

The Price Puzzle: An Update and a Lesson

A fundamental tenet of monetary policymaking is that a surprise increase in the short-term interest rate will lower price inflation from what it otherwise would have been. Thus, it has been disconcerting to macroeconomists that many empirical estimates of the relationship between the federal funds rate and inflation have suggested that a surprise interest rate hike is followed immediately by a sustained increase in the inflation rate. This result has become known as the “price puzzle,” starting with Eichenbaum (1992). Hanson (2004) showed that it is not easy to explain away the price puzzle, especially in the pre-1980 period. The attached chart highlights circumstances in which the price puzzle flourished; specifically, it shows the tendency of the federal funds rate to precede change in inflation in the same direction during the 1970s.

Interpretations of the price puzzle can differ in an important aspect: A conventional view is that nobody should believe that surprise interest rate hikes are ever inflationary in reality. According to this view, any empirical finding of the price puzzle is necessarily a false reading and a sign of a problem with the empirical model that generated such a result. A relatively new explanation for the price puzzle admits the possibility that surprise interest rate hikes really could be inflationary in some circumstances.

The view that the price puzzle is a genuine phenomenon—especially in the pre-1980 period—can be based on indeterminacy. Loosely speaking, an economy’s characteristics correspond to indeterminacy when there is no way to identify the exact sources of forecast errors (for inflation and GDP, for example) in terms of clearly identifiable sources of shocks (such as surprise changes in the federal funds rate and productivity surprises). In general, it is possible to show in a macroeconomic model that some combinations of characteristics (such as how risk-averse people are, how sticky prices are updated, and how monetary policy is set) pertain to “determinacy” and others pertain to “indeterminacy.”

Lubik and Schorfheide (2003) provided the necessary tools to allow for empirical estimates of an economy under indeterminacy. Hence, only recently have macroeconomists been able to explore how closely the data from a given time period conform to determinacy or indeterminacy. Belaygorod and Dueker (2006) estimate a model of the U.S. economy that also attempts to discern the precise period when indeterminacy was relevant. Their estimates suggest that the indeterminacy period was roughly from 1972 through 1981. Importantly for the price puzzle, the model estimates imply that in this period of indeterminacy, inflation would rise immediately and in a sustained fashion in response to an interest rate hike. Reassuringly for monetary policymakers, the model estimates for both determinacy periods—before 1972 and after 1981—suggest that increases in the federal funds rate unambiguously help rein in inflation.

In the type of model Belaygorod and Dueker estimated, indeterminacy occurs when monetary policy is too passive in terms of raising the federal funds rate in response to an increase in inflation. Thus, one understanding of the Great Inflation of the 1970s and early 1980s that can come from the indeterminacy explanation of the price puzzle is that monetary policymakers have a devil of a time extricating the economy from indeterminacy. Once people in the economy come to believe in the price puzzle—that interest rate hikes are inflationary—how do monetary policymakers persuade people to believe again in the determinacy regime, wherein interest rate hikes would reduce inflation? The lesson policymakers seem to have learned is to avoid this trap in the first place by remaining active inflation fighters in order to preserve people’s beliefs in determinacy.

—Michael J. Dueker

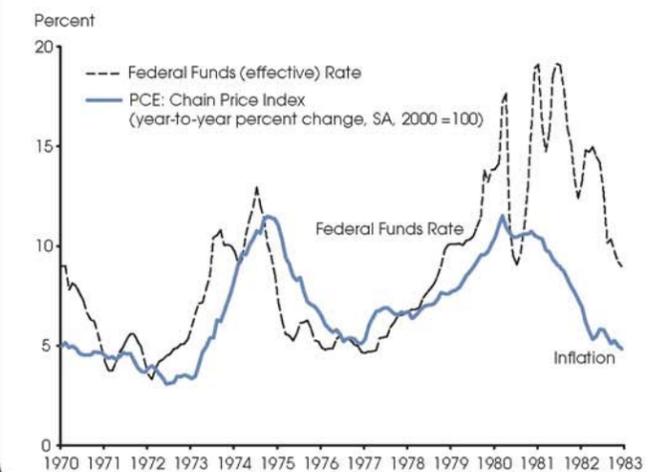
Belaygorod, Anatoliy and Michael Dueker. “Timing Transitions Between Determinate and Indeterminate Equilibria in DSGE Models: Benefits and Implications.” Working Paper 2006-025, Federal Reserve Bank of St. Louis.

