-221	-0.6	137917	-113	-0.3	0.5	107.4	-0.3	-1.1	0.8
	2	146089	19	0.1	137699	-218	-0.6	0.1	107.2	-0.2	-0.9	0.0
	3	145517	-572	-1.6	137448	-251	-0.7	-0.2	106.7	-0.5	-2.0	-0.7
2006	Sep	144846	175	1.5	136528	165	1.5	1.7	105.9	-0.3	-3.3	2.3
	Oct	145395	549	4.6	136601	73	0.6	1.7	106.3	0.4	4.6	2.6
	Nov	145583	188	1.6	136783	182	1.6	1.5	106.2	-0.1	-1.1	2.1
	Dec	145949	366	3.1	136982	199	1.8	1.6	106.7	0.5	5.8	2.4
2007	Jan	145915	-34	-0.3	137108	126	1.1	1.5	106.5	-0.2	-2.2	1.6
	Feb	145888	-27	-0.2	137133	25	0.2	1.3	106.2	-0.3	-3.3	1.3
	Mar	146145	257	2.1	137310	177	1.6	1.2	107.1	0.8	10.7	1.9
	Apr	145713	-432	-3.5	137356	46	0.4	1.2	106.8	-0.3	-3.3	1.1
	May	145913	200	1.7	137518	162	1.4	1.3	107.1	0.3	3.4	1.6
	Jun	146087	174	1.4	137625	107	0.9	1.3	107.6	0.5	5.7	1.7
	Jul	146045	-42	-0.3	137682	57	0.5	1.1	107.4	-0.2	-2.2	1.3
	Aug	145753	-292	-2.4	137756	74	0.6	1.0	107.4	0.0	0.0	1.1
	Sep	146260	507	4.3	137837	81	0.7	1.0	107.6	0.2	2.3	1.6
	Oct	146016	-244	-2.0	137977	140	1.2	1.0	107.7	0.1	1.1	1.3
	Nov	146647	631	5.3	138037	60	0.5	0.9	107.7	0.0	0.0	1.4
	Dec	146211	-436	-3.5	138078	41	0.4	0.8	107.8	0.1	1.1	1.0
2008	Jan	146248	37	0.3	138002	-76	-0.7	0.7	107.4	-0.4	-4.4	0.8
	Feb	145993	-255	-2.1	137919	-83	-0.7	0.6	107.3	-0.1	-1.1	1.0
	Mar	145969	-24	-0.2	137831	-88	-0.8	0.4	107.6	0.3	3.4	0.5
	Apr	146331	362	3.0	137764	-67	-0.6	0.3	107.5	-0.1	-1.1	0.7
	May	146046	-285	-2.3	137717	-47	-0.4	0.1	107.1	-0.4	-4.4	0.0
	Jun	145891	-155	-1.3	137617	-100	-0.9	-0.0	107.0	-0.1	-1.1	-0.6
	Jul	145819	-72	-0.6	137550	-67	-0.6	-0.1	106.9	-0.1	-1.1	-0.5
	Aug	145477	-342	-2.8	137477	-73	-0.6	-0.2	106.8	-0.1	-1.1	-0.6
	Sep	145255	-222	-1.8	137318	-159	-1.4	-0.4	106.3	-0.5	-5.5	-1.2

