National Economic Trends

November 2007

What Are the Chances?

A quick glance through newspapers and economics web sites yields any number of assessments about the probability that the economy is in or will enter a recession. How are such probabilities calculated? Some are likely back-of-the-envelope calculations; however, several academic researchers have devoted considerable time toward discerning recessions in as timely and accurate a fashion as possible.

One such group of researchers is the National Bureau of Economic Research (NBER) Business Cycle Dating Committee. They report (with some delay) the months when the economy entered and left a recession and are seen by many as the final authority on the timing of business cycle turning points. The committee defines a recession as "a significant decline in economic activity spread across the economy, lasting more than a few months." Because gross domestic product (GDP) data are released quarterly and subject to revisions, they also examine a variety of monthly economic indicators. The five most heavily weighted indicators are real GDP, real personal income less transfer payments, payroll employment, industrial production, and real sales of the manufacturing and wholesale-retail trade sectors.[1]

Econometricians attempt to assess whether the economy is in recession before the NBER releases its turning points. They construct models predicated on the notion that the economy has two unobservable distinct states—expansion and recession. For example, Marcelle Chauvet and James Hamilton use the most recent revisions of GDP, including the advance estimate for the most recent quarter, to obtain an index that reflects the likelihood that the previous quarter was in recession. According to their model, a recession begins when the index rises above 65 percent and ends when it falls below 35 percent. After the advance second-quarter GDP estimate was released in July, the recession probability index for 2007:Q1 was 26.2 percent, up from 16.9 percent for 2006:Q4, but still not at recession level.[2]

Using a similar method, Marcelle Chauvet and Jeremy Piger construct a monthly recession probability series: They use the same main indicators as the NBER, with the exception of real GDP, and estimate each probability by using all available manufacturing and trade sales data along with employment, industrial production, and personal income less transfer payments (the sales data are released a month later). Their probability of recession has been around 1 percent since October 2005.[3]

To compare the different recession probabilities, we plotted the former series along with the quarterly averages of the latter series, as well as the NBER turning points. As the chart shows, the resulting probabilities from both statistical methods spike around the time of the NBER's recession dates. Because the data they use are similar, the Chauvet-Piger method more closely fits the NBER turning points. However, small disparities between the results of each method persist. It may be that only when these recession probabilities are very high—say, above 65 percent—can we have confidence in a model's accuracy.

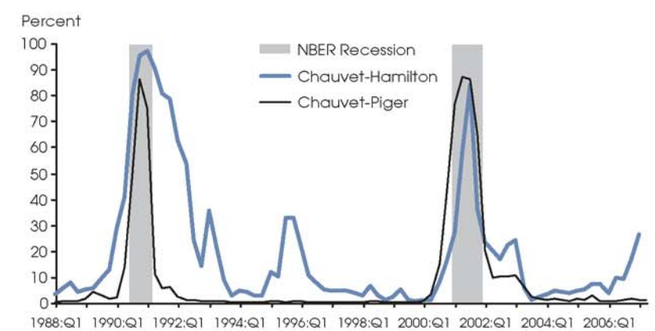
—Kristie M. Engemann and Michael T. Owyang

[1] Business Cycle Dating Committee, NBER. "The NBER's Business-Cycle Dating Procedure," released October 21, 2003.

[2] Chauvet, Marcelle and Hamilton, James D. "Dating Business Cycle Turning Points." NBER Working Paper No. 11422, June 2005; and blog post by James Hamilton, July 27, 2007, www.econbrowser.com/archives/2007/07/recession_proba_2.html.

[3] Chauvet, Marcelle and Piger, Jeremy. "A Comparison of the Real-Time Performance of Business Cycle Dating Methods." *Journal of Business and Economic Statistics*, forthcoming; and www.uoregon.edu/~jpiger/us_recession_probs.htm.

Recession Probabilities



SOURCE: James D. Hamilton, www.econbrowser.com; Jeremy Piger, www.uoregon.edu/~jpiger/us_recession_probs.htm.

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

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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 May 2003 **Employment Situation**, the establishment survey data for employment, hours, and earnings have been converted from the 1987 SIC system to the 2002 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 (± 0.2 percentage points) and change in household survey employment (± 290,000) 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/>. 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 CCAdj (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 76 percent of the value of GDP in 1996, 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.

NOTE: Most measures of economic activity are now based on the 2002 North American Industry Classification System (NAICS), which replaces the 1987 Standard Industry Classification (SIC) system.

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.

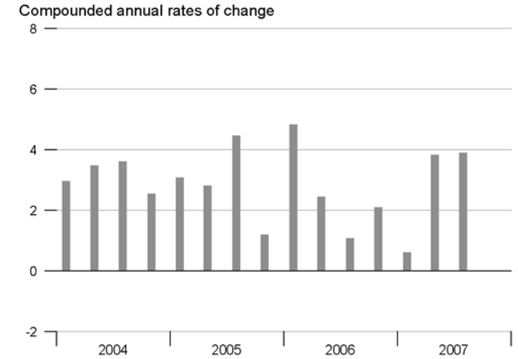
The Survey Research Center, The University of Michigan
Consumer sentiment index.

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			
			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
2002		179.867			1.6		190.442			2.3		138.9			-1.3
2003		183.967			2.3		193.225			1.5		143.3			3.2
2004		188.900			2.7		196.625			1.8		148.5			3.6
2005		195.258			3.4		200.892			2.2		155.7			4.9
2006		201.583			3.2		205.925			2.5		160.3			2.9
2005	1	192.133	0.5	2.1	3.0	2.1	199.500	0.6	2.6	2.3	2.6	152.7	0.8	3.2	4.7
	2	193.967	1.0	3.9	2.9	3.0	200.433	0.5	1.9	2.2	2.2	154.0	0.9	3.5	4.1
	3	196.633	1.4	5.6	3.8	3.9	201.167	0.4	1.5	2.1	2.0	156.8	1.8	7.3	5.6
	4	198.300	0.8	3.4	3.7	3.7	202.467	0.6	2.6	2.1	2.1	159.4	1.7	7.0	5.2
2006	1	199.233	0.5	1.9	3.7	1.9	203.667	0.6	2.4	2.1	2.4	159.4	-0.0	-0.1	4.4
	2	201.700	1.2	5.0	4.0	3.5	205.333	0.8	3.3	2.4	2.9	160.9	0.9	3.7	4.4
	3	203.233	0.8	3.1	3.4	3.3	206.867	0.7	3.0	2.8	2.9	161.1	0.2	0.7	2.8
	4	202.167	-0.5	-2.1	1.9	1.9	207.833	0.5	1.9	2.7	2.7	159.9	-0.8	-3.1	0.3
2007	1	204.068	0.9	3.8	2.4	3.8	209.010	0.6	2.3	2.6	2.3	162.5	1.6	6.7	1.9
	2	207.057	1.5	6.0	2.7	4.9	210.006	0.5	1.9	2.3	2.1	166.3	2.4	9.8	3.4
	3	208.019	0.5	1.9	2.4	3.9	211.299	0.6	2.5	2.1	2.2	166.7	0.2	1.0	3.5
2005	Sep	198.600	1.2	15.7	4.7	5.1	201.400	0.1	1.2	2.0	2.0	158.9	1.8	23.8	6.8
	Oct	199.200	0.3	3.7	4.4	5.0	202.000	0.3	3.6	2.1	2.1	159.8	0.6	7.0	5.8
	Nov	197.900	-0.7	-7.6	3.5	3.8	202.500	0.2	3.0	2.1	2.2	158.7	-0.7	-8.0	4.3
	Dec	197.800	-0.1	-0.6	3.4	3.4	202.900	0.2	2.4	2.2	2.2	159.8	0.7	8.6	5.5
2006	Jan	199.000	0.6	7.5	4.0	7.5	203.200	0.1	1.8	2.1	1.8	160.3	0.3	3.8	5.6
	Feb	199.100	0.1	0.6	3.6	4.0	203.600	0.2	2.4	2.1	2.1	158.6	-1.1	-12.0	3.9
	Mar	199.600	0.3	3.1	3.4	3.7	204.200	0.3	3.6	2.1	2.6	159.3	0.4	5.4	3.6
	Apr	200.800	0.6	7.5	3.6	4.6	204.800	0.3	3.6	2.3	2.8	160.4	0.7	8.6	4.0
	May	201.900	0.5	6.8	4.1	5.0	205.300	0.2	3.0	2.4	2.9	160.7	0.2	2.3	4.4
	Jun	202.400	0.2	3.0	4.3	4.7	205.900	0.3	3.6	2.6	3.0	161.5	0.5	6.1	4.9
	Jul	203.200	0.4	4.8	4.2	4.7	206.400	0.2	3.0	2.7	3.0	161.3	-0.1	-1.5	3.9
	Aug	203.800	0.3	3.6	3.9	4.6	206.900	0.2	2.9	2.8	3.0	161.9	0.4	4.6	3.7
	Sep	202.700	-0.5	-6.3	2.1	3.3	207.300	0.2	2.3	2.9	2.9	160.2	-1.1	-11.9	0.8
	Oct	201.800	-0.4	-5.2	1.3	2.4	207.600	0.1	1.8	2.8	2.8	157.8	-1.5	-16.6	-1.3
	Nov	201.900	0.0	0.6	2.0	2.3	207.800	0.1	1.2	2.6	2.6	160.3	1.6	20.8	1.0
	Dec	202.800	0.4	5.5	2.5	2.5	208.100	0.1	1.7	2.6	2.6	161.5	0.7	9.4	1.1
2007	Jan	203.153	0.2	2.1	2.1	2.1	208.632	0.3	3.1	2.7	3.1	160.6	-0.6	-6.5	0.2
	Feb	203.906	0.4	4.5	2.4	3.3	209.135	0.2	2.9	2.7	3.0	162.6	1.2	16.0	2.5
	Mar	205.146	0.6	7.5	2.8	4.7	209.263	0.1	0.7	2.5	2.3	164.2	1.0	12.5	3.1
	Apr	205.999	0.4	5.1	2.6	4.8	209.634	0.2	2.1	2.4	2.2	165.6	0.9	10.7	3.2
	May	207.387	0.7	8.4	2.7	5.5	209.948	0.1	1.8	2.3	2.1	166.7	0.7	8.3	3.7
	Jun	207.784	0.2	2.3	2.7	5.0	210.436	0.2	2.8	2.2	2.3	166.6	-0.1	-0.7	3.2
	Jul	208.028	0.1	1.4	2.4	4.5	210.933	0.2	2.9	2.2	2.3	167.6	0.6	7.4	3.9
	Aug	207.738	-0.1	-1.7	1.9	3.7	211.250	0.2	1.8	2.1	2.3	165.3	-1.4	-15.3	2.1
	Sep	208.292	0.3	3.2	2.8	3.6	211.714	0.2	2.7	2.1	2.3	167.2	1.1	14.7	4.4