Eichenbaum, Martin. “Interpreting Macroeconomic Time Series Facts: The Effects of Monetary Policy: Comments.” *European Economic Review*, June 1992, 36, pp. 1001-11.

Hanson, Michael. “The ‘Price Puzzle’ Reconsidered.” *Journal of Monetary Economics*, October 2004, 51, pp. 1385-413.

Lubik, Thomas and Schorfheide, Frank. “Computing Sunspot Equilibria in Linear Rational Expectations Models.” *Journal of Economic Dynamics and Control*, November 2003, 28, pp. 273-85.

Inflation and the Federal Funds Rate in the 1970s



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. All published NAICS-based labor series have been revised back to at least 1990. For more information see <http://www.bls.gov/ces/>. **Nonfarm Payroll Employment** is counted in a survey of about 400,000 establishments (Current Employment Survey). 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 ($\pm 290,000$) 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/.

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 $\%$ 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 (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.

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.

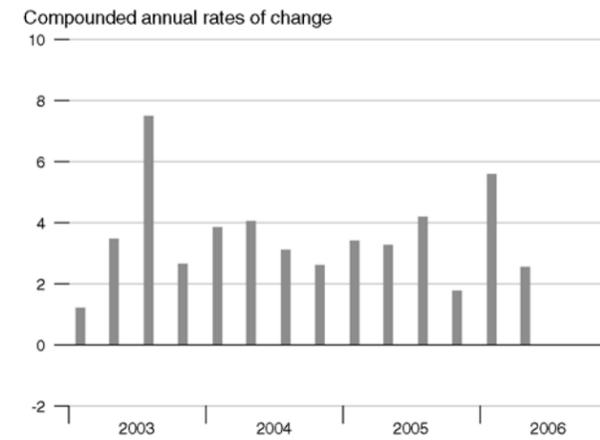
The Survey Research Center, The University of Michigan
 Consumer sentiment index.

The Conference Board
 Help-wanted advertising index.

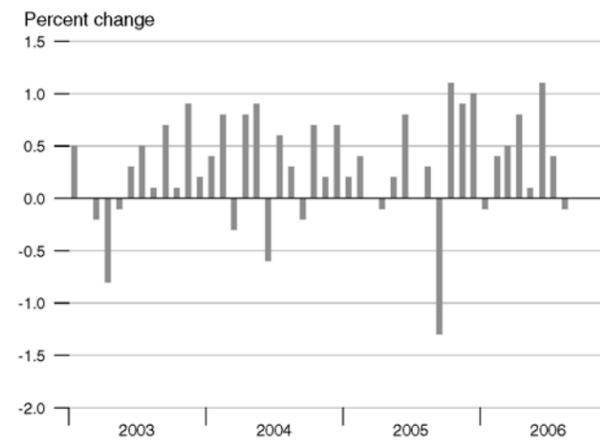
Organization for Economic Cooperation and Development (OECD)
 GDP for major trading partners (not available on FRED).