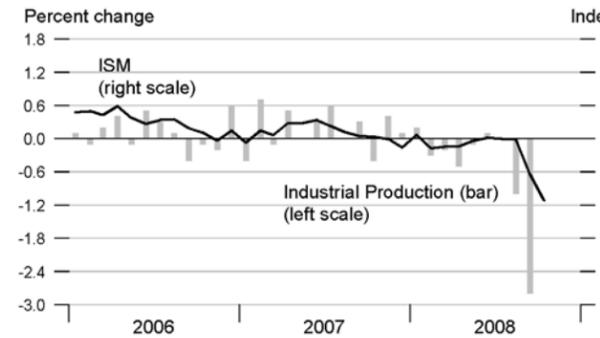
Real Final Sales and GDP



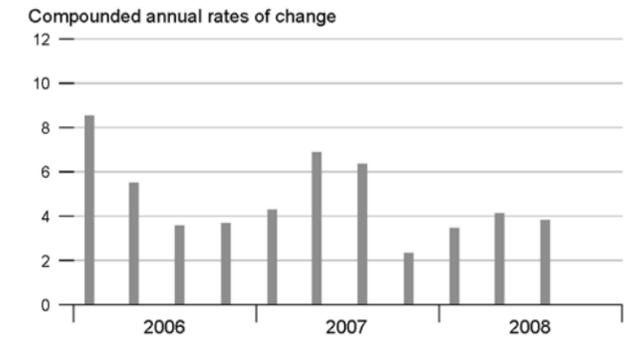
Real GDP Revisions



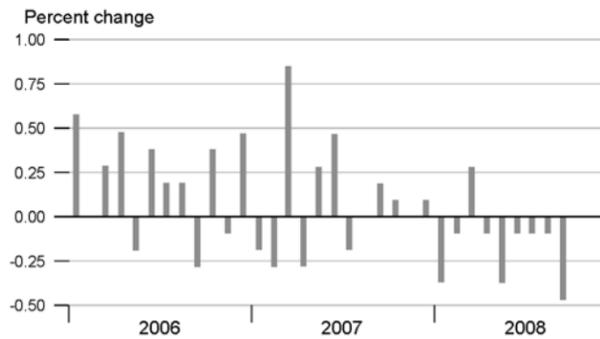
Industrial Production and ISM Index



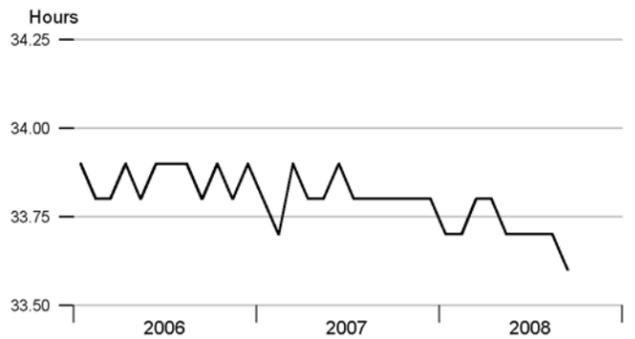
Nominal Gross Domestic Product



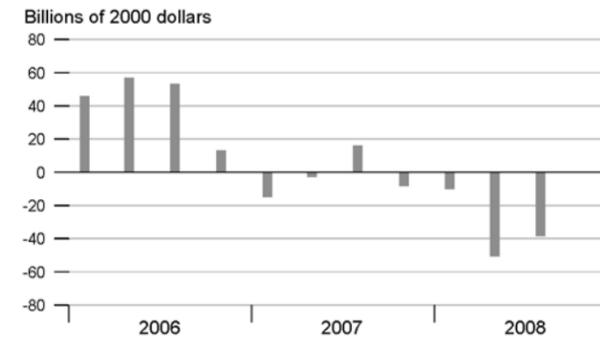
Aggregate Private Nonfarm Hours



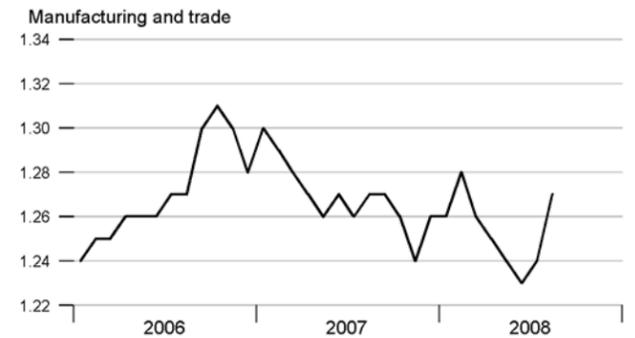
Average Weekly Private Nonfarm Hours



Real Change in Private Inventories



Inventory-Sales Ratio



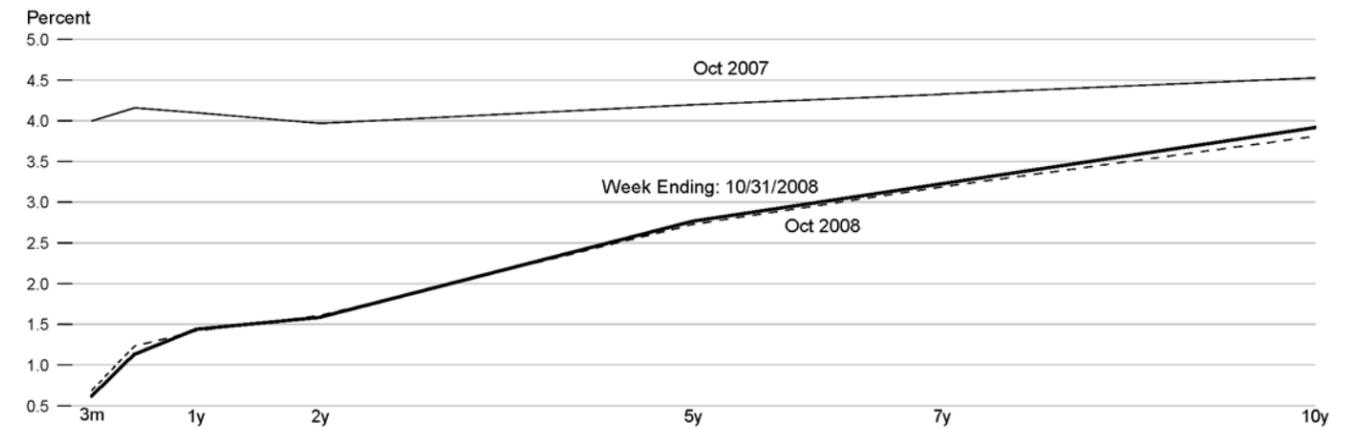


	Nominal GDP			Real GDP			Final Sales			Change in Private Inventories		
	Billions of \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$		
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago	Last qtr	Year/Year ago	
2004	11685.9		6.6	10675.757		3.6	10619.790		3.3		54.268	
2005	12421.9		6.3	10989.508		2.9	10947.255		3.1		38.946	
2006	13178.4		6.1	11294.816		2.8	11249.341		2.8		42.301	
2007	13807.5		4.8	11523.944		2.0	11523.416		2.4		-2.480	
2005 1	12155.4	7.1	6.6	10875.827	3.0	3.2	10799.286	2.3	2.8	74.596	64.179	
2005 2	12297.5	4.8	5.9	10946.117	2.6	2.9	10925.879	4.8	3.4	16.724	52.139	
2005 3	12538.2	8.1	6.4	11049.980	3.8	3.0	11035.489	4.1	3.5	11.001	39.875	
2005 4	12696.4	5.1	6.3	11086.107	1.3	2.7	11028.364	-0.3	2.7	53.464	38.946	
2006 1	12959.6	8.6	6.6	11217.261	4.8	3.1	11167.646	5.1	3.4	45.924	31.778	
2006 2	13134.1	5.5	6.8	11291.674	2.7	3.2	11232.065	2.3	2.8	56.922	41.828	
2006 3	13249.6	3.6	5.7	11314.057	0.8	2.4	11257.833	0.9	2.0	53.270	52.395	
2006 4	13370.1	3.7	5.3	11356.368	1.5	2.4	11339.723	2.9	2.8	13.086	42.301	
2007 1	13510.9	4.3	4.3	11357.840	0.1	1.3	11370.469	1.1	1.8	-15.044	27.059	
2007 2	13737.5	6.9	4.6	11491.351	4.8	1.8	11490.523	4.3	2.3	-2.821	12.123	
2007 3	13950.6	6.4	5.3	11625.746	4.8	2.8	11605.013	4.0	3.1	16.001	2.806	
2007 4	14031.2	2.3	4.9	11620.739	-0.2	2.3	11627.950	0.8	2.5	-8.058	-2.481	
2008 1	14150.8	3.5	4.7	11645.968	0.9	2.5	11653.718	0.9	2.5	-10.182	-1.265	
2008 2	14294.5	4.1	4.1	11727.351	2.8	2.1	11778.847	4.4	2.5	-50.550	-13.197	
2008 3	14429.2	3.8	3.4	11719.988	-0.3	0.8	11755.227	-0.8	1.3	-38.480	-26.818	
	Consumption			Durables Consumption			Private Fixed Investment			Nonresidential Fixed Investment		
	Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
2004	7561.380		3.6	1084.786		6.3	1712.757		7.3	1144.264		5.8
2005	7791.732		3.0	1134.384		4.6	1829.815		6.8	1226.160		7.2
2006	8028.958		3.0	1185.122		4.5	1865.493		1.9	1318.159		7.5
2007	8252.773		2.8	1242.395		4.8	1808.543		-3.1	1382.929		4.9
2005 1	7697.515	1.7	3.0	1111.627	0.6	4.3	1790.510	5.3	8.7	1200.397	3.7	9.2
2005 2	7766.392	3.6	3.3	1143.717	12.1	6.8	1823.502	7.6	7.3	1218.952	6.3	8.1
2005 3	7838.099	3.7	3.3	1158.894	5.4	6.2	1847.243	5.3	6.4	1237.089	6.1	6.6
2005 4	7864.922	1.4	2.6	1123.291	-11.7	1.2	1857.972	2.3	5.1	1248.226	3.6	4.9
2006 1	7947.412	4.3	3.2	1173.061	18.9	5.5	1895.228	8.3	5.8	1295.218	15.9	7.9
2006 2	8002.135	2.8	3.0	1178.310	1.8	3.0	1883.072	-2.5	3.3	1315.436	6.4	7.9
2006 3	8046.346	2.2	2.7	1188.386	3.5	2.5	1859.953	-4.8	0.7	1332.661	5.3	7.7
2006 4	8119.940	3.7	3.2	1200.722	4.2	6.9	1823.721	-7.6	-1.8	1329.322	-1.0	6.5
2007 1	8197.173	3.9	3.1	1227.322	9.2	4.6	1807.821	-3.4	-4.6	1340.423	3.4	3.5
2007 2	8237.272	2.0	2.9	1242.274	5.0	5.4	1821.269	3.0	-3.3	1373.787	10.3	4.4
2007 3	8278.517	2.0	2.9	1249.405	2.3	5.1	1816.954	-0.9	-2.3	1402.876	8.7	5.3
2007 4	8298.196	1.0	2.2	1250.580	0.4	4.2	1788.160	-6.2	-1.9	1414.655	3.4	6.4
2008 1	8316.055	0.9	1.5	1237.008	-4.3	0.8	1762.404	-5.6	-2.5	1423.095	2.4	6.2
2008 2	8341.328	1.2	1.3	1228.280	-2.8	-1.1	1754.899	-1.7	-3.6	1431.818	2.5	4.2
2008 3	8275.215	-3.1	-0.0	1182.532	-14.1	-5.4	1729.815	-5.6	-4.8	1428.343	-1.0	1.8

Interest Rates



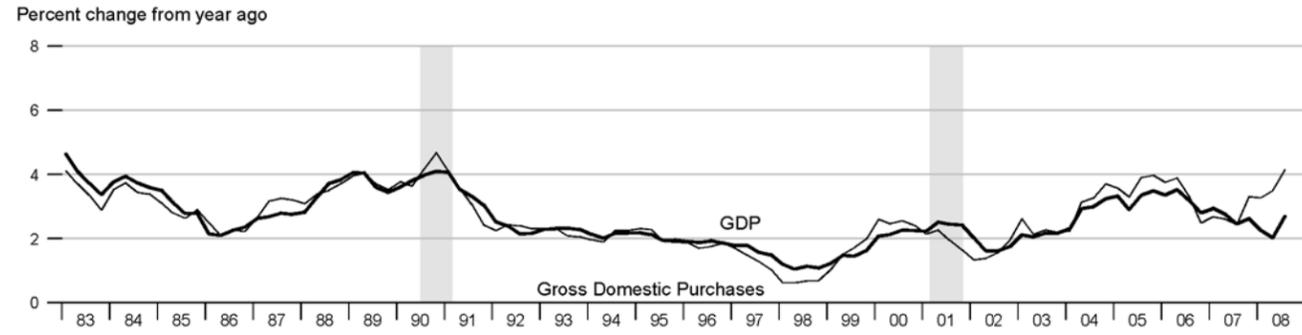
Treasury Yield Curve



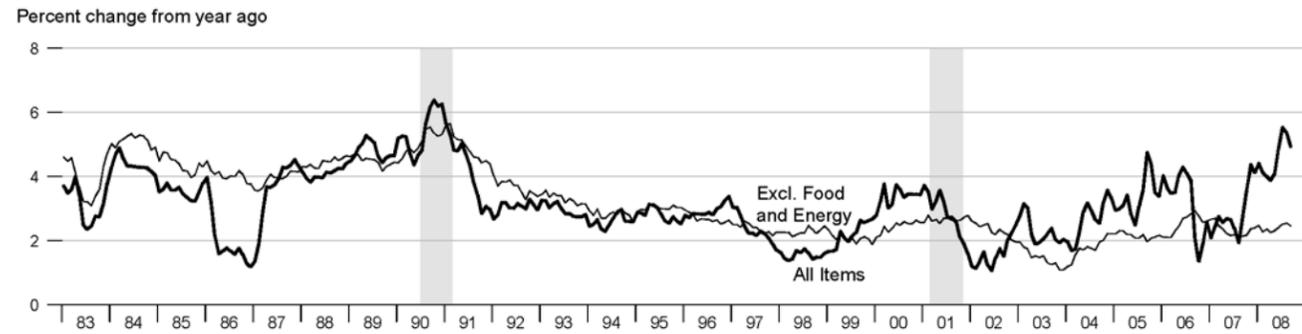
Standard and Poor's 500 Index with Reinvested Dividends



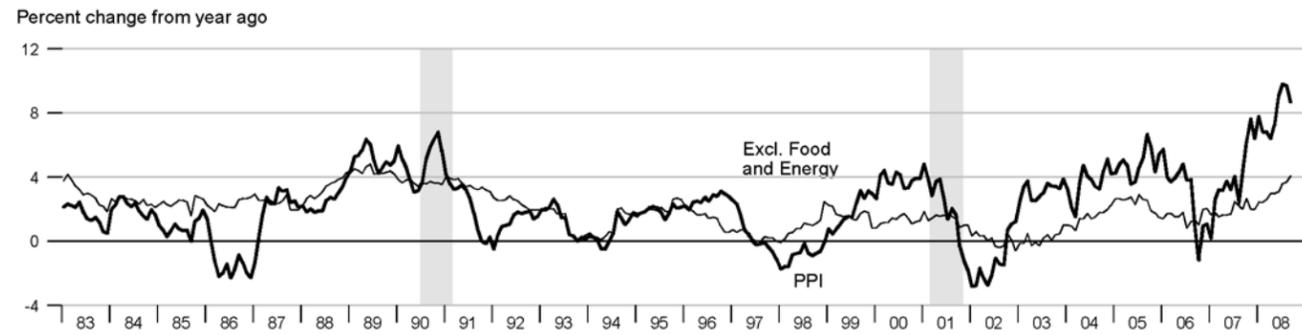
**NIPA Chain Price Indexes**



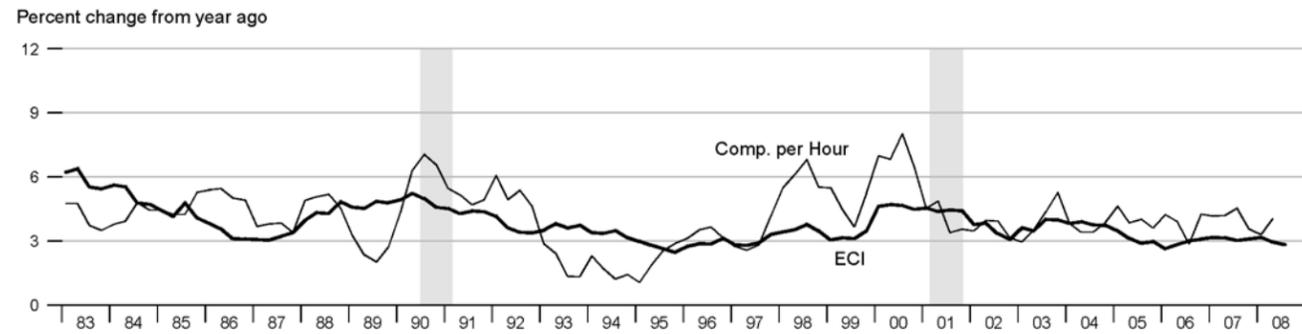
**Consumer Price Index**



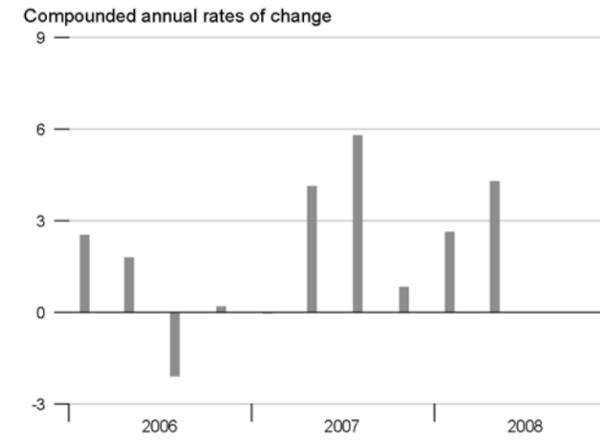
**Producer Price Index, Finished Goods**



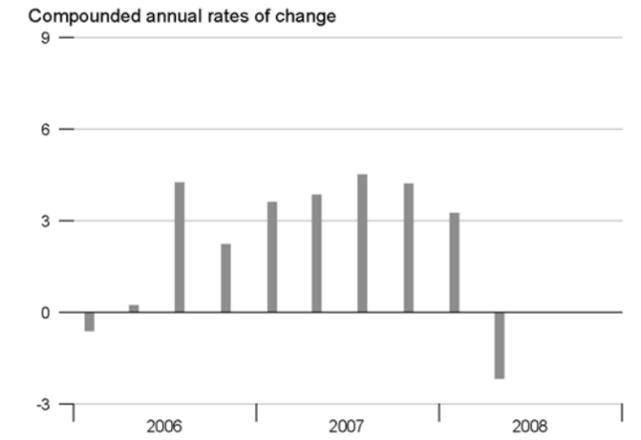
**Employment Cost Index and Compensation per Hour**