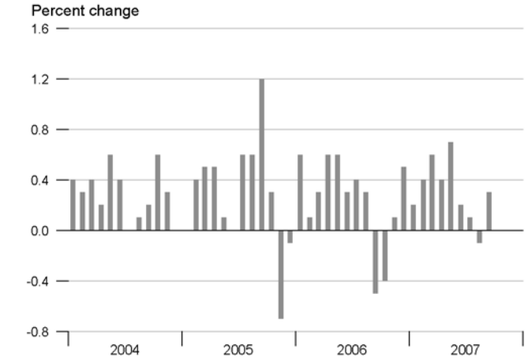
Real GDP Growth

Compounded annual rates of change



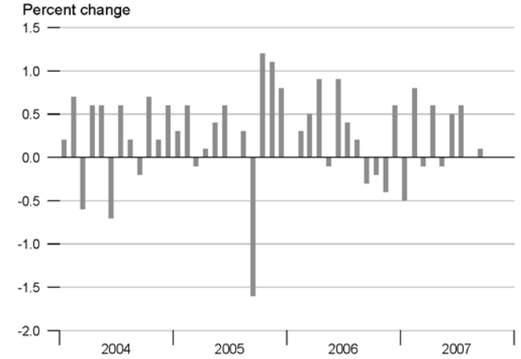
Consumer Price Index

Percent change



Industrial Production

Percent change

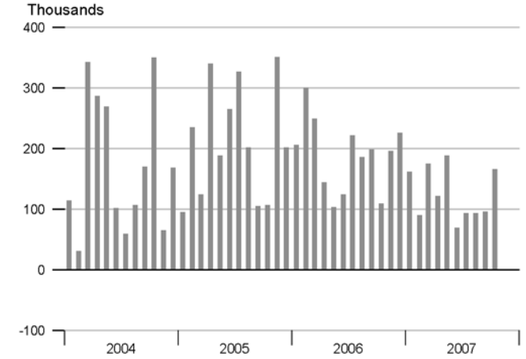


Interest Rates

Percent

Change in Nonfarm Payrolls

Thousands

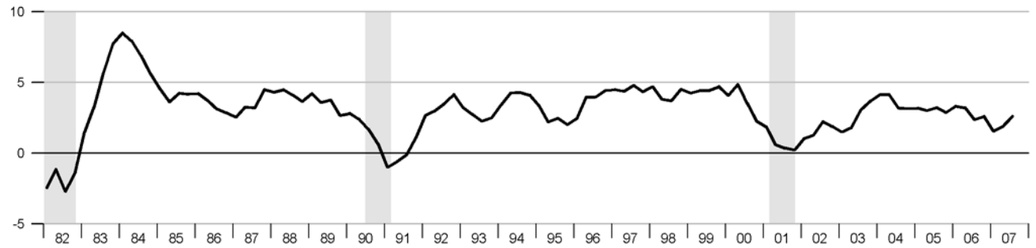


Unemployment Rate

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

Aggregate Private Nonfarm Hours

Percent change from year ago

Real Change in Private Inventories

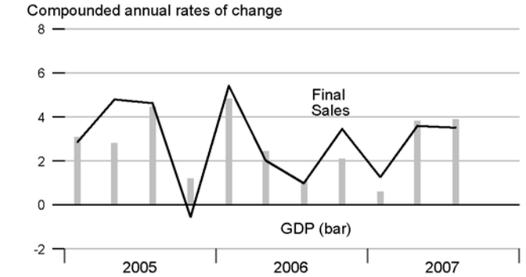
Percent of GDP

		Unempl. Rate	Retail and Food Services Sales: Billions of dollars	Retail: Monthly/ quarterly (Percent change)	Retail: Annual rate (Percent change)	Retail: Year ago (Percent change)	Industrial Production: Index	Industrial: Monthly/ quarterly (Percent change)	Industrial: Annual rate (Percent change)	Industrial: Year ago (Percent change)	Treasury Yields (Percent): 3-mo	Treasury Yields (Percent): 10-yr
2002		5.8	3467.263			2.4	100.0000			0.0	1.60	4.61
2003		6.0	3614.093			4.2	101.0619			1.1	1.01	4.02
2004		5.5	3833.271			6.1	103.5734			2.5	1.37	4.27
2005		5.1	4085.340			6.6	106.9340			3.2	3.15	4.29
2006		4.6	4336.650			6.2	111.2407			4.0	4.73	4.79
2005	1	5.3	994.839	1.0	4.1	6.0	105.9764	1.1	4.6	3.3	2.54	4.30
	2	5.1	1015.843	2.1	8.7	7.2	106.6983	0.7	2.8	3.4	2.86	4.16
	3	5.0	1034.026	1.8	7.4	7.4	106.9113	0.2	0.8	3.1	3.36	4.21
	4	5.0	1040.632	0.6	2.6	5.7	108.1499	1.2	4.7	3.2	3.83	4.49
2006	1	4.7	1072.960	3.1	13.0	7.9	109.4847	1.2	5.0	3.3	4.39	4.57
	2	4.6	1081.227	0.8	3.1	6.4	111.2261	1.6	6.5	4.2	4.70	5.07
	3	4.7	1089.908	0.8	3.3	5.4	112.3327	1.0	4.0	5.1	4.91	4.90
	4	4.5	1092.555	0.2	1.0	5.0	111.9193	-0.4	-1.5	3.5	4.90	4.63
2007	1	4.5	1109.368	1.5	6.3	3.4	112.2157	0.3	1.1	2.5	4.98	4.68
	2	4.5	1124.080	1.3	5.4	4.0	113.1718	0.9	3.5	1.7	4.74	4.85
	3	4.6	1135.164	1.0	4.0	4.2	114.2960	1.0	4.0	1.7	4.30	4.73
2005	Oct	5.0	345.231	0.5	6.2	5.7	107.0570	1.2	14.7	2.5	3.71	4.46
	Nov	5.0	347.671	0.7	8.8	6.2	108.2431	1.1	14.1	3.4	3.88	4.54
	Dec	4.9	347.730	0.0	0.2	5.1	109.1496	0.8	10.5	3.6	3.89	4.47
2006	Jan	4.7	359.254	3.3	47.9	9.0	109.1081	-0.0	-0.5	3.3	4.24	4.42
	Feb	4.8	356.451	-0.8	-9.0	7.2	109.3862	0.3	3.1	3.0	4.43	4.57
	Mar	4.7	357.255	0.2	2.7	7.4	109.9597	0.5	6.5	3.6	4.51	4.72
	Apr	4.7	361.376	1.2	14.8	7.1	110.9443	0.9	11.3	4.5	4.60	4.99
	May	4.6	359.363	-0.6	-6.5	6.9	110.8746	-0.1	-0.8	4.0	4.72	5.11
	Jun	4.6	360.488	0.3	3.8	5.4	111.8594	0.9	11.2	4.3	4.79	5.11
	Jul	4.8	363.633	0.9	11.0	4.5	112.3067	0.4	4.9	4.7	4.95	5.09
	Aug	4.7	364.172	0.1	1.8	6.3	112.5208	0.2	2.3	4.6	4.96	4.88
	Sep	4.6	362.103	-0.6	-6.6	5.4	112.1707	-0.3	-3.7	6.0	4.81	4.72
	Oct	4.4	361.980	-0.0	-0.4	4.9	111.9994	-0.2	-1.8	4.6	4.92	4.73
	Nov	4.5	363.234	0.3	4.2	4.5	111.5291	-0.4	-4.9	3.0	4.94	4.60
	Dec	4.5	367.341	1.1	14.4	5.6	112.2295	0.6	7.8	2.8	4.85	4.56
2007	Jan	4.6	367.230	-0.0	-0.4	2.2	111.6827	-0.5	-5.7	2.4	4.98	4.76
	Feb	4.5	369.287	0.6	6.9	3.6	112.5319	0.8	9.5	2.9	5.03	4.72
	Mar	4.4	372.851	1.0	12.2	4.4	112.4324	-0.1	-1.1	2.2	4.94	4.56
	Apr	4.5	371.651	-0.3	-3.8	2.8	113.0619	0.6	6.9	1.9	4.87	4.69
	May	4.5	377.689	1.6	21.3	5.1	112.9510	-0.1	-1.2	1.9	4.73	4.75
	Jun	4.5	374.740	-0.8	-9.0	4.0	113.5026	0.5	6.0	1.5	4.61	5.10
	Jul	4.6	376.906	0.6	7.2	3.7	114.2389	0.6	8.1	1.7	4.82	5.00
	Aug	4.6	378.028	0.3	3.6	3.8	114.2922	0.0	0.6	1.6	4.20	4.67
	Sep	4.7	380.230	0.6	7.2	5.0	114.3570	0.1	0.7	1.9	3.89	4.52
	Oct	4.7									3.90	4.53

		Household Survey Employment				Nonfarm Payroll Employment				Nonfarm Aggregate Hours			
				Percent change				Percent change			Percent change		
		Thousands	Change	Annual rate	Year ago	Thousands	Change	Annual rate	Year ago	Index	Monthly rate	Annual rate	Year ago
2002		136481	-458		-0.3	130347	-1485		-1.1	100.0			-2.0
2003		137730	1249		0.9	129990	-357		-0.3	98.6			-1.4
2004		139242	1512		1.1	131423	1433		1.1	100.2			1.6
2005		141715	2473		1.8	133696	2273		1.7	102.7			2.5
2006		144419	2705		1.9	136175	2478		1.9	105.7			2.9
2005	1	140385	326	0.9	1.4	132656	427	1.3	1.6	101.5	0.3	1.2	2.2
	2	141501	1116	3.2	1.9	133371	715	2.2	1.6	102.4	0.9	3.5	2.5
	3	142319	818	2.3	2.0	134107	736	2.2	1.9	103.1	0.7	2.8	2.6
	4	142655	336	0.9	1.9	134652	546	1.6	1.8	103.9	0.8	3.3	2.7
2006	1	143366	711	2.0	2.1	135393	741	2.2	2.1	104.8	0.8	3.4	3.2
	2	144065	699	2.0	1.8	135913	520	1.5	1.9	105.6	0.8	3.1	3.1
	3	144618	553	1.5	1.6	136442	529	1.6	1.7	106.0	0.3	1.4	2.8
	4	145629	1011	2.8	2.1	136951	509	1.5	1.7	106.5	0.5	2.0	2.5
2007	1	146043	415	1.1	1.9	137447	496	1.5	1.5	106.8	0.3	1.1	1.9
	2	145956	-87	-0.2	1.3	137864	417	1.2	1.4	107.4	0.5	2.1	1.7
	3	146054	97	0.3	1.0	138160	296	0.9	1.3	107.7	0.3	1.2	1.6
2005	Oct	142586	137	1.2	2.0	134351	107	1.0	1.7	103.6	0.1	1.2	2.4
	Nov	142597	11	0.1	1.7	134702	351	3.2	1.9	104.0	0.4	4.7	3.0
	Dec	142782	185	1.6	1.9	134904	202	1.8	1.9	104.2	0.2	2.3	2.7
2006	Jan	143099	317	2.7	2.0	135110	206	1.8	2.0	104.5	0.3	3.5	3.2
	Feb	143319	220	1.9	2.1	135410	300	2.7	2.0	104.8	0.3	3.5	3.1
	Mar	143680	361	3.1	2.2	135659	249	2.2	2.1	105.1	0.3	3.5	3.3
	Apr	143763	83	0.7	1.8	135803	144	1.3	2.0	105.6	0.5	5.9	3.1
	May	144045	282	2.4	1.7	135906	103	0.9	1.9	105.4	-0.2	-2.2	3.1
	Jun	144386	341	2.9	1.9	136030	124	1.1	1.8	105.8	0.4	4.7	3.1
	Jul	144330	-56	-0.5	1.6	136252	222	2.0	1.7	106.0	0.2	2.3	3.1
	Aug	144618	288	2.4	1.5	136438	186	1.7	1.7	105.9	-0.1	-1.1	2.8
	Sep	144906	288	2.4	1.7	136636	198	1.8	1.8	106.0	0.1	1.1	2.4
	Oct	145337	431	3.6	1.9	136745	109	1.0	1.8	106.3	0.3	3.4	2.6
	Nov	145623	286	2.4	2.1	136941	196	1.7	1.7	106.3	0.0	0.0	2.2
	Dec	145926	303	2.5	2.2	137167	226	2.0	1.7	106.9	0.6	7.0	2.6
2007	Jan	145957	31	0.3	2.0	137329	162	1.4	1.6	106.7	-0.2	-2.2	2.1
	Feb	145919	-38	-0.3	1.8	137419	90	0.8	1.5	106.4	-0.3	-3.3	1.5
	Mar	146254	335	2.8	1.8	137594	175	1.5	1.4	107.3	0.8	10.6	2.1
	Apr	145786	-468	-3.8	1.4	137716	122	1.1	1.4	107.1	-0.2	-2.2	1.4
	May	145943	157	1.3	1.3	137904	188	1.7	1.5	107.3	0.2	2.3	1.8
	Jun	146140	197	1.6	1.2	137973	69	0.6	1.4	107.7	0.4	4.6	1.8
	Jul	146110	-30	-0.2	1.2	138066	93	0.8	1.3	107.6	-0.1	-1.1	1.5
	Aug	145794	-316	-2.6	0.8	138159	93	0.8	1.3	107.7	0.1	1.1	1.7
	Sep	146257	463	3.9	0.9	138255	96	0.8	1.2	107.8	0.1	1.1	1.7
	Oct	146007	-250	-2.0	0.5	138421	166	1.5	1.2	107.9	0.1	1.1	1.5