		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
2001		177.0		2.8		186.1		2.7		140.7		1.9		
2002		179.9		1.6		190.5		2.3		138.9		-1.3		
2003		184.0		2.3		193.2		1.4		143.3		3.2		
2004		188.9		2.7		196.6		1.8		148.5		3.6		
2005		195.3		3.4		200.9		2.2		155.7		4.9		
2004	1	186.6	0.9	3.7	1.8	194.9	0.4	1.8	1.3	1.8	145.9	0.7	2.9	2.3
	2	188.4	1.0	4.1	2.8	196.2	0.7	2.7	1.8	2.2	148.2	1.6	6.5	4.1
	3	189.4	0.5	2.1	2.7	197.1	0.5	1.8	1.8	2.1	148.5	0.2	0.9	3.5
	4	191.1	0.9	3.5	3.3	198.2	0.6	2.3	2.1	2.1	151.5	2.0	8.3	4.6
2005	1	192.2	0.6	2.5	3.0	199.5	0.6	2.5	2.3	2.5	152.6	0.7	2.8	4.6
	2	194.0	0.9	3.7	3.0	200.4	0.5	2.0	2.1	2.2	154.2	1.1	4.4	4.1
	3	196.6	1.4	5.5	3.8	201.2	0.4	1.6	2.1	2.0	156.7	1.6	6.5	5.5
	4	198.2	0.8	3.2	3.7	202.4	0.6	2.4	2.1	2.1	159.4	1.8	7.3	5.2
2006	1	199.3	0.6	2.2	3.7	203.6	0.6	2.4	2.1	2.4	159.3	-0.1	-0.4	4.4
	2	201.7	1.2	5.0	4.0	205.4	0.9	3.5	2.5	3.0	161.0	1.1	4.4	4.4
2004	Aug	189.4	0.1	1.3	2.7	197.0	0.1	1.2	1.8	2.2	148.5	0.1	0.8	3.4
	Sep	189.7	0.2	1.9	2.5	197.6	0.3	3.7	2.0	2.3	148.6	0.1	0.8	3.3
	Oct	190.8	0.6	7.2	3.2	197.9	0.2	1.8	2.0	2.3	150.8	1.5	19.3	4.3
	Nov	191.2	0.2	2.5	3.5	198.3	0.2	2.5	2.2	2.3	152.2	0.9	11.7	5.2
	Dec	191.2	0.0	0.0	3.3	198.5	0.1	1.2	2.2	2.2	151.5	-0.5	-5.4	4.3
2005	Jan	191.4	0.1	1.3	3.0	199.0	0.3	3.1	2.3	3.1	151.7	0.1	1.6	4.1
	Feb	192.1	0.4	4.5	3.0	199.4	0.2	2.4	2.4	2.8	152.4	0.5	5.7	4.7
	Mar	193.2	0.6	7.1	3.2	200.0	0.3	3.7	2.4	3.1	153.6	0.8	9.9	5.0
	Apr	194.1	0.5	5.7	3.5	200.2	0.1	1.2	2.2	2.6	154.4	0.5	6.4	4.7
	May	194.0	-0.1	-0.6	2.9	200.5	0.1	1.8	2.2	2.4	154.1	-0.2	-2.3	3.7
	Jun	193.9	-0.1	-0.6	2.5	200.6	0.0	0.6	2.0	2.1	154.2	0.1	0.8	3.8
	Jul	195.1	0.6	7.7	3.1	201.0	0.2	2.4	2.1	2.2	155.4	0.8	9.7	4.7
	Aug	196.2	0.6	7.0	3.6	201.2	0.1	1.2	2.1	2.0	156.2	0.5	6.4	5.2
	Sep	198.6	1.2	15.7	4.7	201.5	0.1	1.8	2.0	2.0	158.4	1.4	18.3	6.6
	Oct	199.1	0.3	3.1	4.4	202.0	0.2	3.0	2.1	2.1	159.6	0.8	9.5	5.8
	Nov	197.8	-0.7	-7.6	3.5	202.5	0.2	3.0	2.1	2.2	158.8	-0.5	-5.9	4.3
	Dec	197.7	-0.1	-0.6	3.4	202.8	0.1	1.8	2.2	2.2	159.9	0.7	8.6	5.5
2006	Jan	199.0	0.7	8.2	4.0	203.2	0.2	2.4	2.1	2.4	160.3	0.3	3.0	5.7
	Feb	199.1	0.1	0.6	3.6	203.5	0.1	1.8	2.1	2.1	158.4	-1.2	-13.3	3.9
	Mar	199.8	0.4	4.3	3.4	204.2	0.3	4.2	2.1	2.8	159.1	0.4	5.4	3.6
	Apr	201.0	0.6	7.5	3.6	204.8	0.3	3.6	2.3	3.0	160.6	0.9	11.9	4.0
	May	201.9	0.4	5.5	4.1	205.4	0.3	3.6	2.4	3.1	160.8	0.1	1.5	4.3
	Jun	202.3	0.2	2.4	4.3	206.0	0.3	3.6	2.7	3.2	161.6	0.5	6.1	4.8
	Jul	203.2	0.4	5.5	4.2	206.4	0.2	2.4	2.7	3.1	161.8	0.1	1.5	4.1
	Aug	203.7	0.2	3.0	3.8	206.9	0.2	2.9	2.8	3.0	161.9	0.1	0.7	3.6