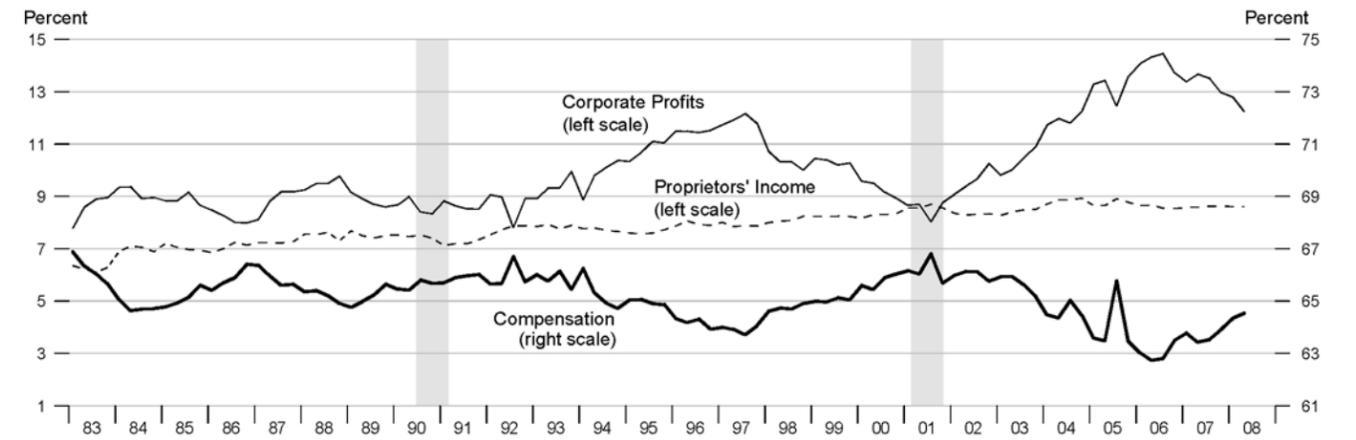
**Nonfarm Output per Hour**



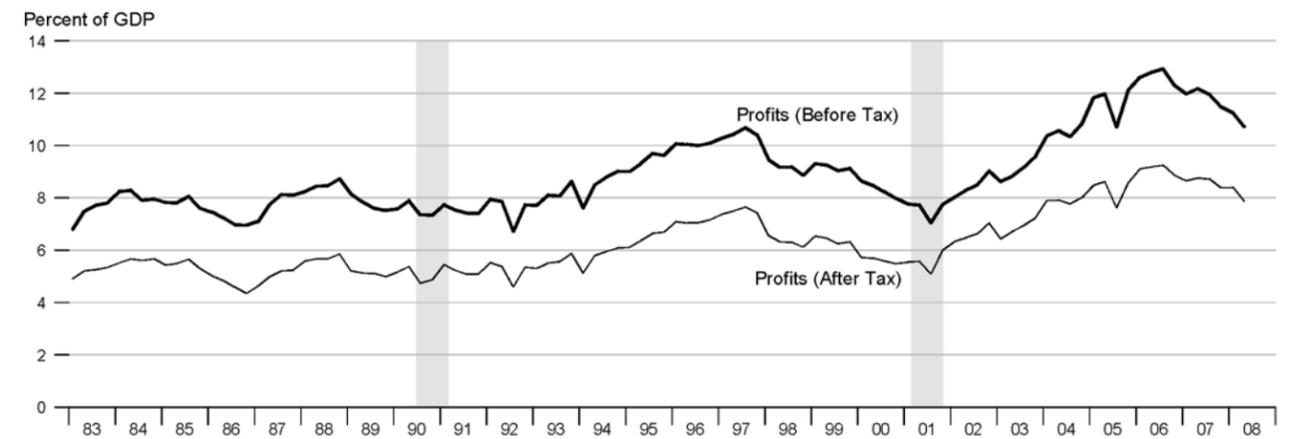
**Manufacturing Output per Hour**



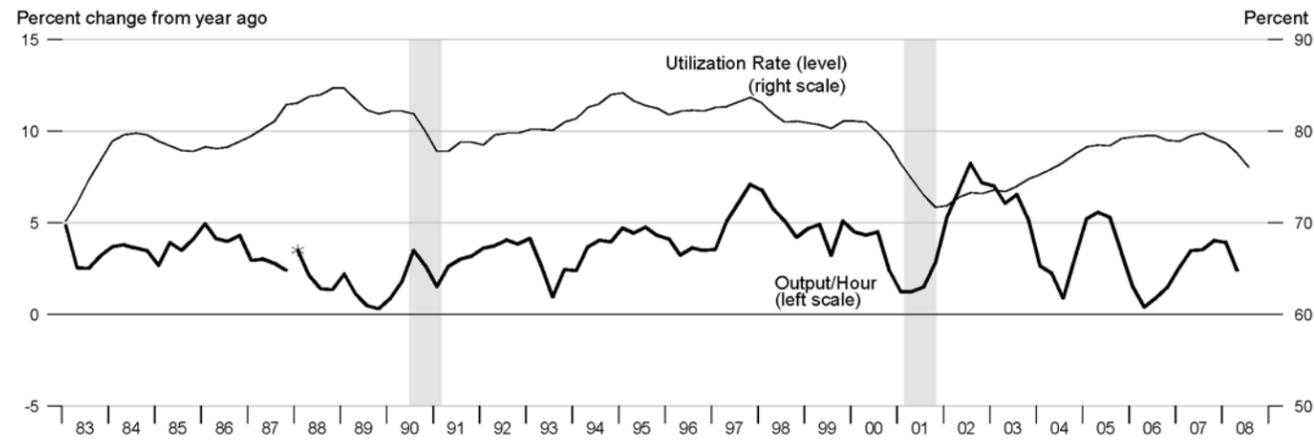
**Selected Component Shares of National Income**



**Corporate Profits**

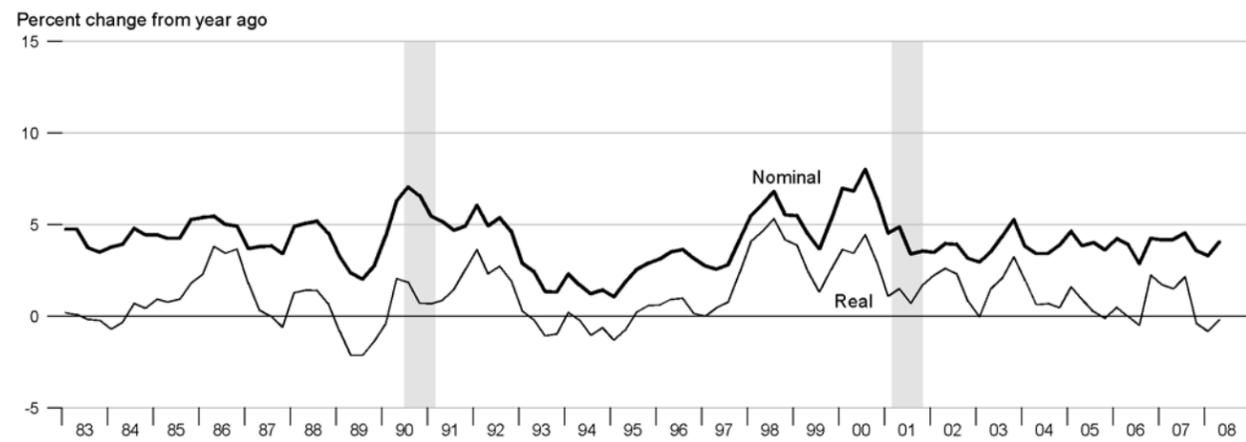


**Output per Hour and Capacity Utilization, Manufacturing**

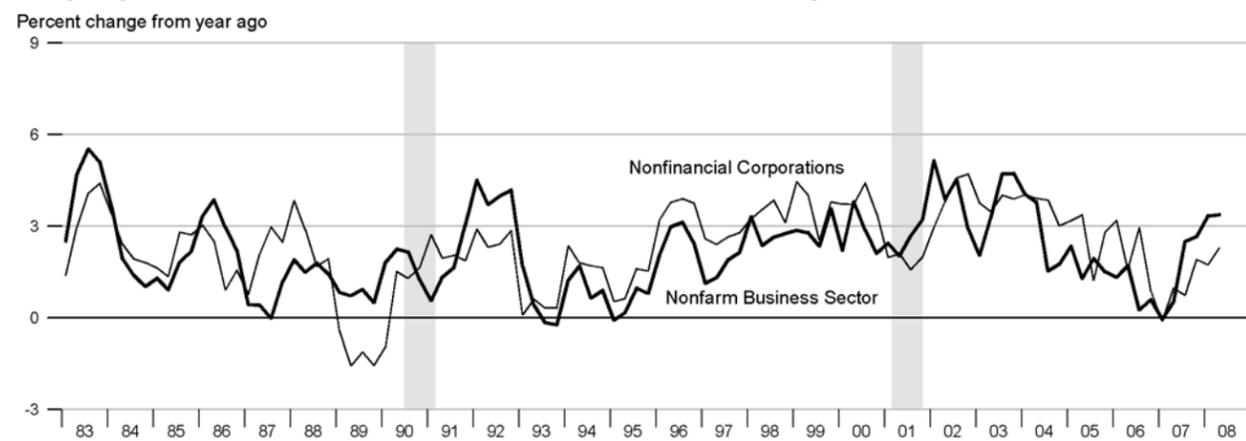


\*Data from 1987 to the present are on a NAICS basis; data prior to 1987 are on an SIC basis and are not strictly comparable (see End Note).