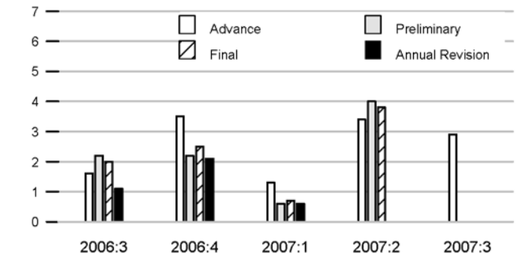
Real Final Sales and GDP

Compounded annual rates of change



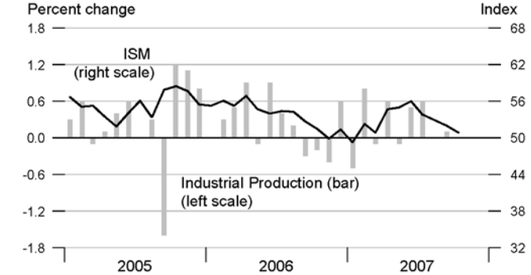
Real GDP Revisions

Compounded annual rates of change



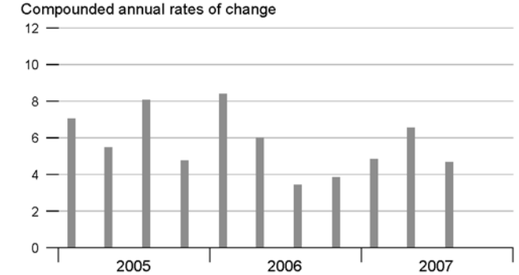
Industrial Production and ISM Index

Percent change / Index



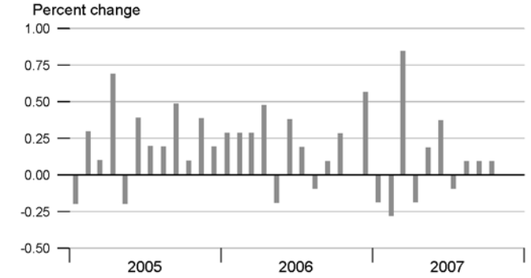
Nominal Gross Domestic Product

Compounded annual rates of change



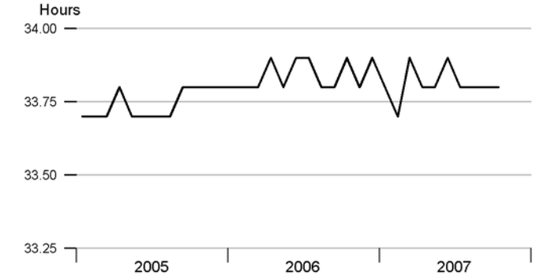
Aggregate Private Nonfarm Hours

Percent change



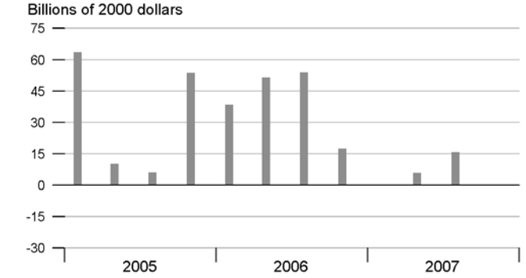
Average Weekly Private Nonfarm Hours

Hours



Real Change in Private Inventories

Billions of 2000 dollars

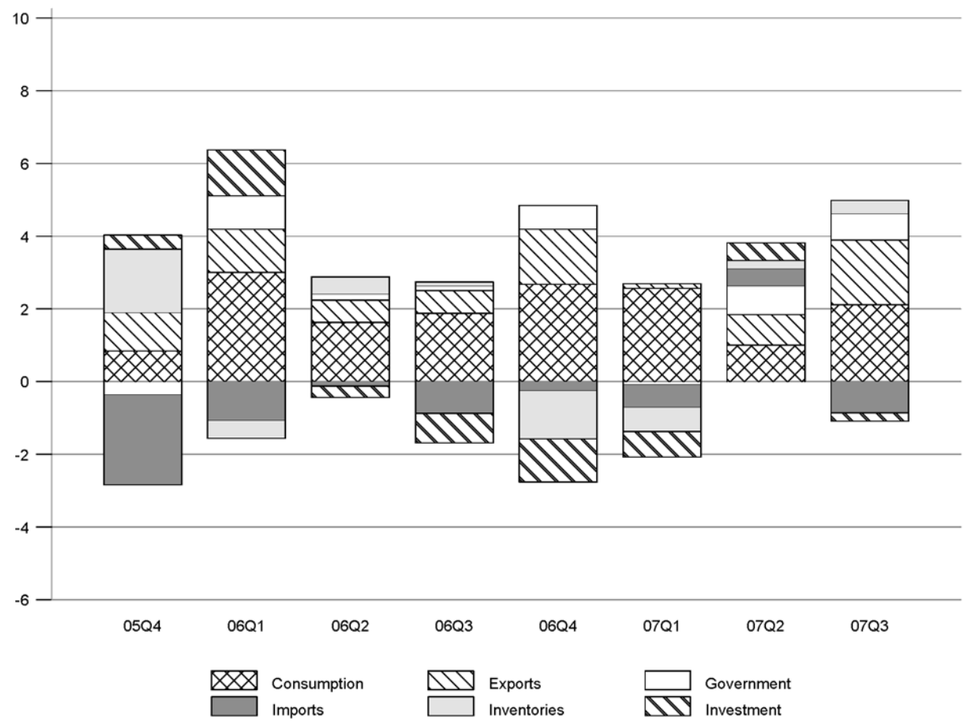


Inventory-Sales Ratio

Manufacturing and trade

Contribution of Components to Real GDP Growth

Percentage points at compounded annual rates



Contributions to Real GDP Growth Rate

	2005 4th	2006 1st	2nd	3rd	4th	2007 1st	2nd	3rd
Final Sales	-0.55	5.31	1.98	0.97	3.40	1.25	3.60	3.54
Consumption	0.84	3.00	1.63	1.88	2.68	2.56	1.00	2.11
Fixed Investment	0.38	1.27	-0.32	-0.80	-1.19	-0.70	0.49	-0.23
Nonresidential	0.35	1.31	0.44	0.53	-0.15	0.22	1.12	0.82
Residential	0.03	-0.05	-0.76	-1.33	-1.04	-0.93	-0.62	-1.05
Government	-0.37	0.92	0.18	0.14	0.66	-0.09	0.79	0.73
Federal	-0.46	0.57	-0.11	0.06	0.50	-0.46	0.41	0.48
State and Local	0.09	0.35	0.29	0.08	0.16	0.36	0.37	0.25
Net Exports	-1.41	0.13	0.49	-0.25	1.25	-0.51	1.32	0.93
Exports	1.07	1.19	0.61	0.62	1.51	0.13	0.85	1.79
Imports	-2.47	-1.07	-0.12	-0.88	-0.26	-0.63	0.47	-0.86
Change in Inventory	1.74	-0.49	0.46	0.10	-1.31	-0.65	0.22	0.36
Residual	-0.08	-0.11	-0.19	-0.26	-0.19	-0.22	-0.15	-0.21
Real GDP Growth	1.19	4.82	2.44	1.07	2.09	0.60	3.82	3.90

	GDP Chain Price Index			Employment Cost Index			ECI: Wages			ECI: Benefits		
		Percent change			Percent change			Percent change			Percent change	
	Index	Annual rate	Year ago	Index	Annual rate	Year ago	Index	Annual rate	Year ago	Index	Annual rate	Year ago
2003	106.409		2.1	92.7		3.8	94.2		2.8	88.8		6.1
2004	109.462		2.9	96.2		3.8	96.7		2.7	94.8		6.8
2005	113.005		3.2	99.2		3.1	99.2		2.5	99.2		4.6
2006	116.568		3.2	102.1		2.9	102.0		2.9	102.1		2.9
2004 1	108.180	3.7	2.3	94.9	4.8	3.8	95.7	2.5	2.7	92.9	11.0	6.8
2	109.185	3.8	2.9	95.8	3.8	3.9	96.4	3.0	2.7	94.4	6.6	7.2
3	109.807	2.3	3.0	96.7	3.8	3.8	97.2	3.4	2.6	95.4	4.3	6.7
4	110.677	3.2	3.2	97.3	2.5	3.7	97.6	1.7	2.6	96.5	4.7	6.6
2005 1	111.745	3.9	3.3	98.2	3.8	3.5	98.3	2.9	2.7	98.0	6.4	5.5
2	112.455	2.6	3.0	98.8	2.5	3.1	98.8	2.1	2.5	98.8	3.3	4.7
3	113.422	3.5	3.3	99.5	2.9	2.9	99.4	2.5	2.3	99.6	3.3	4.4
4	114.398	3.5	3.4	100.1	2.4	2.9	100.1	2.8	2.6	100.3	2.8	3.9
2006 1	115.363	3.4	3.2	100.8	2.8	2.6	100.8	2.8	2.5	100.8	2.0	2.9
2	116.350	3.5	3.5	101.6	3.2	2.8	101.6	3.2	2.8	101.5	2.8	2.7
3	117.030	2.4	3.2	102.5	3.6	3.0	102.4	3.2	3.0	102.5	4.0	2.9
4	117.527	1.7	2.7	103.3	3.2	3.2	103.2	3.2	3.1	103.4	3.6	3.1
2007 1	118.750	4.2	2.9	103.9	2.3	3.1	104.3	4.3	3.5	103.1	-1.2	2.3
2	119.527	2.6	2.7	104.8	3.5	3.1	105.1	3.1	3.4	104.2	4.3	2.7
3	119.756	0.8	2.3	105.6	3.1	3.0	105.9	3.1	3.4	105.0	3.1	2.4