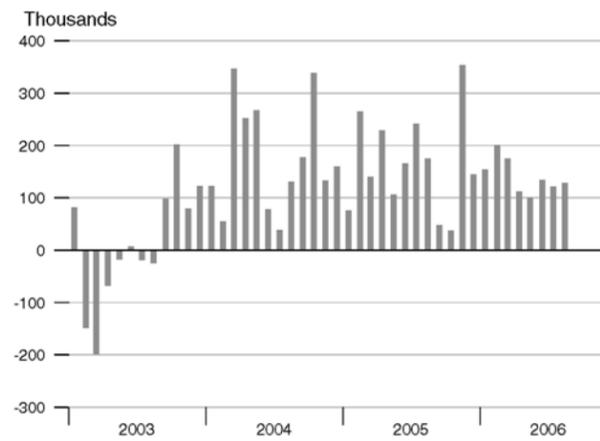
Real GDP Growth



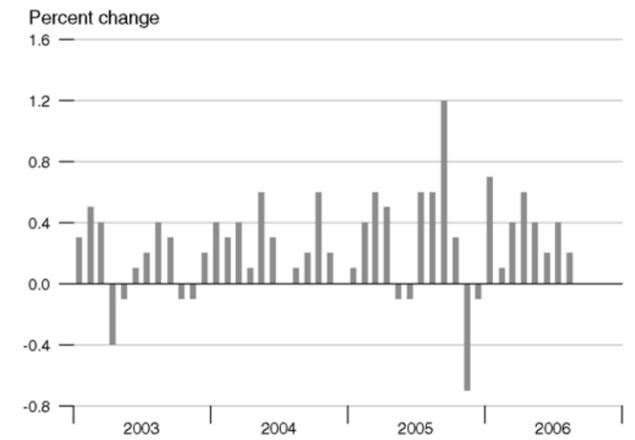
Industrial Production



Change in Nonfarm Payrolls



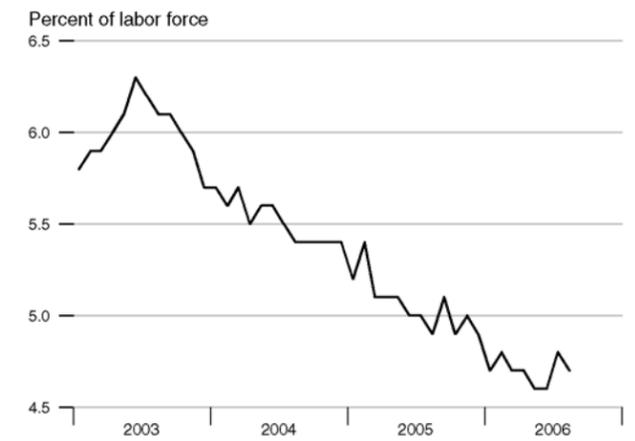
Consumer Price Index



Interest Rates

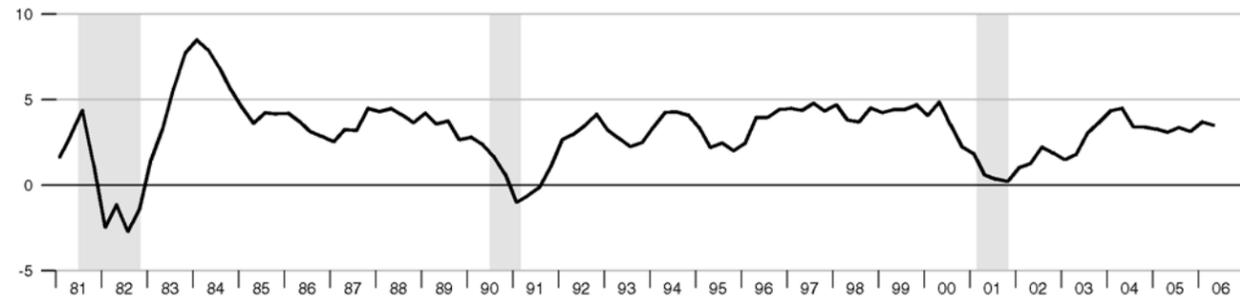


Unemployment Rate



Real Gross Domestic Product

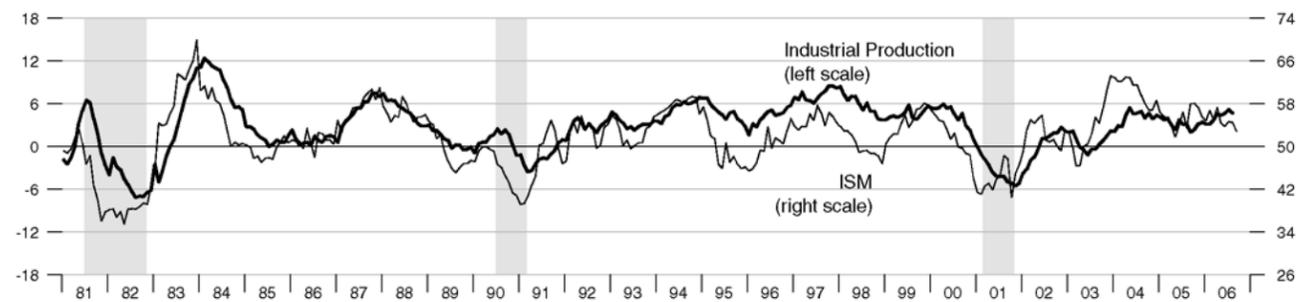
Percent change from year ago



Industrial Production and Institute for Supply Management (ISM) Indexes

Percent change from year ago

Index



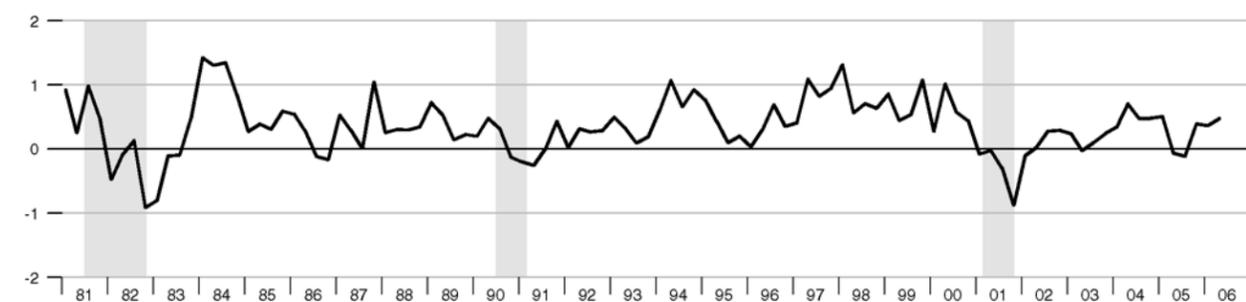
Aggregate Private Nonfarm Hours

Percent change from year ago



Real Change in Private Inventories

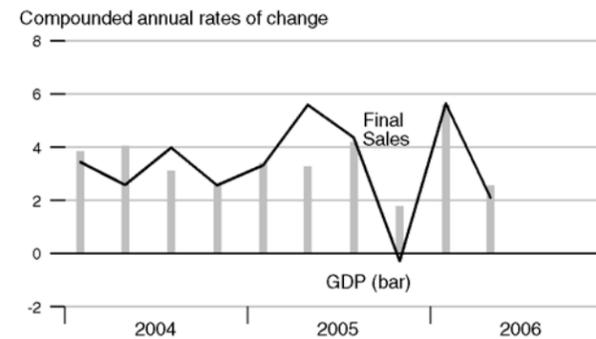
Percent of GDP



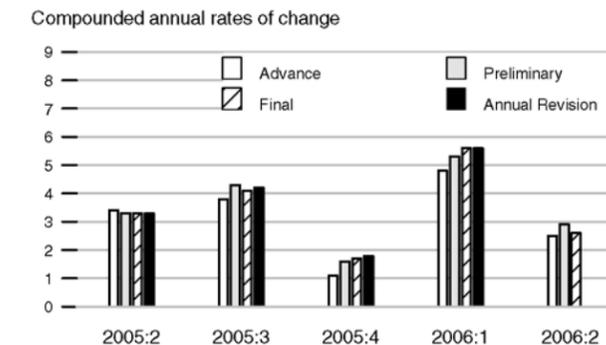
	Unempl. Rate	Retail and Food Services Sales			Industrial Production			Treasury Yields			
		Billions of dollars	Percent change		Index	Percent change		(Percent)			
			Monthly/quarterly	Annual rate	Year ago		Monthly/quarterly	Annual rate	Year ago	3-mo	10-yr
2001	4.7	3385.830			2.9	99.8784			-3.5	3.39	5.02