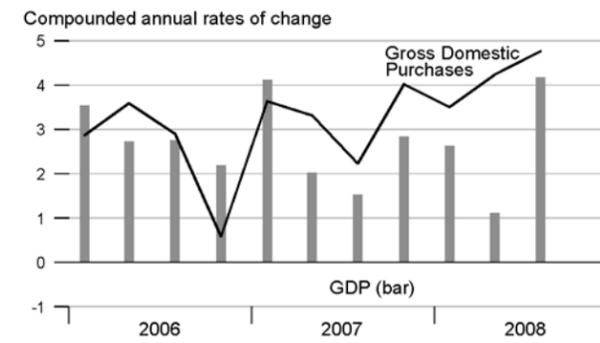
**Nonfarm Compensation per Hour**



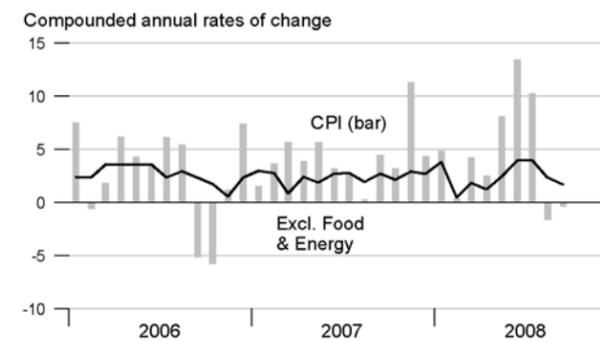
**Output per Hour, Nonfarm Business and Nonfinancial Corporations**



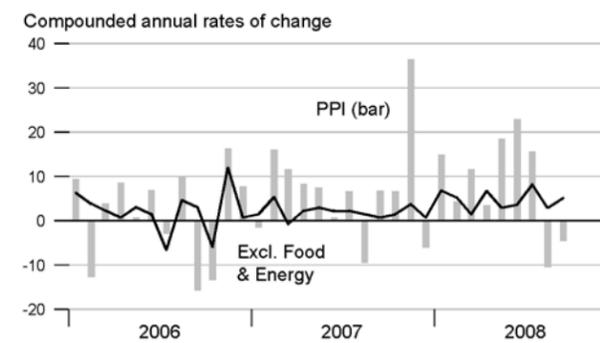
**NIPA Chain Price Indexes**



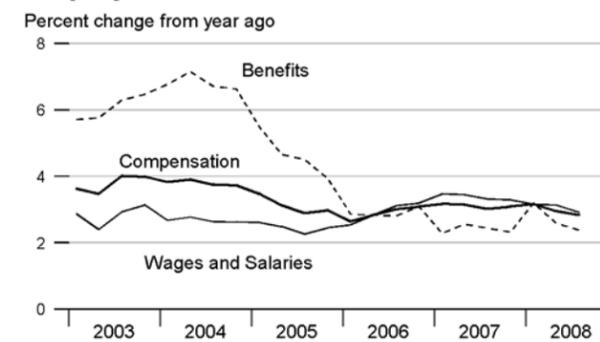
**Consumer Price Index**



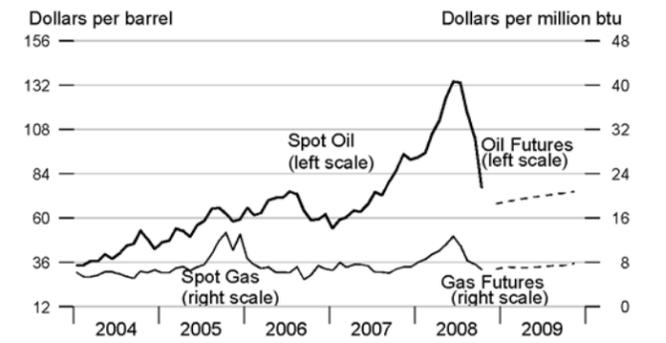
**Producer Price Index, Finished Goods**



**Employment Cost Index**

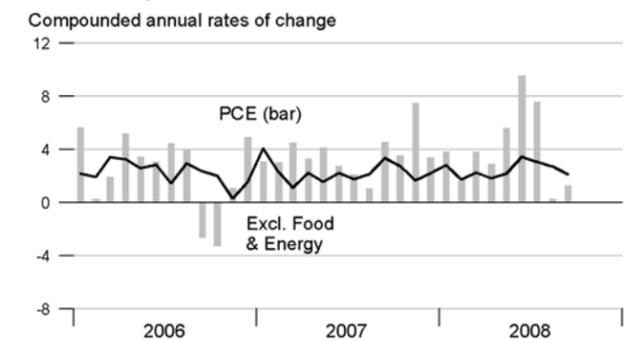


**Oil & Natural Gas Prices: Spot & Futures**

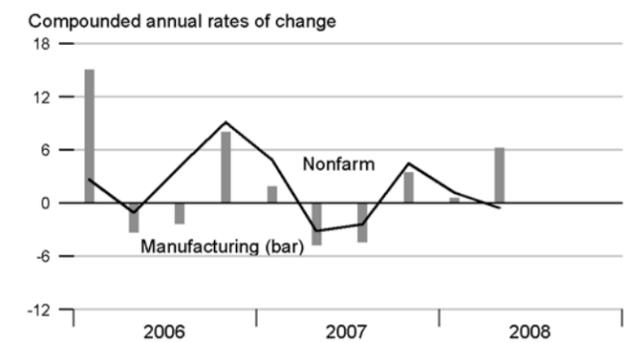


Note: Futures prices as of 10/31/2008.

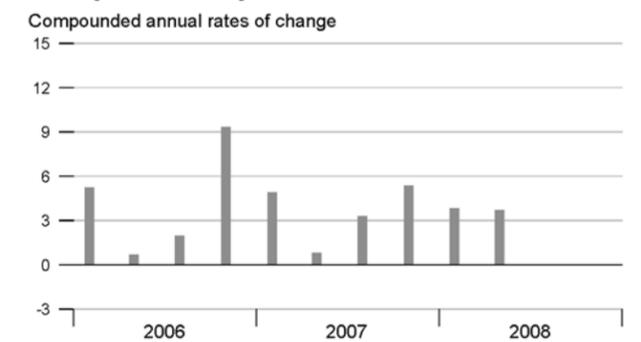
**Consumption Chain Price Index**



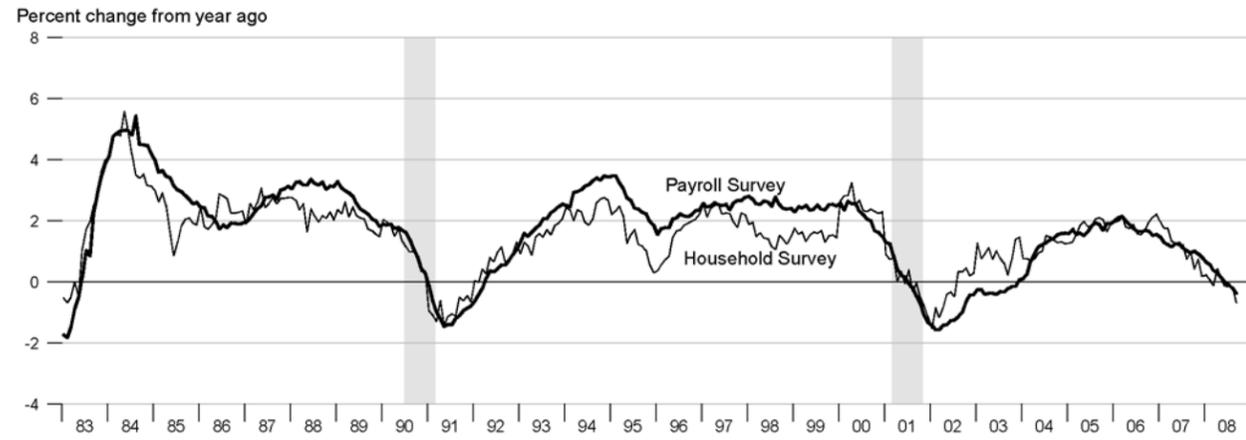
**Unit Labor Cost**



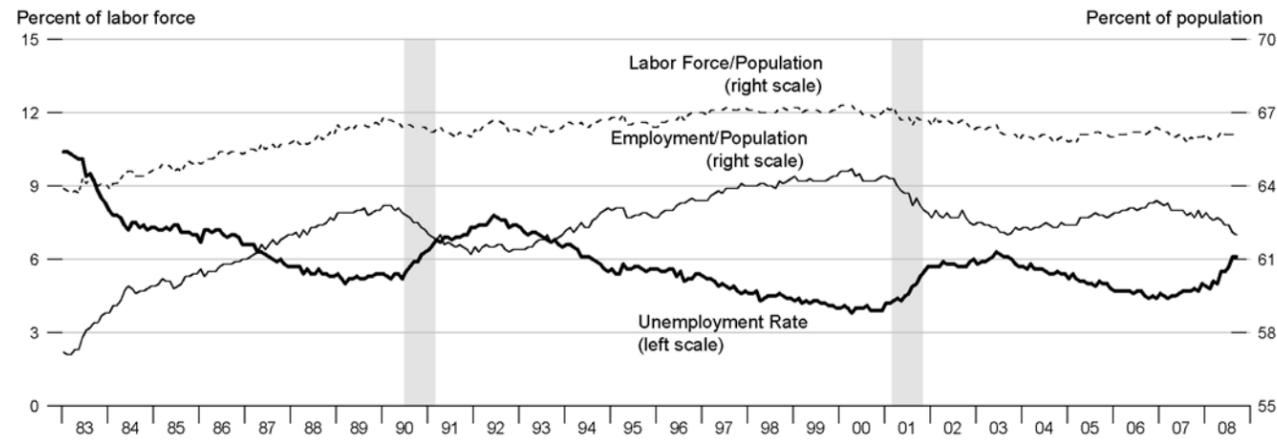
**Compensation per Hour**



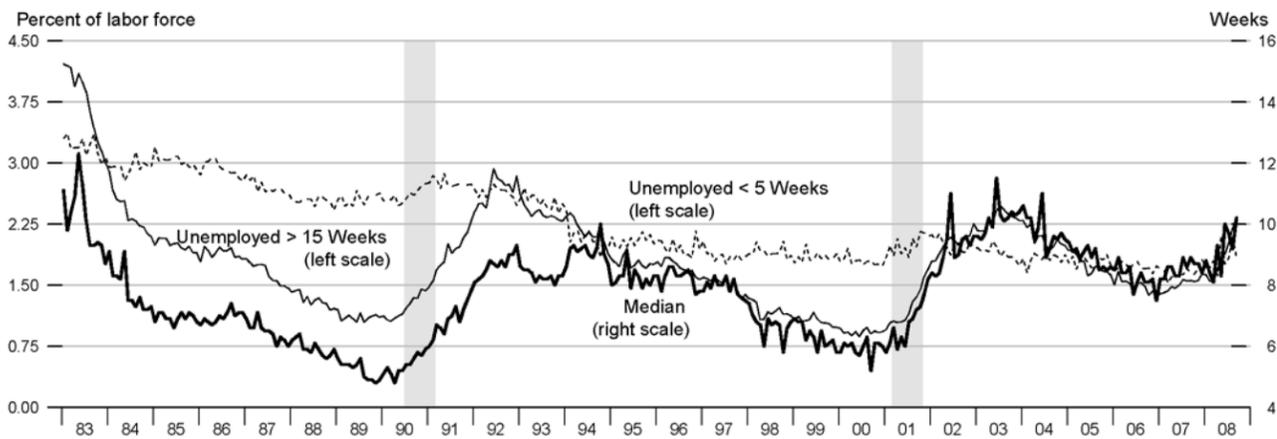
**Employment**



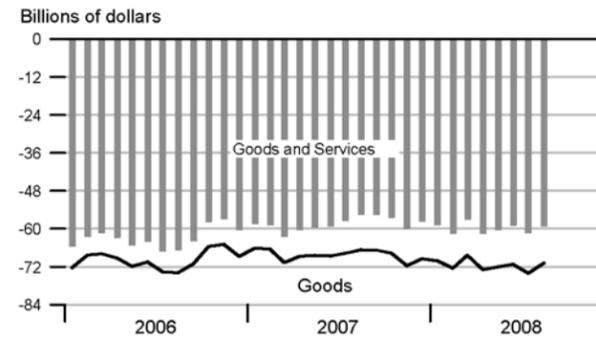
**Unemployment, Labor Force Participation, and Employment Rates**