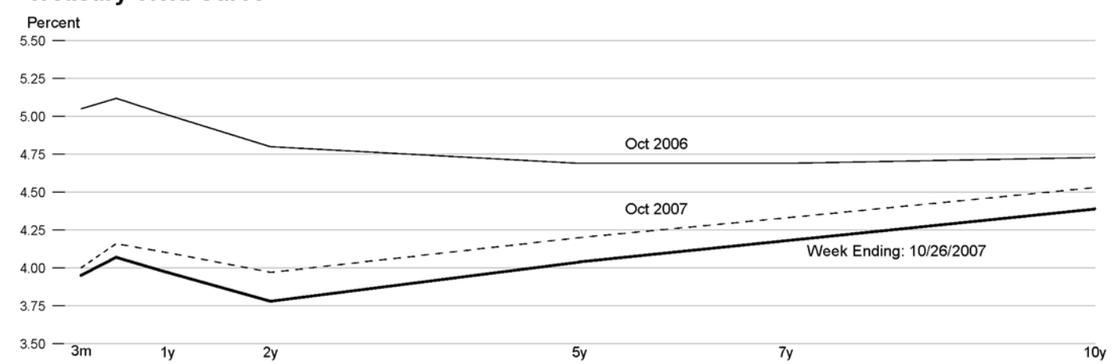
	Exports			Imports			Nonfarm Output per Hour			Nonfarm Compensation per Hour		
		Percent change			Percent change			Percent change			Percent change	
	Billions of 2000 $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago	Index	Annual rate	Year ago	Index	Annual rate	Year ago
2003	1026.109		1.3	1545.017		4.1	128.034		3.7	150.423		4.0
2004	1126.134		9.7	1719.939		11.3	131.542		2.7	155.869		3.6
2005	1203.444		6.9	1821.457		5.9	134.097		1.9	162.149		4.0
2006	1304.104		8.4	1928.567		5.9	135.393		1.0	168.506		3.9
2004 1	1101.785	10.0	9.8	1650.888	12.3	9.3	130.220	0.9	4.0	152.871	-0.2	3.8
2	1119.392	6.5	12.0	1710.450	15.2	12.1	131.713	4.7	3.8	154.850	5.3	3.4
3	1128.041	3.1	9.9	1730.757	4.8	12.4	132.000	0.9	1.5	156.824	5.2	3.4
4	1155.317	10.0	7.4	1787.662	13.8	11.5	132.222	0.7	1.8	158.890	5.4	3.9
2005 1	1172.397	6.0	6.4	1796.826	2.1	8.8	133.417	3.7	2.5	160.300	3.6	4.9
2	1199.343	9.5	7.1	1800.339	0.8	5.3	133.515	0.3	1.4	160.889	1.5	3.9
3	1205.647	2.1	6.9	1809.724	2.1	4.6	134.964	4.4	2.2	163.153	5.7	4.0
4	1236.387	10.6	7.0	1878.952	16.2	5.1	134.485	-1.4	1.7	164.210	2.6	3.3
2006 1	1270.569	11.5	8.4	1910.696	6.9	6.3	135.311	2.5	1.4	167.079	7.2	4.2
2	1288.438	5.7	7.4	1915.005	0.9	6.4	135.583	0.8	1.5	166.978	-0.2	3.8
3	1306.571	5.7	8.4	1940.374	5.4	7.2	135.041	-1.6	0.1	167.517	1.3	2.7
4	1350.861	14.3	9.3	1948.210	1.6	3.7	135.638	1.8	0.9	172.417	12.2	5.0
2007 1	1354.654	1.1	6.6	1966.775	3.9	2.9	135.858	0.7	0.4	174.906	5.9	4.7
2	1379.485	7.5	7.1	1953.360	-2.7	2.0	136.746	2.6	0.9	176.658	4.1	5.8
3	1432.249	16.2	9.6	1978.419	5.2	2.0						

	Nominal GDP			Real GDP			Final Sales			Change in Private Inventories	
		Percent change			Percent change			Percent change		Billions of 2000 $	
	Billions of $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago	Last qtr	Year/Year ago
2003	10960.8		4.7	10301.044		2.5	10285.104		2.5		14.282
2004	11685.9		6.6	10675.757		3.6	10619.790		3.3		54.268
2005	12433.9		6.4	11003.448		3.1	10966.873		3.3		33.237
2006	13194.7		6.1	11319.358		2.9	11275.890		2.8		40.289
2004 1	11405.5	6.8	6.5	10543.621	3.0	4.1	10507.057	2.6	4.0	34.953	16.950
2	11610.3	7.4	7.2	10634.232	3.5	4.1	10568.450	2.4	3.5	64.882	33.834
3	11779.4	6.0	6.3	10728.671	3.6	3.2	10666.641	3.8	2.7	60.057	46.215
4	11948.5	5.9	6.5	10796.408	2.5	3.1	10737.014	2.7	2.8	57.180	54.268
2005 1	12154.0	7.1	6.6	10878.380	3.1	3.2	10812.950	2.9	2.9	63.393	61.378
2	12317.4	5.5	6.1	10954.069	2.8	3.0	10940.422	4.8	3.5	10.070	47.675
3	12558.8	8.1	6.6	11074.326	4.5	3.2	11064.771	4.6	3.7	5.906	34.137
4	12705.5	4.8	6.3	11107.213	1.2	2.9	11049.544	-0.5	2.9	53.580	33.237
2006 1	12964.6	8.4	6.7	11238.662	4.8	3.3	11196.147	5.4	3.5	38.422	26.995
2	13155.0	6.0	6.8	11306.694	2.4	3.2	11252.074	2.0	2.8	51.390	37.325
3	13266.9	3.4	5.6	11336.734	1.1	2.4	11279.696	1.0	1.9	53.944	49.334
4	13392.3	3.8	5.4	11395.538	2.1	2.6	11375.837	3.5	3.0	17.401	40.289
2007 1	13551.9	4.9	4.5	11412.619	0.6	1.5	11411.560	1.3	1.9	0.097	30.708
2	13768.8	6.6	4.7	11520.115	3.8	1.9	11512.777	3.6	2.3	5.762	19.301
3	13926.7	4.7	5.0	11630.654	3.9	2.6	11612.919	3.5	3.0	15.713	9.743

	Consumption			Durables Consumption			Private Fixed Investment			Nonresidential Fixed Investment		
		Percent change			Percent change			Percent change			Percent change	
	Billions of 2000 $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago	Billions of 2000 $	Annual rate	Year ago
2003	7295.309		2.8	1020.572		5.8	1596.874		3.4	1081.810		1.0
2004	7561.380		3.6	1084.786		6.3	1712.757		7.3	1144.264		5.8
2005	7803.593		3.2	1137.415		4.9	1831.427		6.9	1225.790		7.1
2006	8044.054		3.1	1180.469		3.8	1874.694		2.4	1306.762		6.6
2004 1	7475.116	4.4	4.0	1066.225	5.8	9.8	1647.881	-0.2	7.3	1099.133	-2.6	4.9
2	7520.472	2.4	3.7	1071.336	1.9	6.1	1698.704	12.9	7.8	1127.496	10.7	4.9
3	7585.507	3.5	3.2	1091.520	7.8	4.0	1736.716	9.3	6.8	1160.749	12.3	5.6
4	7664.290	4.2	3.7	1110.065	7.0	5.6	1767.743	7.3	7.2	1189.666	10.3	7.5
2005 1	7709.377	2.4	3.1	1116.030	2.2	4.7	1785.306	4.0	8.3	1199.486	3.3	9.1
2	7775.220	3.5	3.4	1146.298	11.3	7.0	1819.775	7.9	7.1	1214.147	5.0	7.7
3	7852.791	4.1	3.5	1163.548	6.2	6.6	1854.949	8.0	6.8	1239.503	8.6	6.8
4	7876.850	1.2	2.8	1123.791	-13.0	1.2	1865.645	2.3	5.5	1250.025	3.4	5.1
2006 1	7961.901	4.4	3.3	1167.761	16.6	4.6	1901.356	7.9	6.5	1289.723	13.3	7.5
2	8009.279	2.4	3.0	1170.169	0.8	2.1	1892.290	-1.9	4.0	1303.165	4.2	7.3
3	8063.801	2.8	2.7	1186.322	5.6	2.0	1869.607	-4.7	0.8	1319.428	5.1	6.4
4	8141.236	3.9	3.4	1197.606	3.9	6.6	1835.541	-7.1	-1.6	1314.758	-1.4	5.2
2007 1	8215.706	3.7	3.2	1223.160	8.8	4.7	1815.191	-4.4	-4.5	1321.732	2.1	2.5
2	8244.349	1.4	2.9	1228.366	1.7	5.0	1829.345	3.2	-3.3	1356.624	11.0	4.1
3	8305.272	3.0	3.0	1241.808	4.4	4.7	1822.512	-1.5	-2.5	1382.720	7.9	4.8

Interest Rates

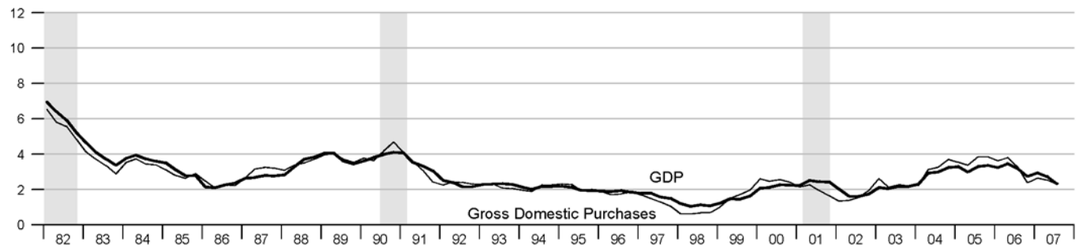
Treasury Yield Curve



Standard and Poor's 500 Index with Reinvested Dividends

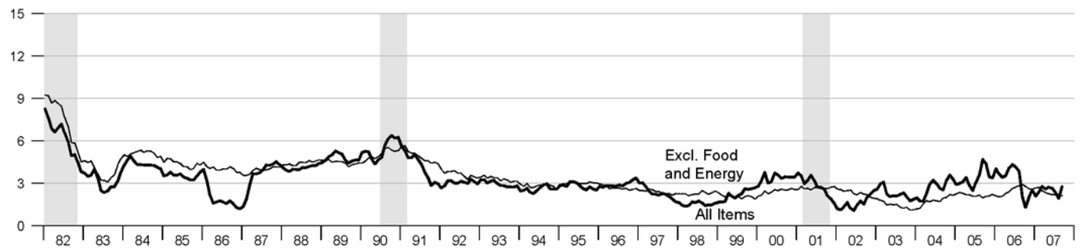
NIPA Chain Price Indexes

Percent change from year ago



Consumer Price Index

Percent change from year ago

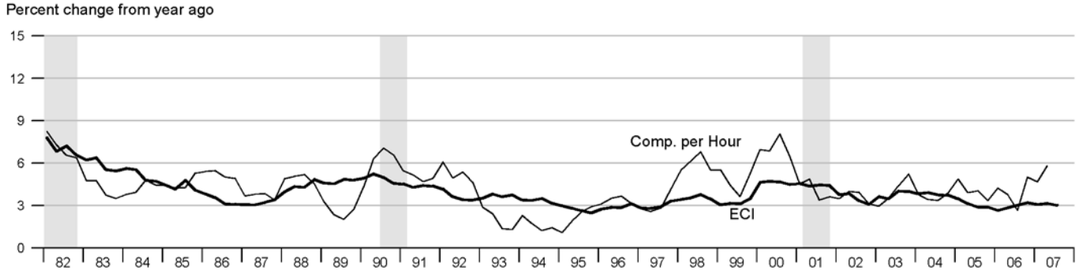


Producer Price Index, Finished Goods

Percent change from year ago

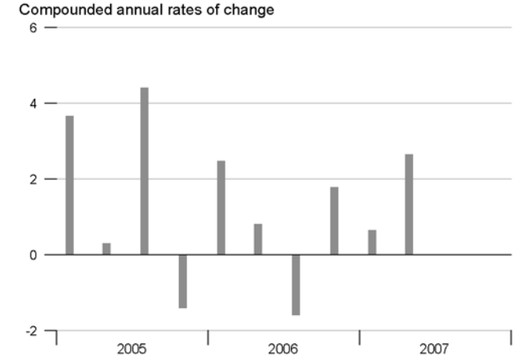
Employment Cost Index and Compensation per Hour