2002	5.8	3467.083			2.4	100.0000			0.1	1.60	4.61
2003	6.0	3614.287			4.2	100.6244			0.6	1.01	4.02
2004	5.5	3836.987			6.2	104.7252			4.1	1.37	4.27
2005	5.1	4112.086			7.2	108.0621			3.2	3.15	4.29
2004	1	938.788	2.0	8.3	6.1	103.1294	1.3	5.3	2.6	0.92	4.02
	2	947.407	0.9	3.7	6.2	104.4460	1.3	5.2	4.8	1.08	4.60
	3	964.134	1.8	7.3	5.1	105.1248	0.6	2.6	4.6	1.49	4.30
	4	986.658	2.3	9.7	7.2	106.2005	1.0	4.2	4.3	2.01	4.17
2005	1	998.909	1.2	5.1	6.4	107.2067	0.9	3.8	4.0	2.54	4.30
	2	1022.622	2.4	9.8	7.9	107.6359	0.4	1.6	3.1	2.86	4.16
	3	1042.412	1.9	8.0	8.1	108.0066	0.3	1.4	2.7	3.36	4.21
	4	1048.143	0.5	2.2	6.2	109.3991	1.3	5.3	3.0	3.83	4.49
2006	1	1081.608	3.2	13.4	8.3	110.7750	1.3	5.1	3.3	4.39	4.57
	2	1090.393	0.8	3.3	6.6	112.5500	1.6	6.6	4.6	4.70	5.07
	3									4.91	4.90
2004	Sep	325.247	1.9	25.3	6.4	105.0624	-0.2	-2.9	4.0	1.65	4.13
	Oct	327.054	0.6	6.9	7.4	105.8234	0.7	9.0	4.7	1.76	4.10
	Nov	327.663	0.2	2.3	6.2	106.0348	0.2	2.4	3.9	2.07	4.19
	Dec	331.941	1.3	16.8	8.1	106.7432	0.7	8.3	4.4	2.19	4.23
2005	Jan	330.643	-0.4	-4.6	6.9	106.9478	0.2	2.3	4.2	2.33	4.22
	Feb	333.908	1.0	12.5	7.0	107.3608	0.4	4.7	3.7	2.54	4.17