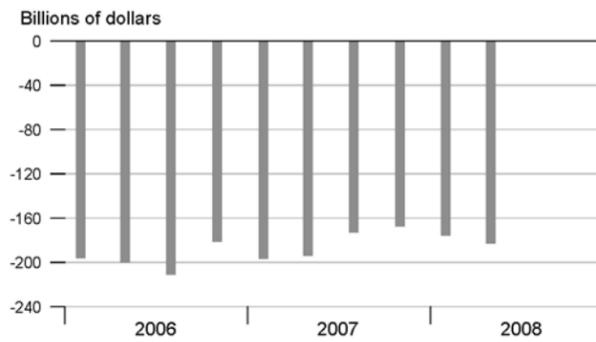
**Duration of Unemployment**



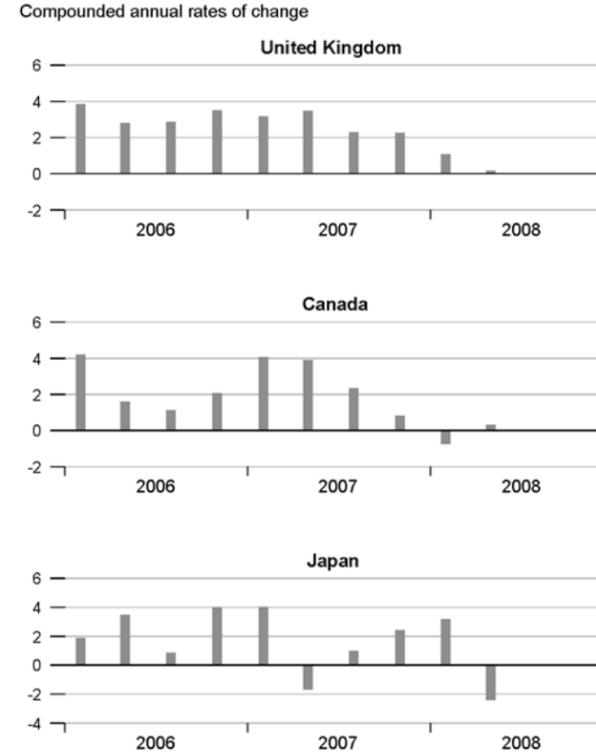
**Trade Balance**



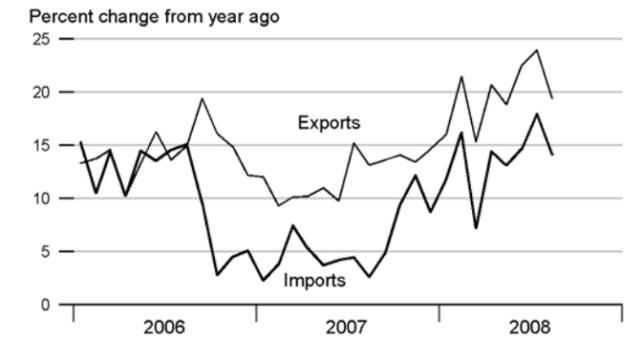
**Current Account Balance**



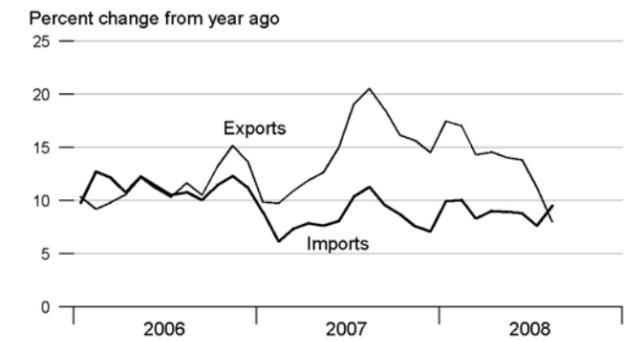
**Real GDP Growth of Major Trading Partners**



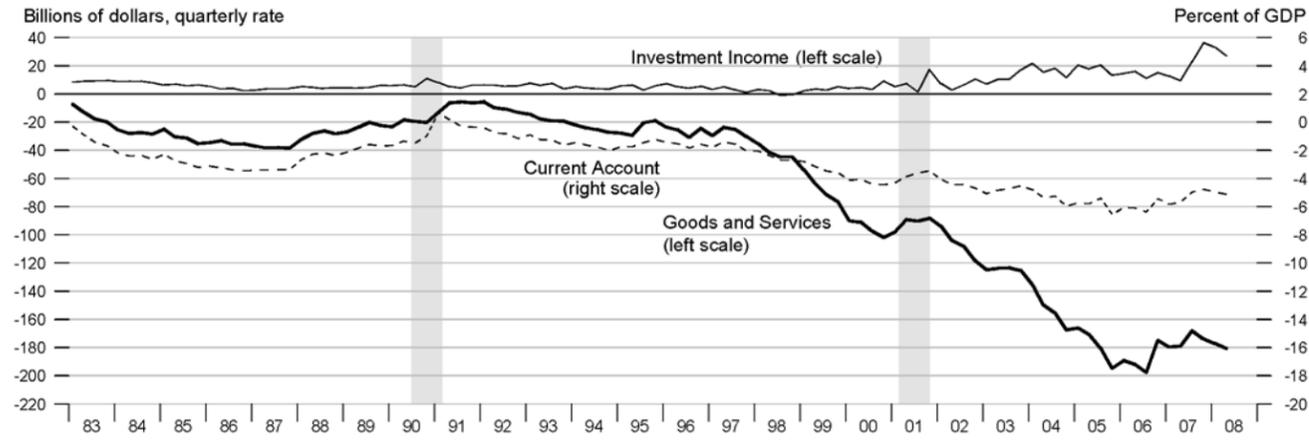
**Goods Trade**



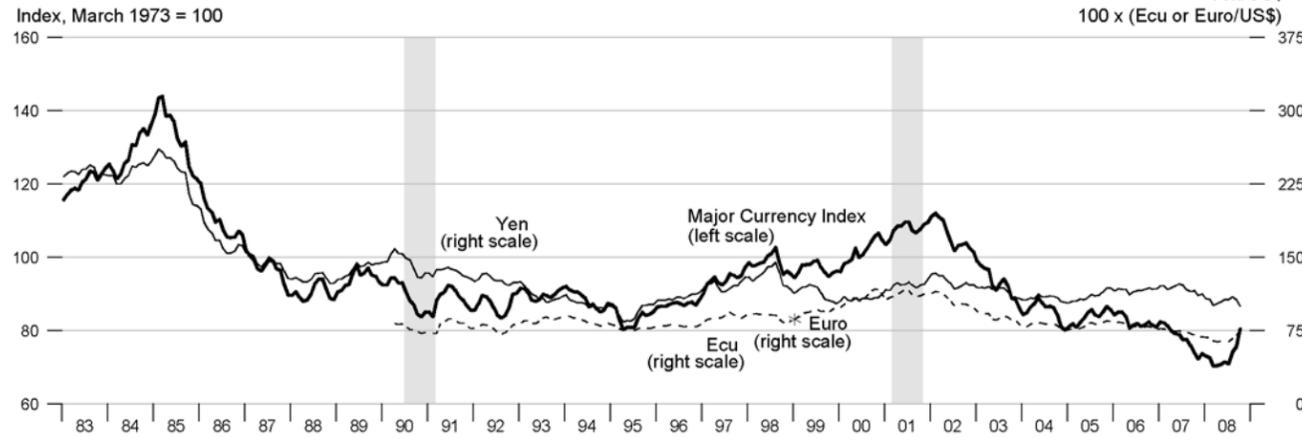
**Services Trade**



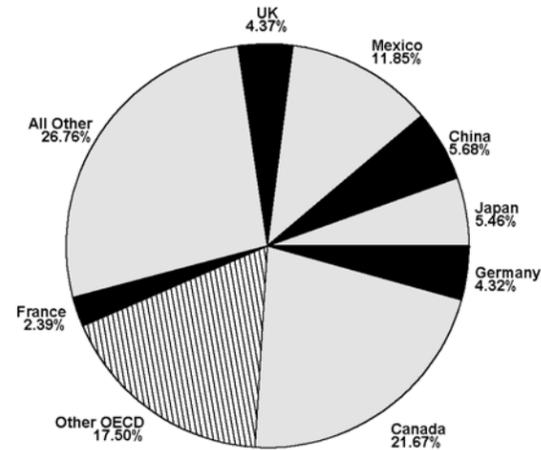
**Current Account, Trade and Investment Income Balances**