Percent change from year ago



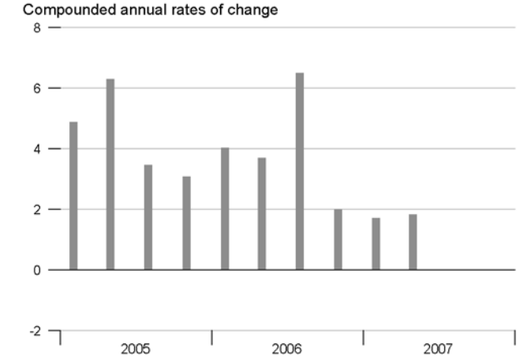
Nonfarm Output per Hour

Compounded annual rates of change

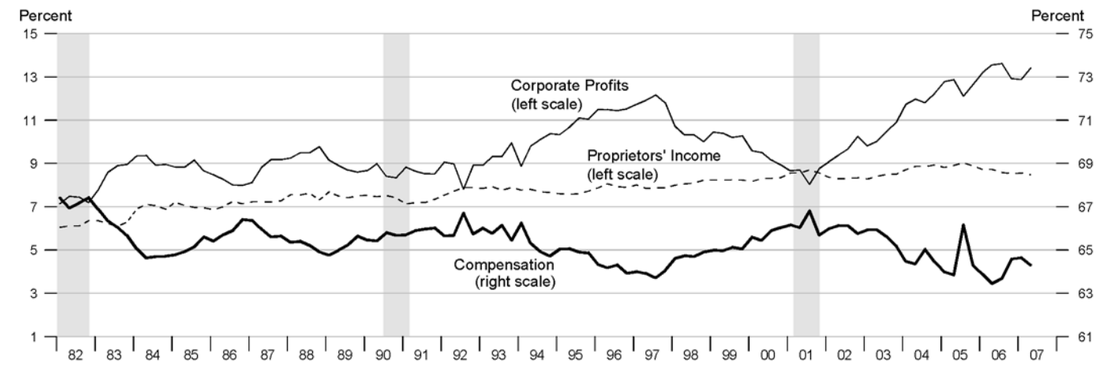


Manufacturing Output per Hour

Compounded annual rates of change

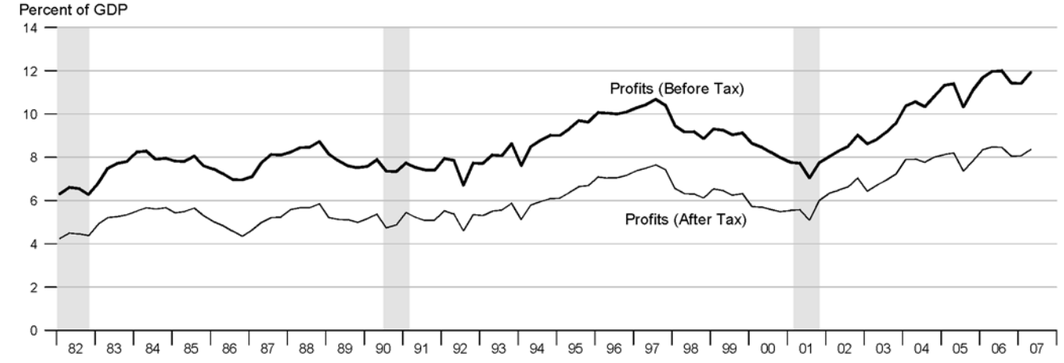


Selected Component Shares of National Income

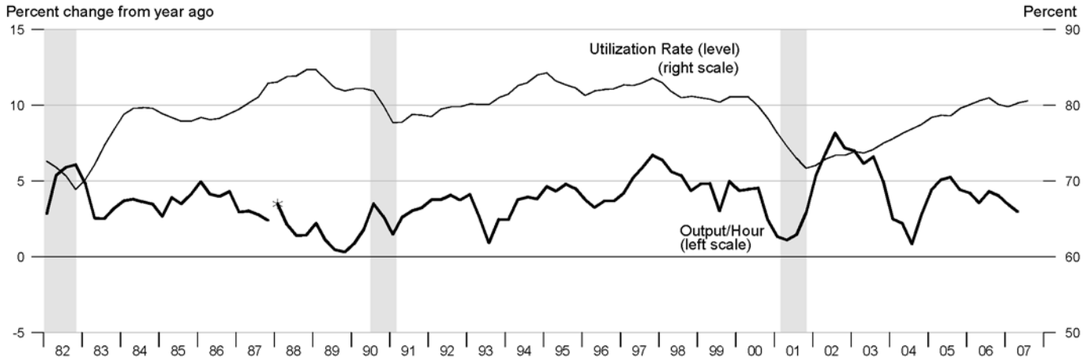


Corporate Profits

Percent of GDP

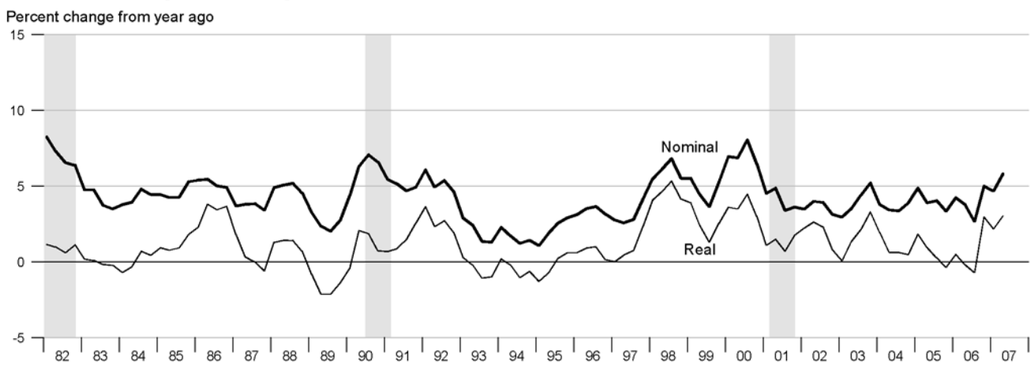


Output per Hour and Capacity Utilization, Manufacturing

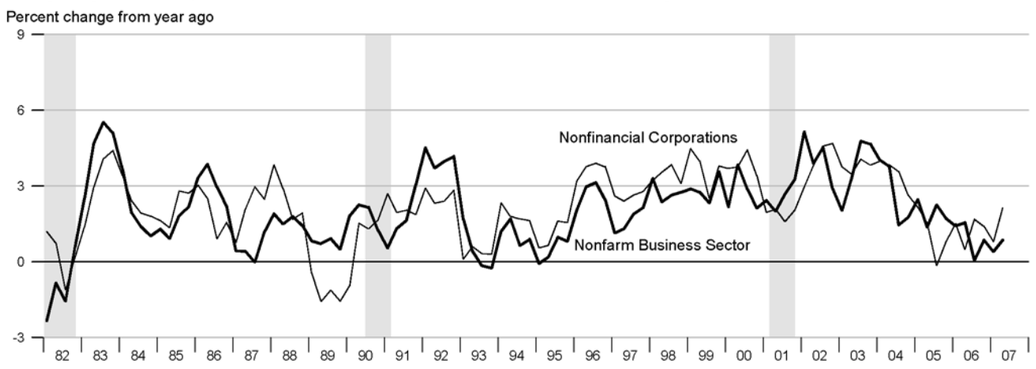


*Data from 1987 to the present are on a NAICS basis; data prior to 1987 are on an SIC basis and are not strictly comparable (see End Note).

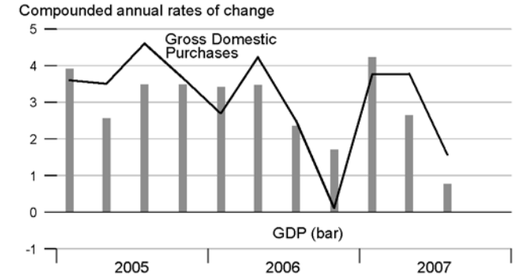
Nonfarm Compensation per Hour



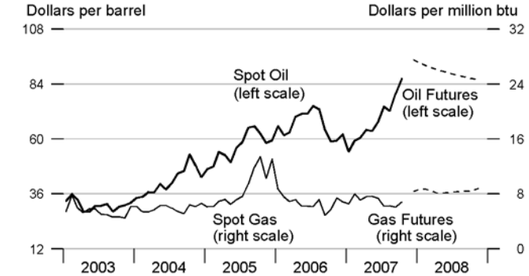
Output per Hour, Nonfarm Business and Nonfinancial Corporations



NIPA Chain Price Indexes

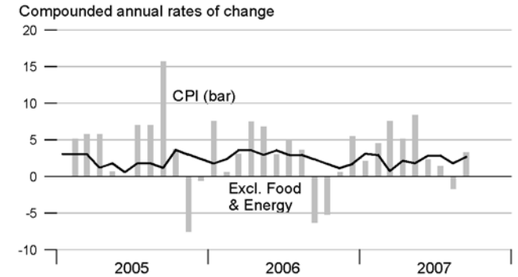


Oil & Natural Gas Prices: Spot & Futures

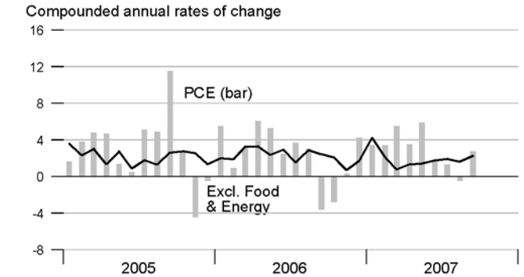


Note: Futures prices as of 10/31/2007.