	Mar	334.358	0.1	1.6	5.3	107.3115	-0.0	-0.5	4.0	2.74	4.50
	Apr	339.841	1.6	21.6	8.2	107.1838	-0.1	-1.4	3.1	2.78	4.34
	May	338.488	-0.4	-4.7	5.8	107.4337	0.2	2.8	2.4	2.84	4.14
	Jun	344.293	1.7	22.6	9.8	108.2903	0.8	10.0	3.7	2.97	4.00
	Jul	350.635	1.8	24.5	9.7	108.2725	-0.0	-0.2	3.1	3.22	4.18
	Aug	345.226	-1.5	-17.0	8.2	108.5868	0.3	3.5	3.1	3.44	4.26
	Sep	346.551	0.4	4.7	6.6	107.1604	-1.3	-14.7	2.0	3.42	4.20
	Oct	347.443	0.3	3.1	6.2	108.3814	1.1	14.6	2.4	3.71	4.46
	Nov	349.630	0.6	7.8	6.7	109.3877	0.9	11.7	3.2	3.88	4.54
	Dec	351.070	0.4	5.1	5.8	110.4282	1.0	12.0	3.5	3.89	4.47
2006	Jan	361.743	3.0	43.2	9.4	110.3486	-0.1	-0.9	3.2	4.24	4.42
	Feb	358.675	-0.8	-9.7	7.4	110.7354	0.4	4.3	3.1	4.43	4.57
	Mar	361.190	0.7	8.7	8.0	111.2410	0.5	5.6	3.7	4.51	4.72
	Apr	363.611	0.7	8.3	7.0	112.1048	0.8	9.7	4.6	4.60	4.99
	May	364.343	0.2	2.4	7.6	112.1737	0.1	0.7	4.4	4.72	5.11
	Jun	362.439	-0.5	-6.1	5.3	113.3715	1.1	13.6	4.7	4.79	5.11
	Jul	367.351	1.4	17.5	4.8	113.8702	0.4	5.4	5.2	4.95	5.09
	Aug	368.233	0.2	2.9	6.7	113.7063	-0.1	-1.7	4.7	4.96	4.88
	Sep									4.81	4.72