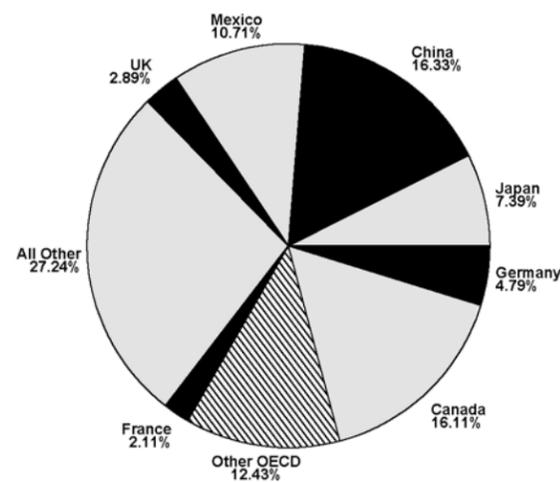
**Exchange Rates**



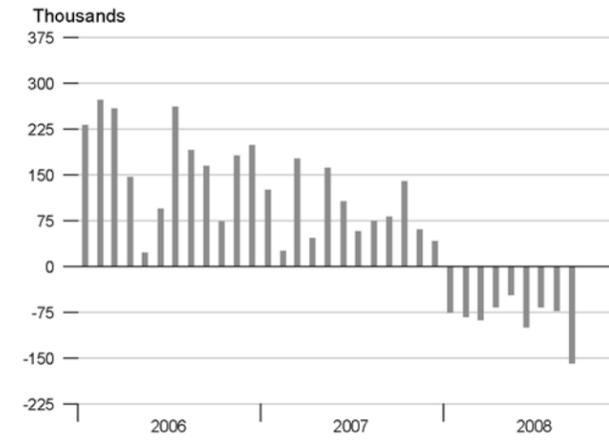
**Goods Export Shares, 2007**



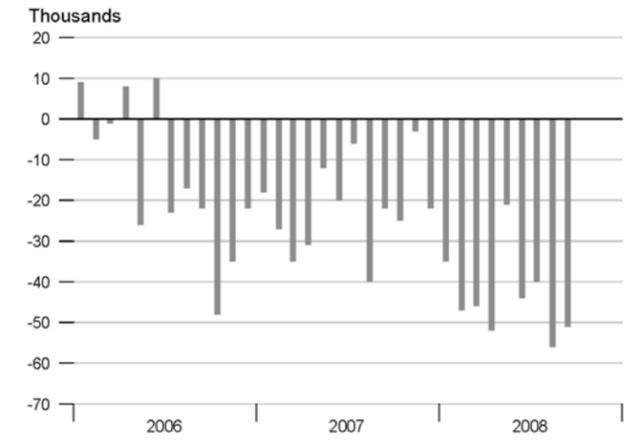
**Goods Import Shares, 2007**



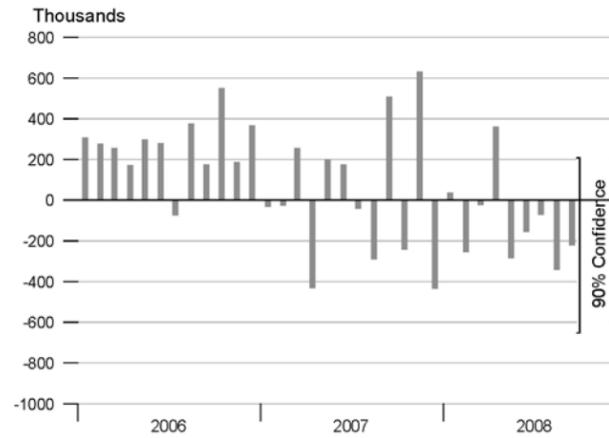
**Change in Nonfarm Payrolls**



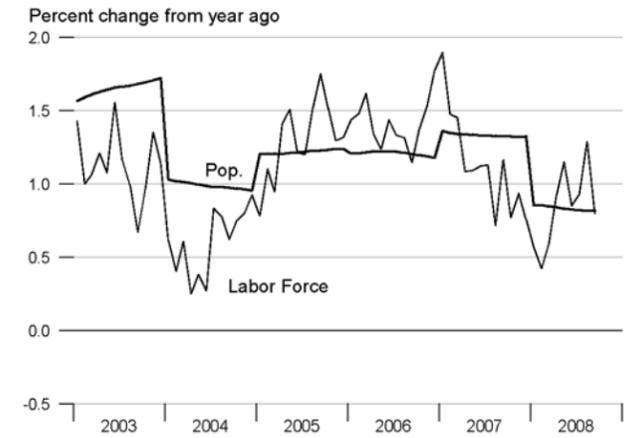
**Change in Manufacturing Payrolls**



**Change in Household Employment**



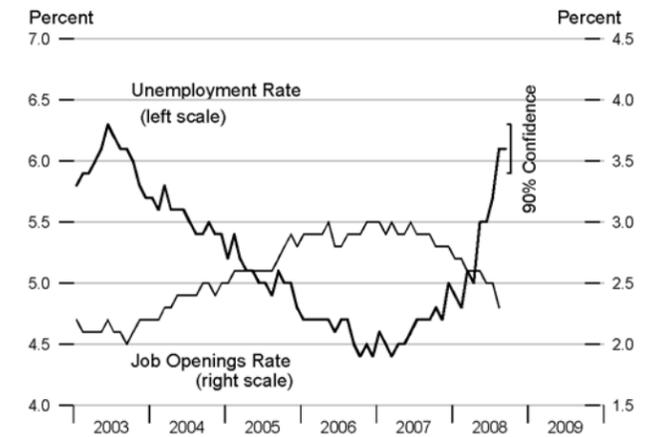
**Labor Force and Population**



**Available Labor Supply and Components**

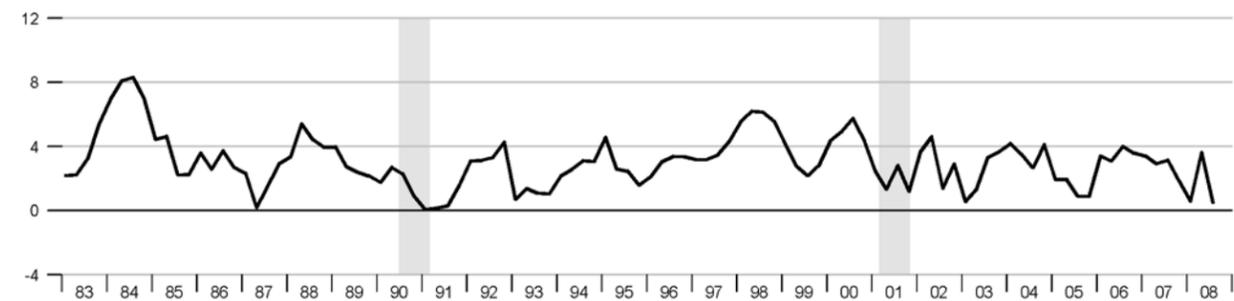


**Unemployment Rate & Job Openings Rate**



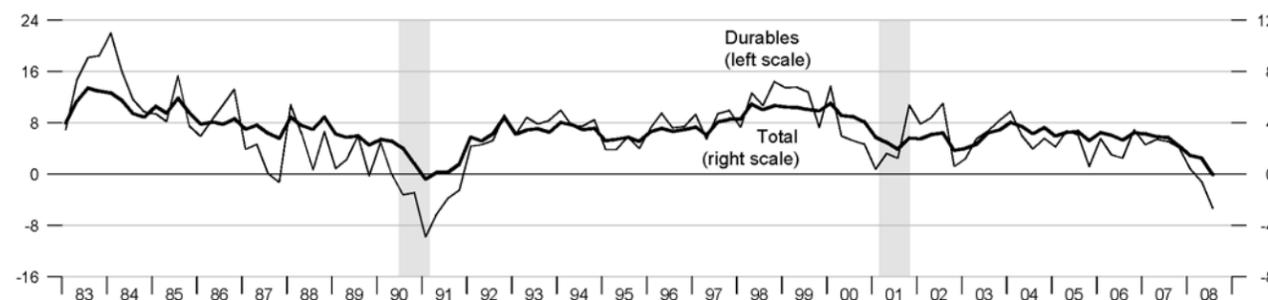
**Real Disposable Personal Income**

Percent change from year ago, quarterly data



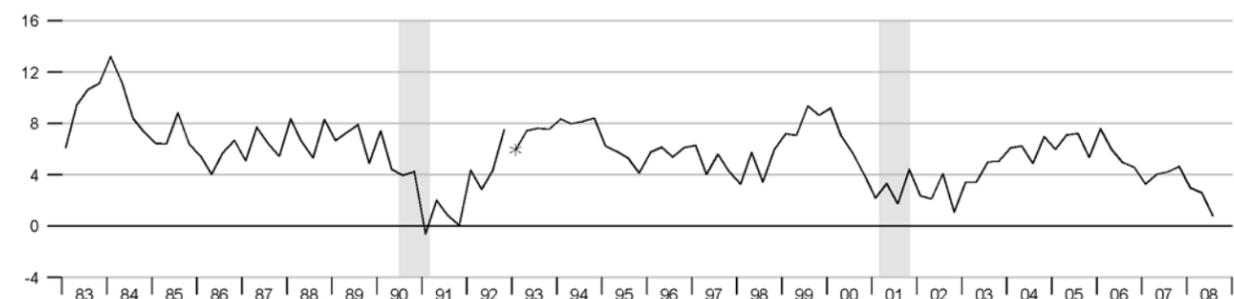
**Real Consumption**

Percent change from year ago, quarterly data



**Retail and Food Services Sales**

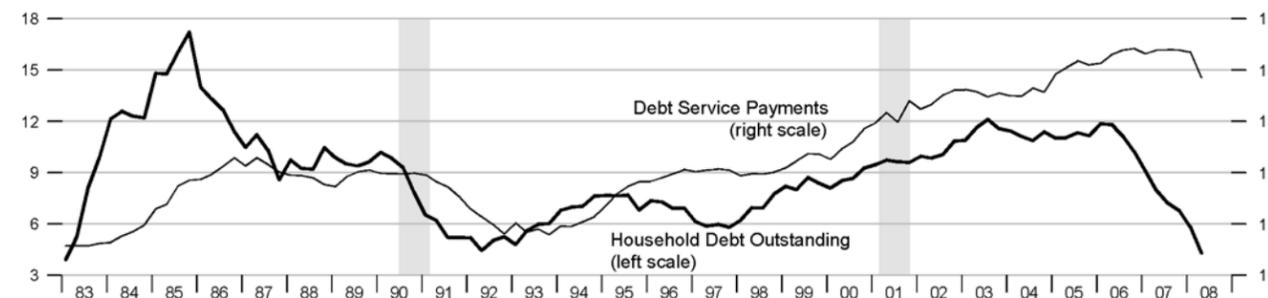
Percent change from year ago, quarterly average



\*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).

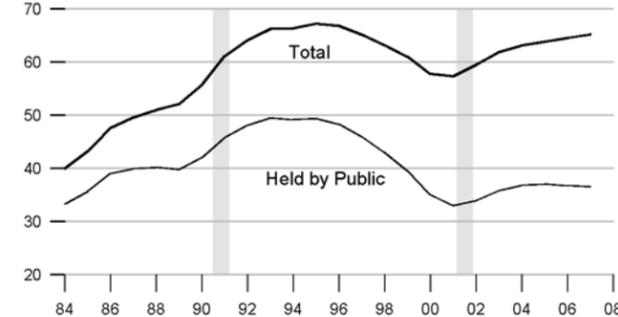
**Debt Service Payments and Household Debt Outstanding**

Percent change from year ago, quarterly data



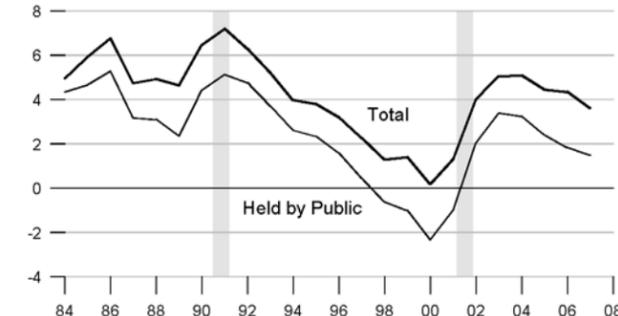
**Federal Debt**

Percent of GDP



**Change in Federal Debt**

Percent of GDP



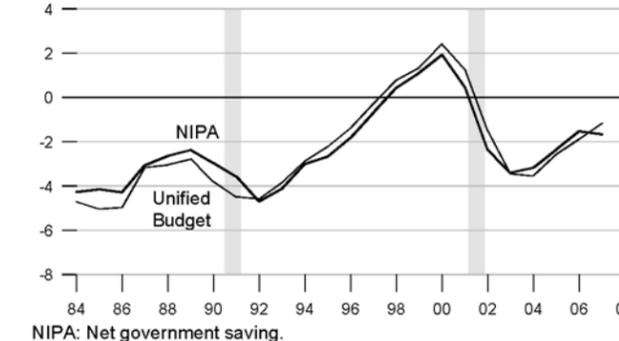
**Federal Government Debt**

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
2005		7932.7	3331.1	4601.6	736.4	3864.9	1930.6
2006		8507.0	3663.8	4843.2	768.9	4074.2	2027.3
2007		9007.7	3958.4	5049.2	779.6	4269.7	2237.2
2005	March	7776.9	3204.5	4572.4	717.3	3855.4	1956.3
	June	7836.5	3308.9	4527.6	724.7	3803.0	1879.6
	September	7932.7	3331.1	4601.6	736.4	3864.9	1930.6
	December	8170.4	3455.8	4714.6	744.2	3970.6	2036.0
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	2355.1
2008	March	9437.6	4103.6	5334.0	591.2	4742.9	2515.6
	June	9492.0	4207.0	5285.0	478.8	4806.2	2648.0