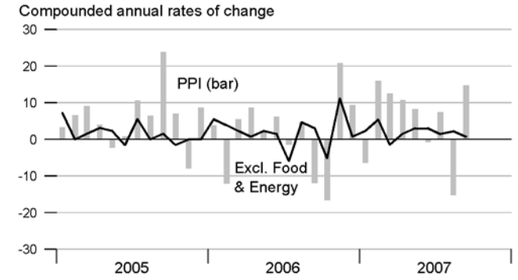
Consumer Price Index



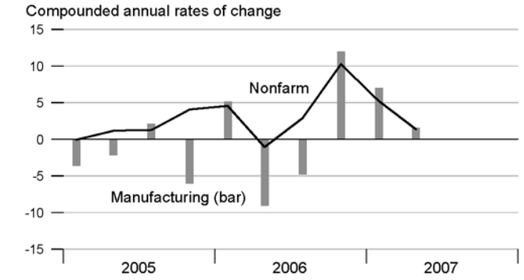
Consumption Chain Price Index



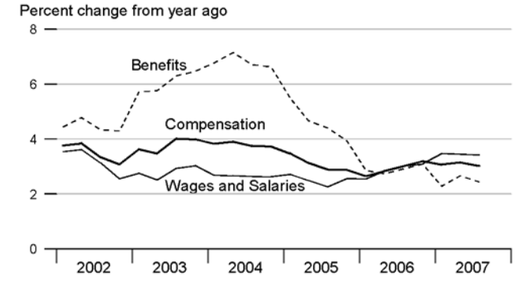
Producer Price Index, Finished Goods



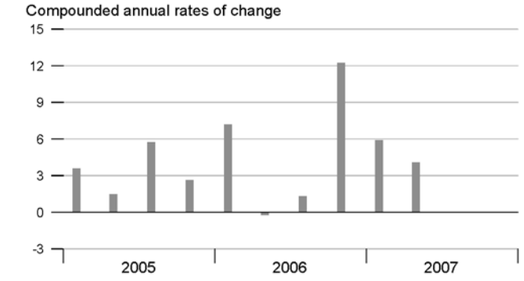
Unit Labor Cost



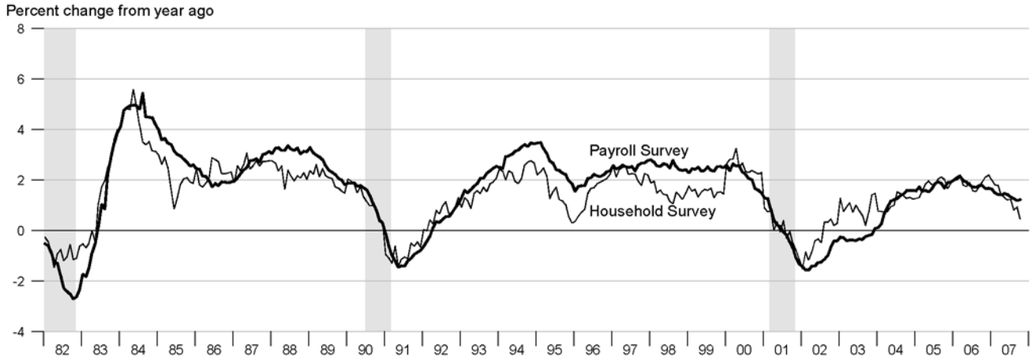
Employment Cost Index



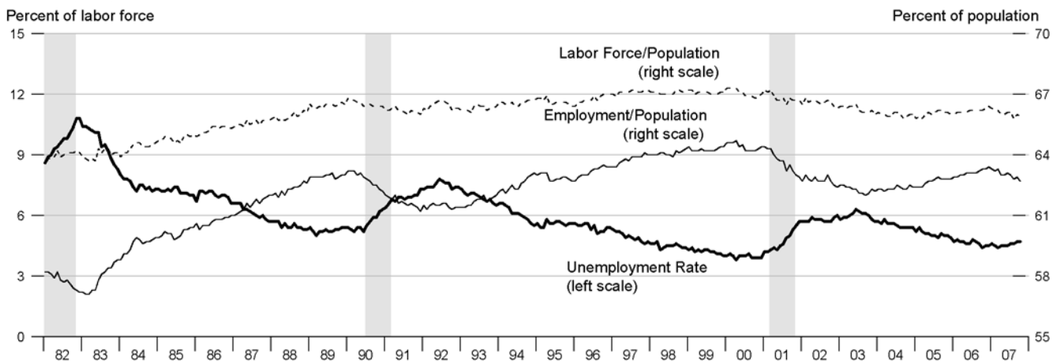
Compensation per Hour



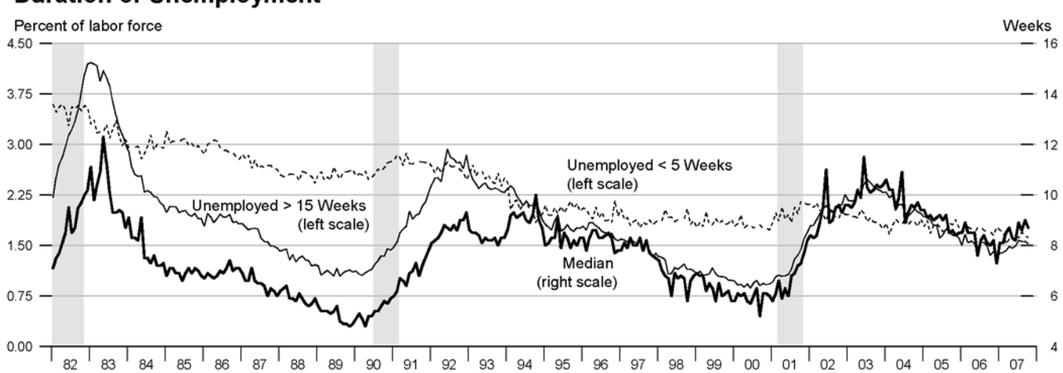
Employment



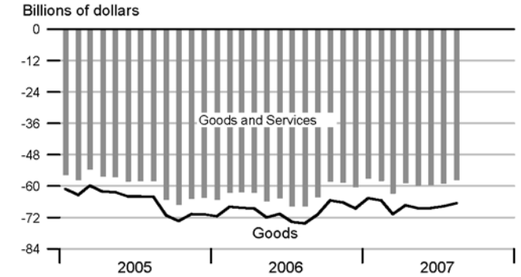
Unemployment, Labor Force Participation, and Employment Rates



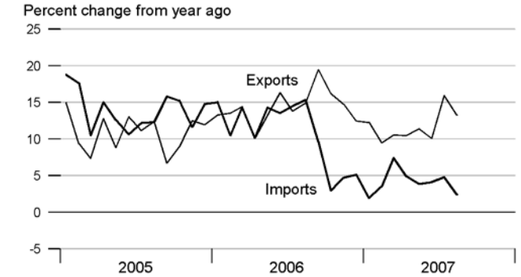
Duration of Unemployment



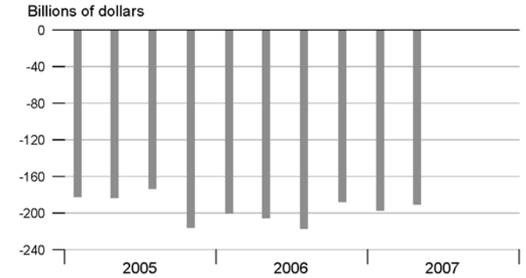
Trade Balance



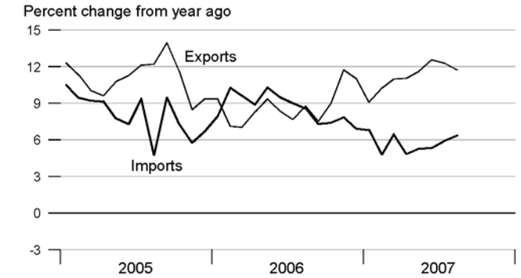
Goods Trade



Current Account Balance

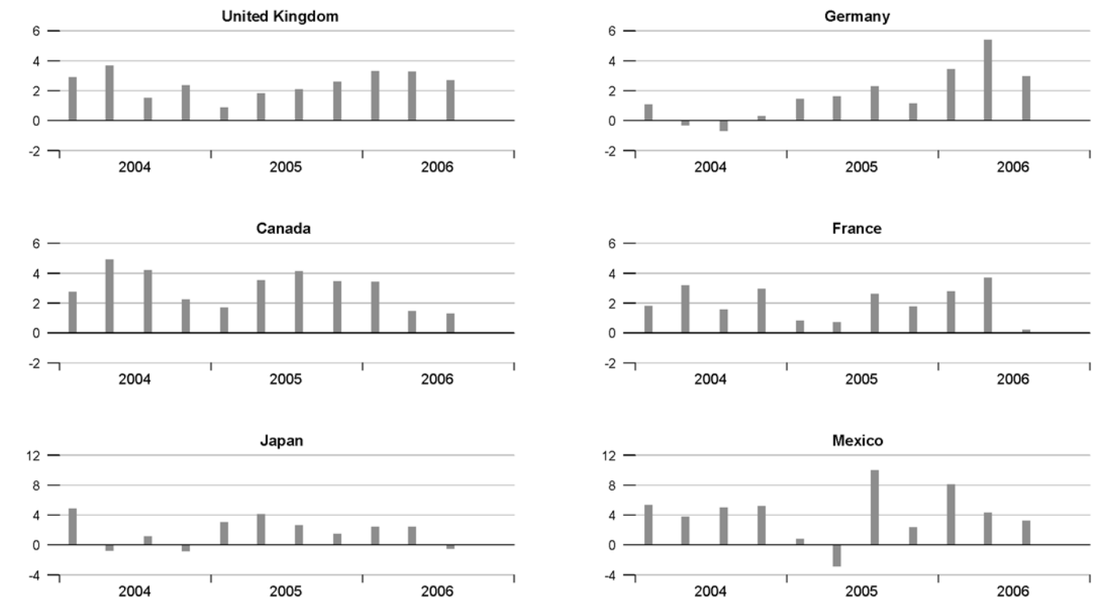


Services Trade

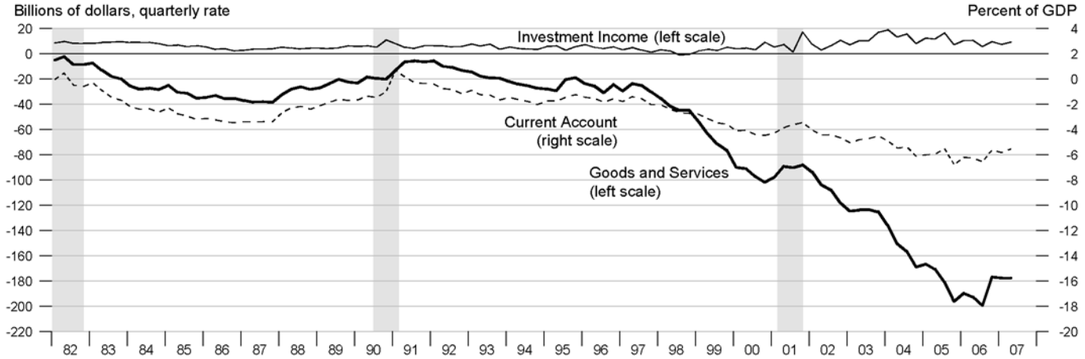


Real GDP Growth of Major Trading Partners

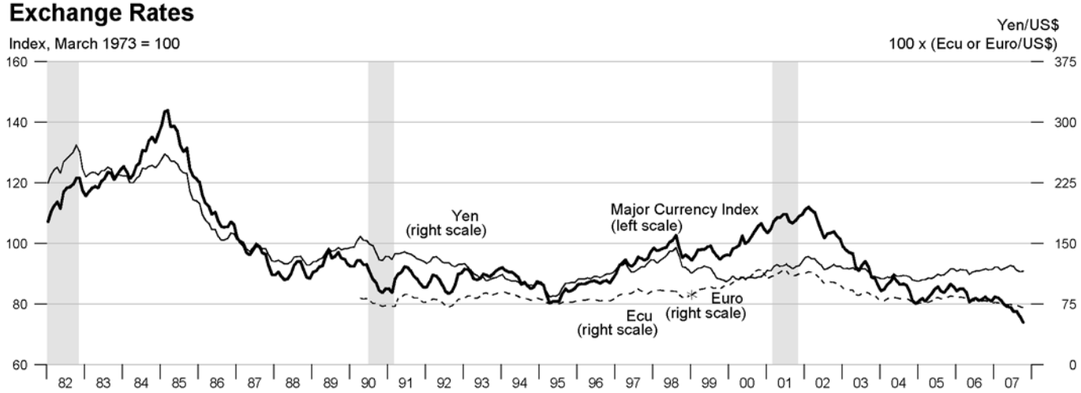
Compounded annual rates of change



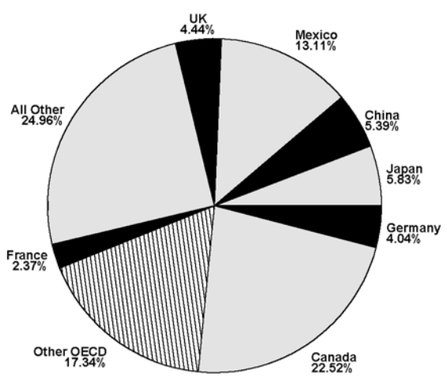
Current Account, Trade and Investment Income Balances



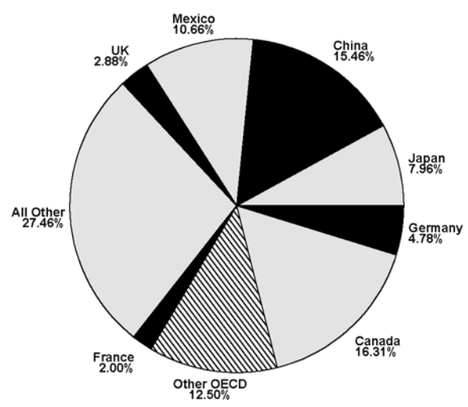
Exchange Rates



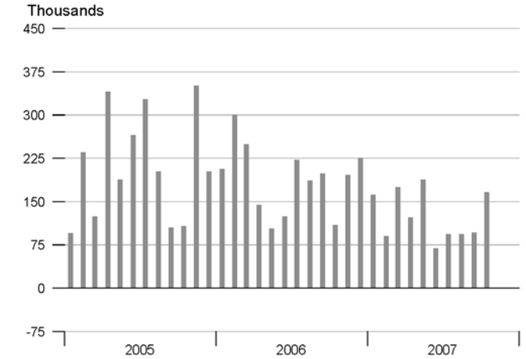
Goods Export Shares, 2006



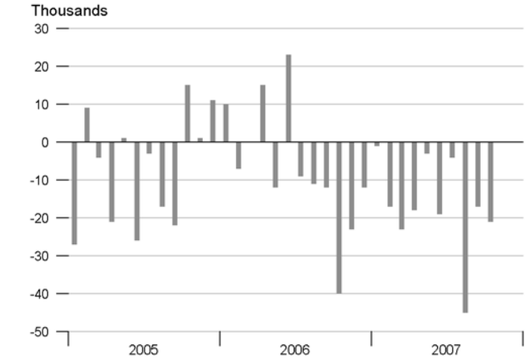
Goods Import Shares, 2006



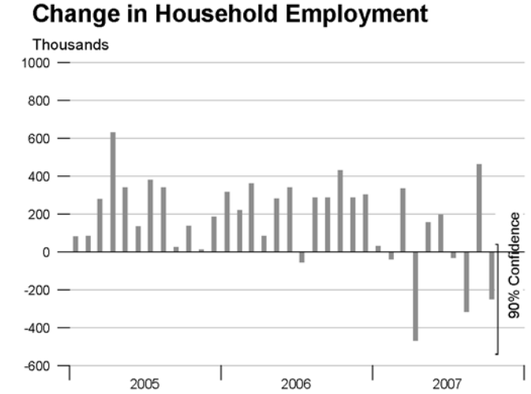
Change in Nonfarm Payrolls



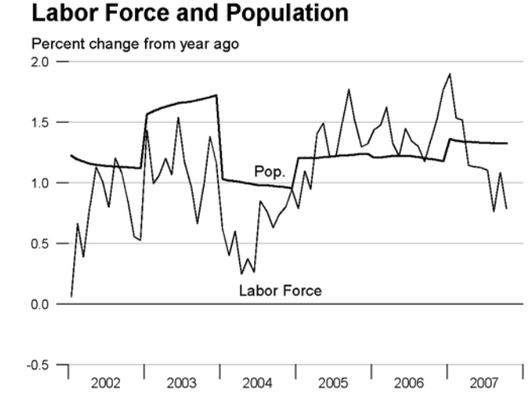
Change in Manufacturing Payrolls



Change in Household Employment

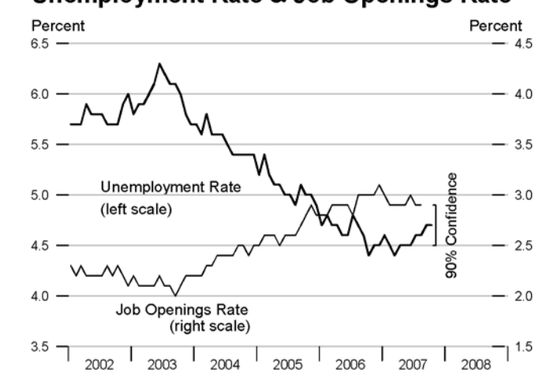


Labor Force and Population



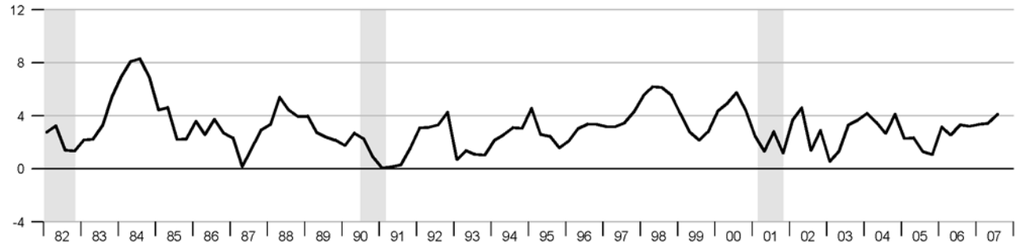
Available Labor Supply and Components

Unemployment Rate & Job Openings Rate



Real Disposable Personal Income

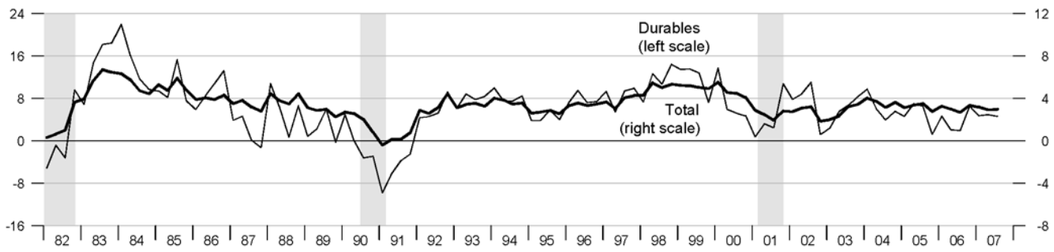
Percent change from year ago, quarterly data



Real Consumption

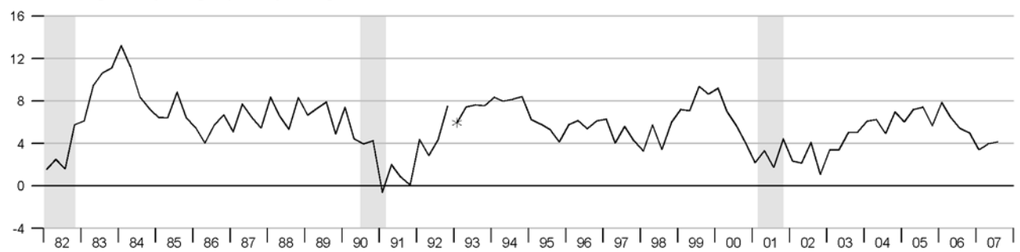
Percent change from year ago, quarterly data

Percent change from year ago, quarterly data



Retail and Food Services Sales

Percent change from year ago, quarterly average

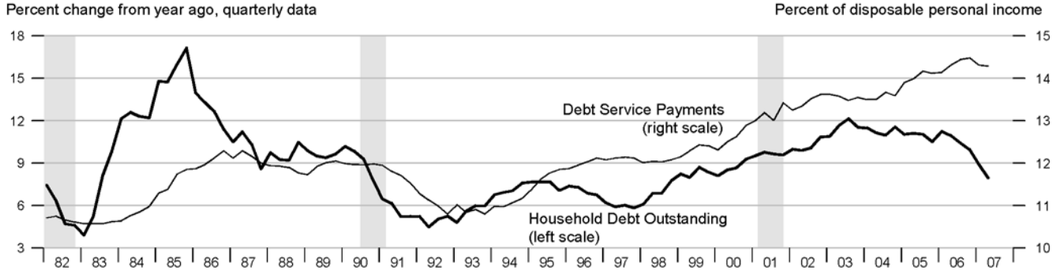


*Data from Jan. 1992 to the present are on a NAICS basis; data prior to Jan. 1992 are on an SIC basis and are not strictly comparable (see End Note).

Debt Service Payments and Household Debt Outstanding

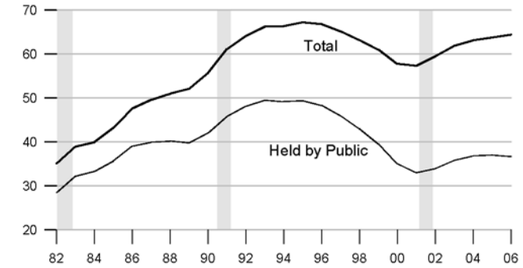
Percent change from year ago, quarterly data

Percent of disposable personal income



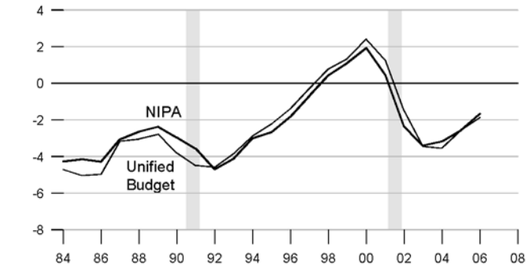
Federal Debt

Percent of GDP



Federal Surplus (+) / Deficit (-)

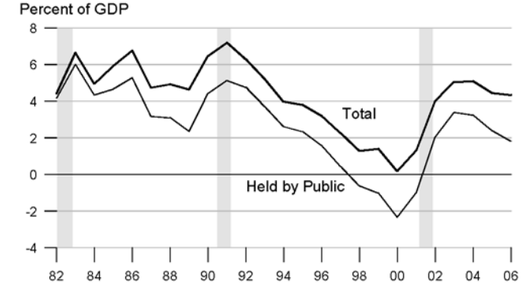
Percent of GDP



NIPA: Net government saving.

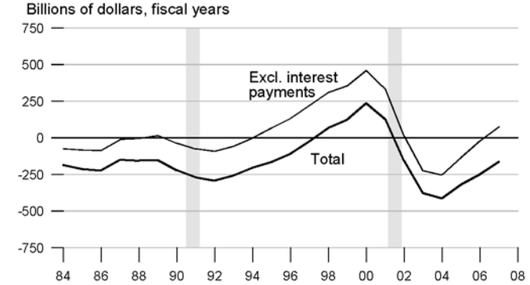
Change in Federal Debt

Percent of GDP



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

Billions of dollars, fiscal years



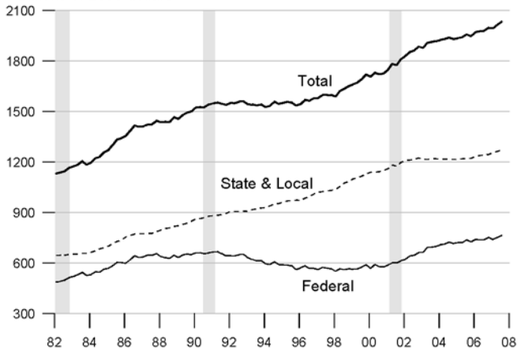
Federal Government Debt

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
2004		7379.1	3075.7	4303.4	700.3	3607.0	1798.7
2005		7932.7	3331.1	4601.6	736.4	3864.9	1930.6
2006		8507.0	3663.8	4843.2	768.9	4074.2	2027.2
2004	March	7131.1	2954.4	4176.7	674.1	3502.8	1677.1
	June	7274.3	3055.6	4218.7	687.4	3531.5	1739.6
	September	7379.1	3075.7	4303.4	700.3	3607.0	1798.7
	December	7596.1	3189.8	4406.4	717.8	3690.6	1853.4
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	1979.7
	September	8507.0	3663.8	4843.2	768.9	4074.2	2027.2
	December	8680.2	3779.0	4901.2	778.9	4122.1	2104.9
2007	March	8849.7	3795.4	5054.3	780.9	4273.1	2195.5
	June	8867.7	3924.7	4943.0	790.5	4152.6	2220.0

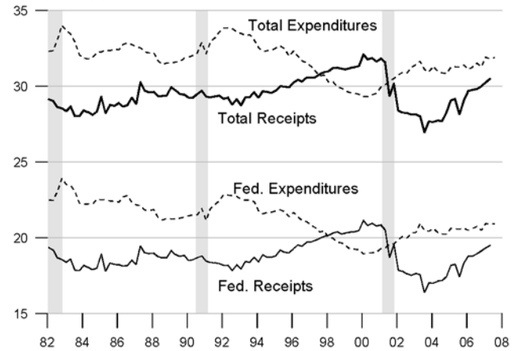
Govt. Consumption and Investment

Billions of 2000 dollars



Govt. Current Receipts and Expenditures

Percent of GDP



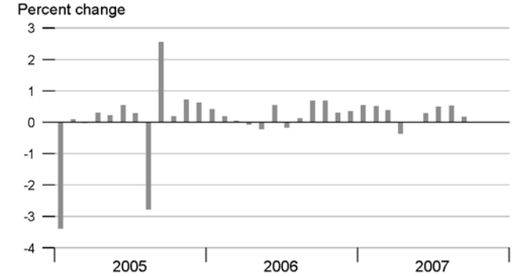
Government Budgets

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 (-)
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	1706.9	1691.7	15.2	2243.4	2561.6	-318.2	2153.9	2472.2	-318.3
2006	1797.7	1773.0	24.7	2495.8	2715.8	-220.0	2407.3	2655.0	-247.7
2005Q4	1731.8	1734.3	-2.5	2328.3	2621.4	-293.1	530.2	649.6	-119.4
2006Q1	1767.8	1732.1	35.7	2436.5	2656.2	-219.7	507.4	691.0	-183.6
2006Q2	1803.7	1760.9	42.8	2471.5	2711.4	-239.9	772.1	675.7	96.5
2006Q3	1806.7	1794.4	12.3	2513.1	2752.3	-239.2	596.9	638.7	-41.7
2006Q4	1812.4	1804.8	7.6	2561.9	2743.4	-181.5	573.5	653.9	-80.4
2007Q1	1856.6	1862.4	-5.8	2619.7	2838.2	-218.5	547.4	725.4	-178.0
2007Q2	1889.9	1876.5	13.4	2684.3	2876.9	-192.6	824.4	686.9	137.5
2007Q3	.	1905.4	.	.	2915.8	.	622.3	664.2	-41.9