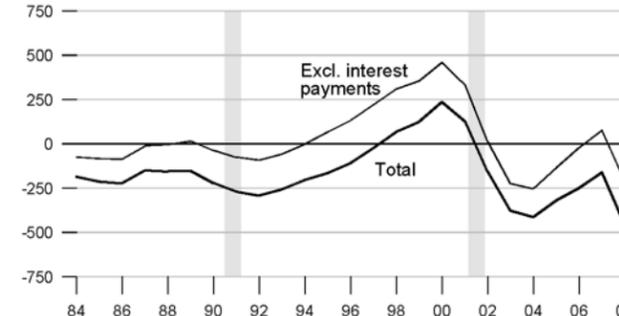
**Federal Surplus (+) / Deficit (-)**

Percent of GDP

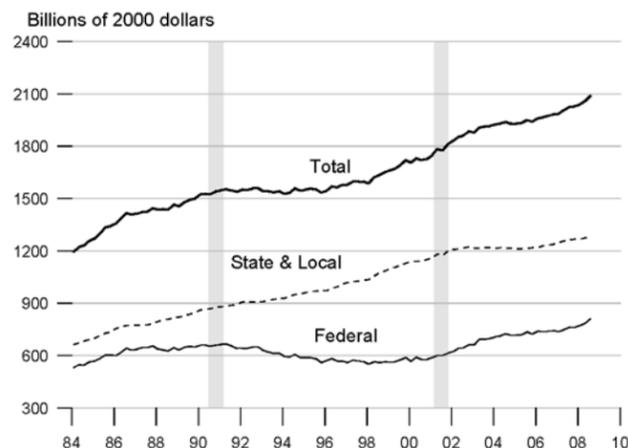


**Federal Surplus (+) / Deficit (-), Unified Basis**

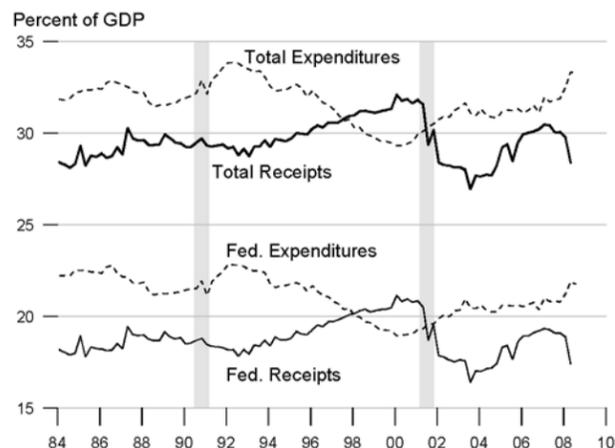
Billions of dollars, fiscal years



Govt. Consumption and Investment



Govt. Current Receipts and Expenditures

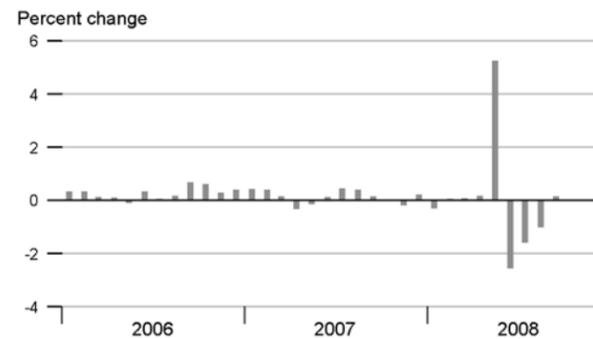


Government Budgets

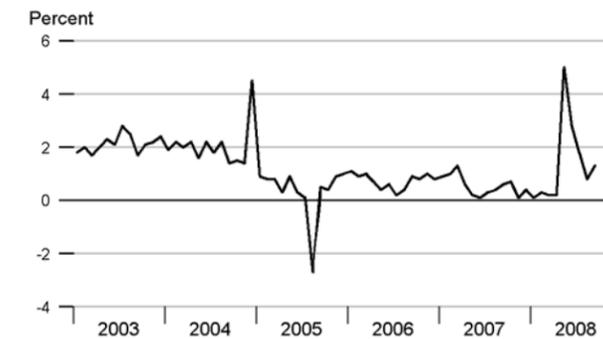
Billions of dollars

Calendar Years	National Income Accounts			Unified Budget			Fiscal Years		
	State and Local	Federal	Surplus or Deficit (-)	Receipts	Outlays	Surplus or Deficit (-)	Receipts	Outlays	Surplus or Deficit (-)
1991	789.2	793.3	-4.1	1101.3	1315.0	-213.7	1055.1	1324.3	-269.2
1992	845.7	845.0	0.7	1147.2	1444.6	-297.4	1091.3	1381.6	-290.3
1993	886.9	886.0	0.9	1222.5	1496.0	-273.5	1154.5	1409.5	-255.1
1994	942.9	932.4	10.5	1320.8	1533.1	-212.3	1258.7	1461.9	-203.2
1995	990.2	978.2	12.0	1406.5	1603.5	-197.0	1351.9	1515.9	-164.0
1996	1043.3	1017.5	25.8	1524.0	1665.8	-141.8	1453.2	1560.6	-107.4
1997	1097.4	1058.3	39.1	1653.1	1708.9	-55.8	1579.4	1601.3	-21.9
1998	1163.2	1111.2	52.0	1773.8	1734.9	38.9	1722.0	1652.7	69.3
1999	1236.7	1186.3	50.4	1891.2	1787.6	103.6	1827.6	1702.0	125.6
2000	1319.5	1269.5	50.0	2053.8	1864.4	189.4	2025.5	1789.2	236.2
2001	1373.0	1368.2	4.8	2016.2	1969.5	46.7	1991.4	1863.2	128.2
2002	1410.1	1444.3	-34.2	1853.2	2101.1	-247.9	1853.4	2011.2	-157.8
2003	1494.2	1514.5	-20.3	1879.9	2252.1	-372.2	1782.5	2160.1	-377.6
2004	1594.3	1592.8	1.5	2008.9	2379.5	-370.6	1880.3	2293.0	-412.7
2005	1714.4	1684.9	29.5	2266.9	2558.6	-291.7	2153.9	2472.2	-318.3
2006	1811.4	1765.3	46.1	2510.4	2711.6	-201.2	2407.3	2655.4	-248.2
2007	1902.8	1892.4	10.4	2651.2	2880.5	-229.3	2567.7	2729.2	-161.5
2006Q4	1828.4	1796.6	31.8	2568.6	2721.8	-153.2	573.5	653.9	-80.4
2007Q1	1877.5	1854.3	23.2	2612.8	2837.9	-225.1	547.4	725.4	-178.0
2007Q2	1909.8	1874.0	35.8	2648.1	2859.5	-211.4	824.4	686.9	137.5
2007Q3	1905.5	1900.7	4.8	2664.9	2909.2	-244.3	622.3	662.9	-40.6
2007Q4	1918.4	1940.7	-22.3	2679.2	2915.6	-236.4	606.2	713.0	-106.8
2008Q1	1922.9	1975.3	-52.4	2672.5	3003.2	-330.7	539.8	745.7	-205.9
2008Q2	1955.4	2022.3	-66.9	2488.4	3128.4	-640.0	787.9	761.0	26.9
2008Q3	2050.0			3139.6			590.0	758.9	-169.0

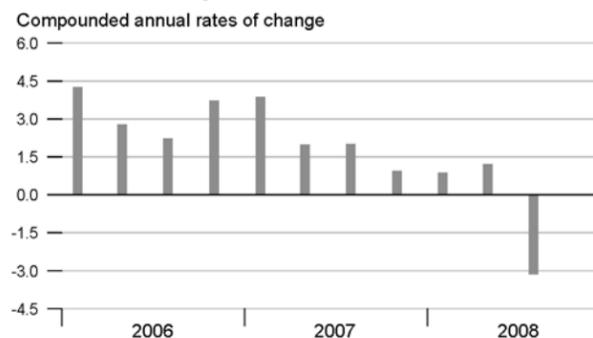
Real Disposable Personal Income



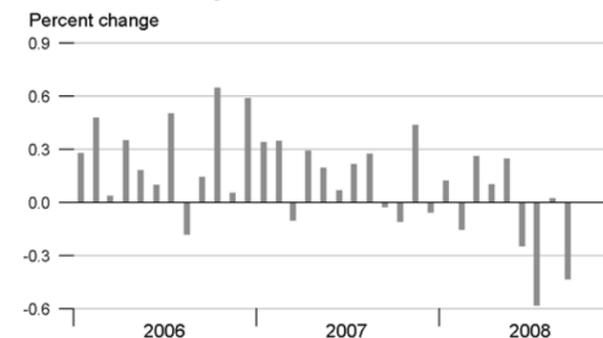
Personal Saving Rate



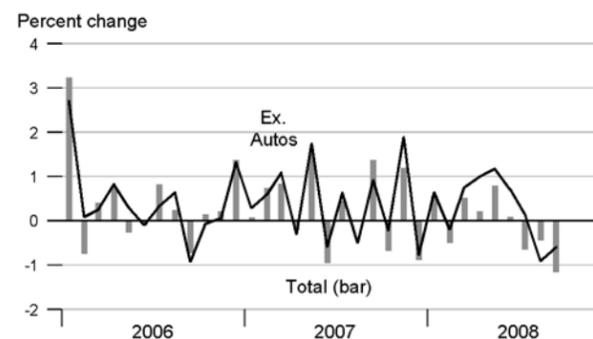
Real Consumption



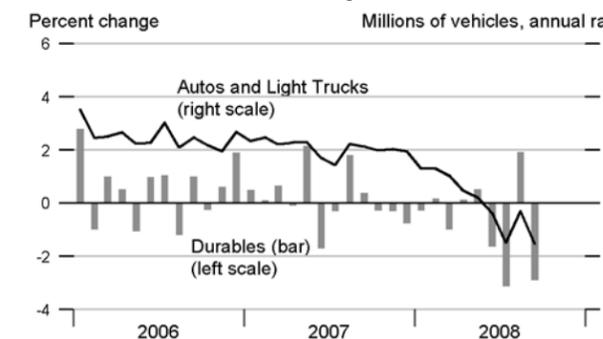
Real Consumption



Retail & Food Services



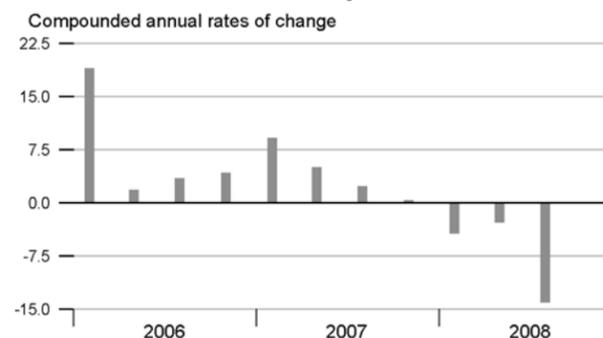
Real Durables Consumption & Vehicle Sales