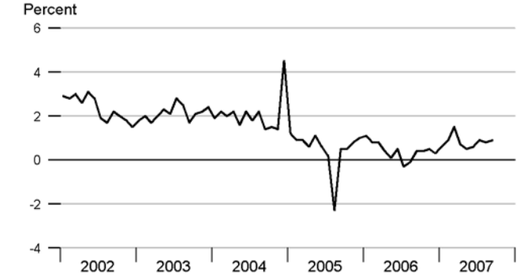
Real Disposable Personal Income

Percent change



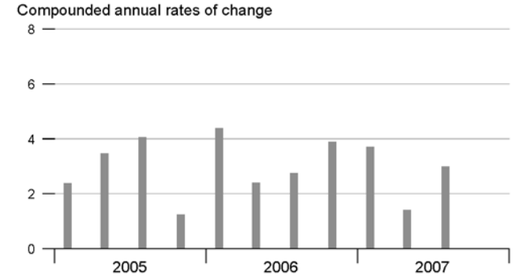
Personal Saving Rate

Percent



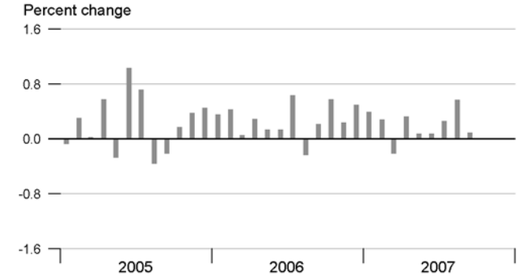
Real Consumption

Compounded annual rates of change



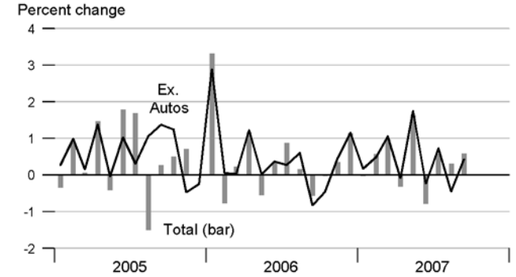
Real Consumption

Percent change



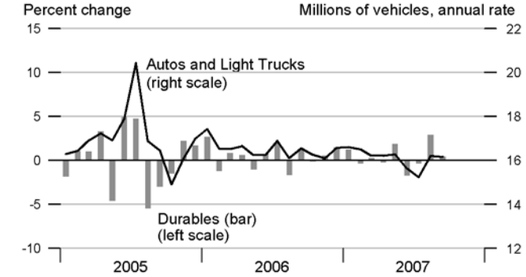
Retail & Food Services

Percent change



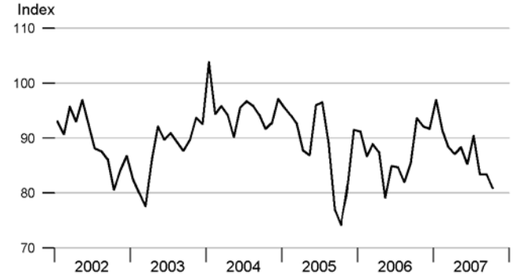
Real Durables Consumption & Vehicle Sales

Percent change | Millions of vehicles, annual rate



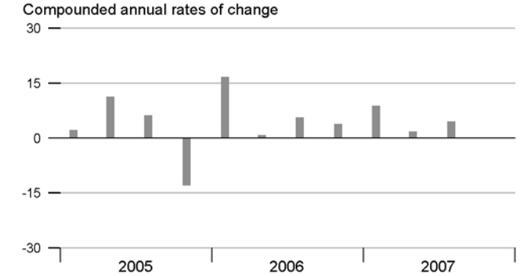
Consumer Sentiment (U. of Michigan)

Index



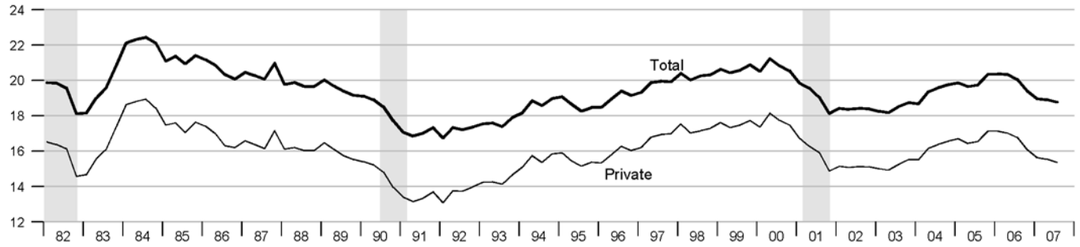
Real Durables Consumption

Compounded annual rates of change



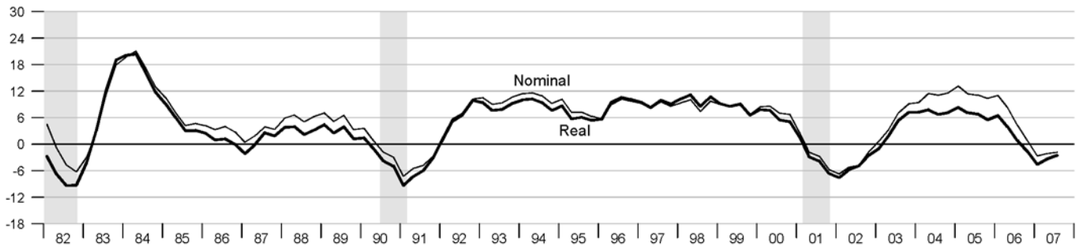
Investment

Percent of nominal GDP



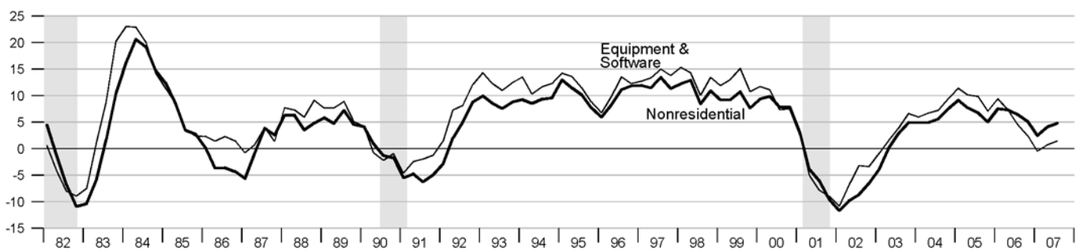
Private Fixed Investment

Percent change from year ago



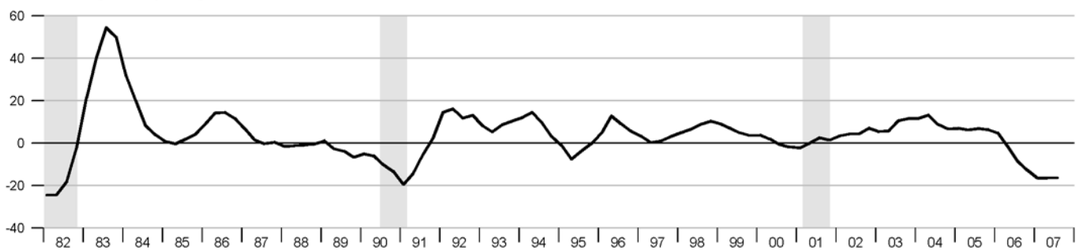
Real Nonresidential Fixed and Equipment & Software Investment

Percent change from year ago



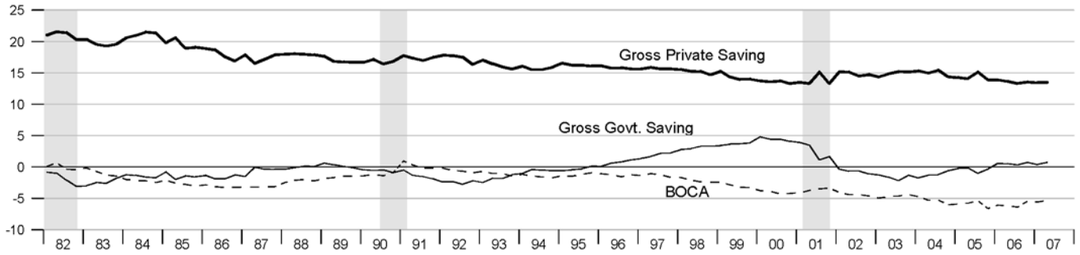
Real Residential Fixed Investment

Percent change from year ago



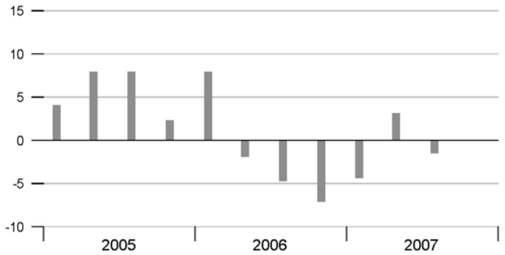
Gross Saving Rates and Balance on Current Account (NIPA)

Percent of GDP



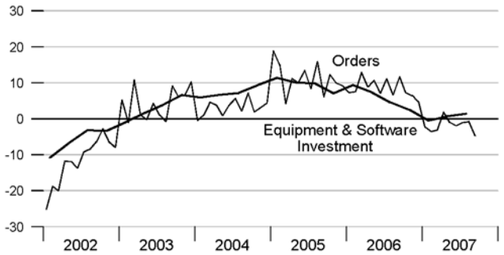
Real Private Fixed Investment

Compounded annual rates of change



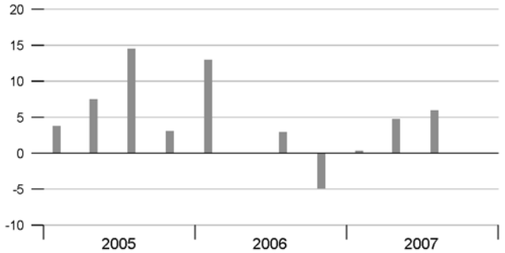
Nondefense Capital Goods Orders

Percent change from year ago, excluding aircraft



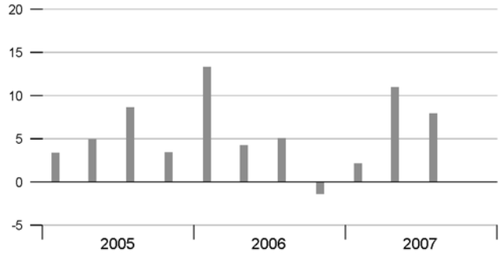
Real Equipment & Software Investment

Compounded annual rates of change



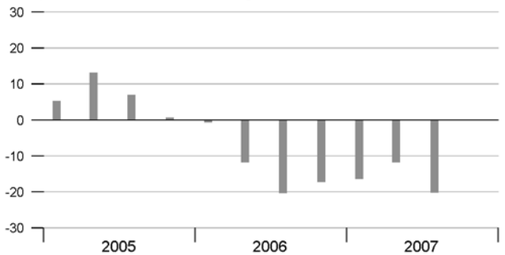
Real Nonresidential Fixed Investment

Compounded annual rates of change



Real Residential Fixed Investment

Compounded annual rates of change



Housing Starts and New Home Sales

Millions, annual rate | Millions, annual rate