Consumer Sentiment (U. of Michigan)

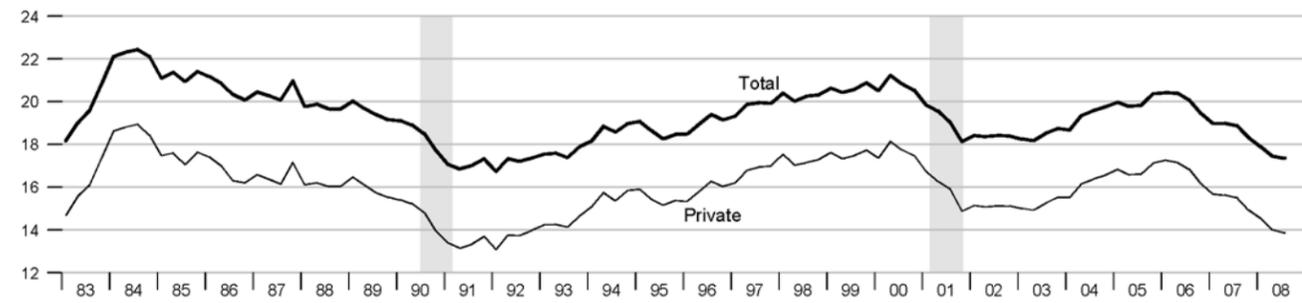


Real Durables Consumption



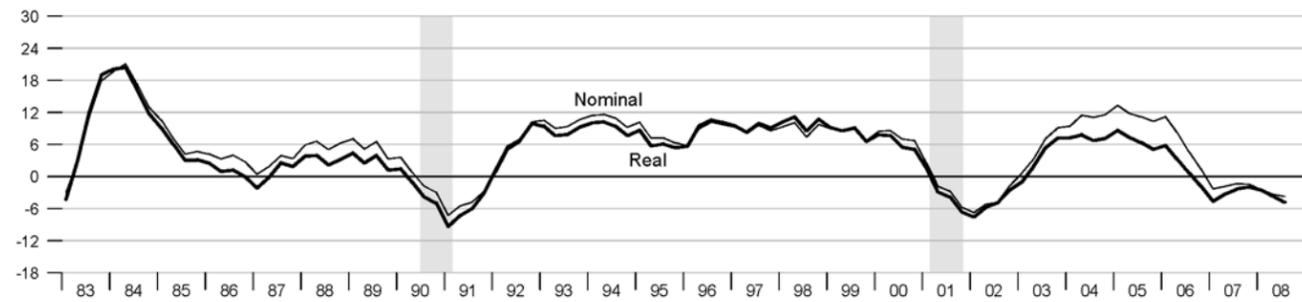
**Investment**

Percent of nominal GDP



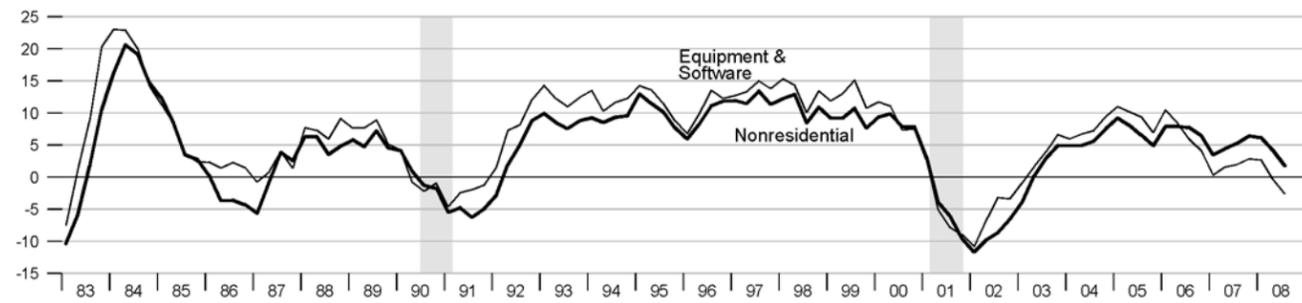
**Private Fixed Investment**

Percent change from year ago



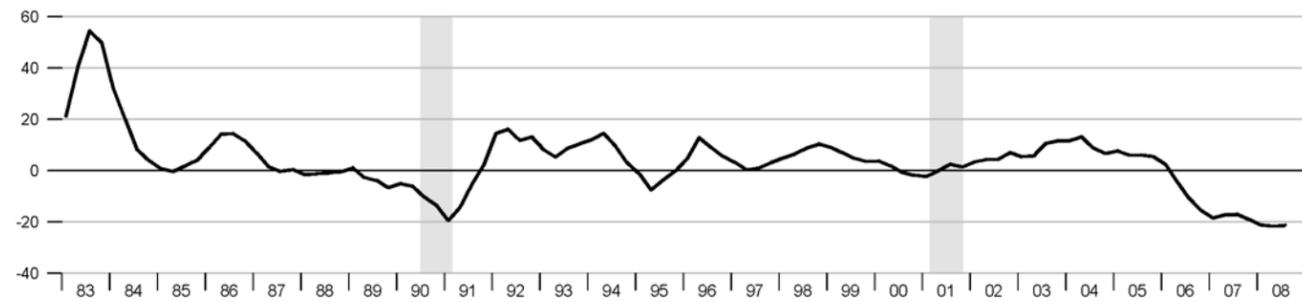
**Real Nonresidential Fixed and Equipment & Software Investment**

Percent change from year ago



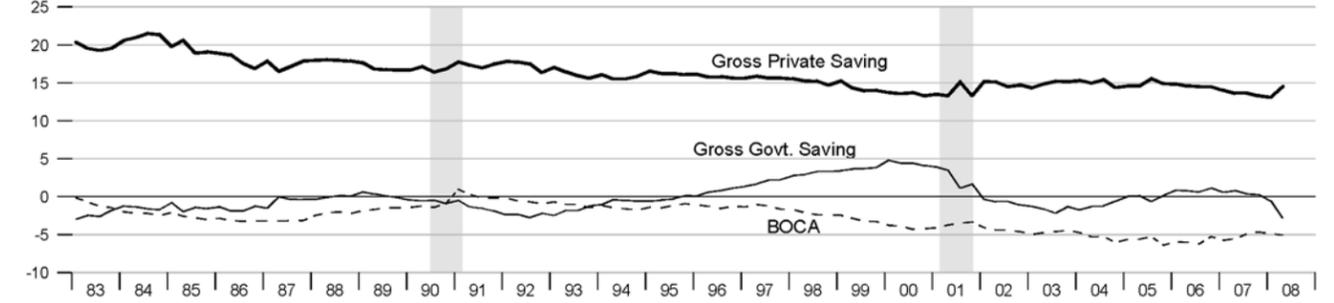
**Real Residential Fixed Investment**

Percent change from year ago



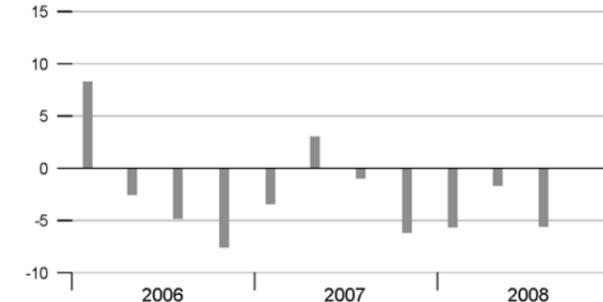
**Gross Saving Rates and Balance on Current Account (NIPA)**

Percent of GDP



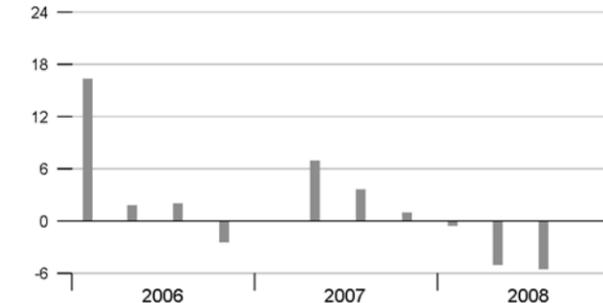
**Real Private Fixed Investment**

Compounded annual rates of change



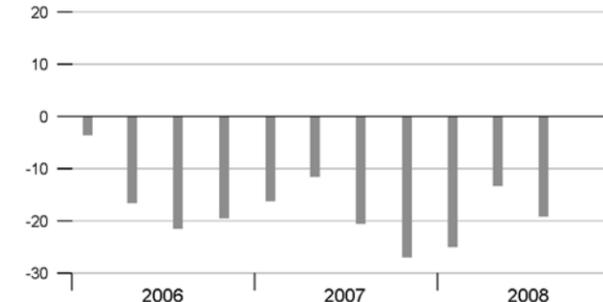
**Real Equipment & Software Investment**

Compounded annual rates of change



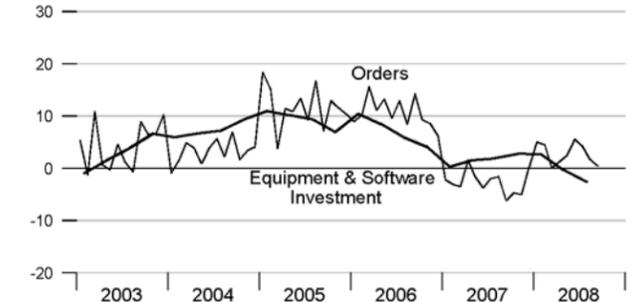
**Real Residential Fixed Investment**

Compounded annual rates of change



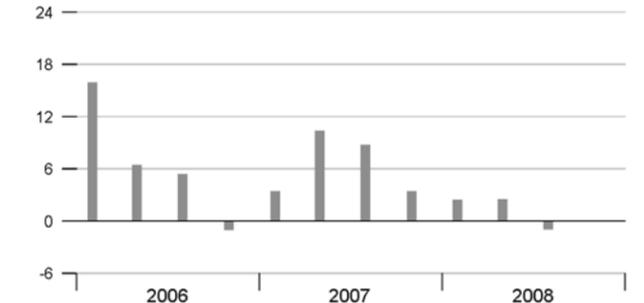
**Nondefense Capital Goods Orders**

Percent change from year ago, excluding aircraft



**Real Nonresidential Fixed Investment**

Compounded annual rates of change



**Housing Starts and New Home Sales**

Millions, annual rate

Millions, annual rate