	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
2001	136939	39		0.0	131832	40		0.0	102.0			-1.4
2002	136480	-459		-0.3	130342	-1490		-1.1	100.0			-2.0
2003	137731	1251		0.9	129993	-349		-0.3	98.6			-1.4
2004	139244	1513		1.1	131424	1431		1.1	100.2			1.6
2005	141719	2475		1.8	133459	2035		1.5	102.6			2.4
2004	1	138473	193	0.6	130572	382	1.2	0.4	99.2	0.4	1.6	0.2
	2	138894	421	1.2	131277	705	2.2	1.1	99.9	0.7	2.7	1.6
	3	139548	654	1.9	131602	325	1.0	1.4	100.5	0.6	2.6	2.3
	4	140059	511	1.5	132244	642	2.0	1.6	101.1	0.6	2.4	2.3
2005	1	140373	314	0.9	132694	450	1.4	1.6	101.6	0.4	1.7	2.4
	2	141506	1132	3.3	133230	536	1.6	1.5	102.3	0.8	3.1	2.4
	3	142324	818	2.3	133750	520	1.6	1.6	102.9	0.6	2.2	2.4
	4	142672	348	1.0	134161	412	1.2	1.4	103.4	0.5	2.1	2.3
2006	1	143324	652	1.8	134722	560	1.7	1.5	104.2	0.7	3.0	2.6
	2	144009	685	1.9	135128	407	1.2	1.4	104.9	0.6	2.6	2.5
2004	Aug	139558	-33	-0.3	131587	131	1.2	1.4	100.4	0.1	1.2	2.2
	Sep	139495	-63	-0.5	131764	177	1.6	1.4	100.9	0.5	6.1	2.5
	Oct	139768	273	2.4	132102	338	3.1	1.5	100.9	0.0	0.0	2.1
	Nov	140276	508	4.4	132235	133	1.2	1.6	101.0	0.1	1.2	1.9
	Dec	140133	-143	-1.2	132395	160	1.5	1.6	101.5	0.5	6.1	2.9
2005	Jan	140234	101	0.9	132471	76	0.7	1.6	101.3	-0.2	-2.3	2.3
	Feb	140285	51	0.4	132736	265	2.4	1.7	101.6	0.3	3.6	2.2
	Mar	140601	316	2.7	132876	140	1.3	1.6	101.8	0.2	2.4	2.5
	Apr	141196	595	5.2	133104	228	2.1	1.5	102.4	0.6	7.3	2.8
	May	141571	375	3.2	133210	106	1.0	1.4	102.2	-0.2	-2.3	1.9
	Jun	141750	179	1.5	133376	166	1.5	1.5	102.4	0.2	2.4	2.6
	Jul	142111	361	3.1	133617	241	2.2	1.6	102.9	0.5	6.0	2.6
	Aug	142425	314	2.7	133792	175	1.6	1.7	102.7	-0.2	-2.3	2.3
	Sep	142435	10	0.1	133840	48	0.4	1.6	103.1	0.4	4.8	2.2
	Oct	142625	190	1.6	133877	37	0.3	1.3	103.1	0.0	0.0	2.2
	Nov	142611	-14	-0.1	134231	354	3.2	1.5	103.5	0.4	4.8	2.5
	Dec	142779	168	1.4	134376	145	1.3	1.5	103.7	0.2	2.3	2.2
2006	Jan	143074	295	2.5	134530	154	1.4	1.6	104.0	0.3	3.5	2.7
	Feb	143257	183	1.5	134730	200	1.8	1.5	104.2	0.2	2.3	2.6
	Mar	143641	384	3.3	134905	175	1.6	1.5	104.4	0.2	2.3	2.6
	Apr	143688	47	0.4	135017	112	1.0	1.4	104.8	0.4	4.7	2.3
	May	143976	288	2.4	135117	100	0.9	1.4	104.7	-0.1	-1.1	2.4
	Jun	144363	387	3.3	135251	134	1.2	1.4	105.1	0.4	4.7	2.6
	Jul	144329	-34	-0.3	135372	121	1.1	1.3	105.2	0.1	1.1	2.2
	Aug	144579	250	2.1	135500	128	1.1	1.3	105.0	-0.2	-2.3	2.2

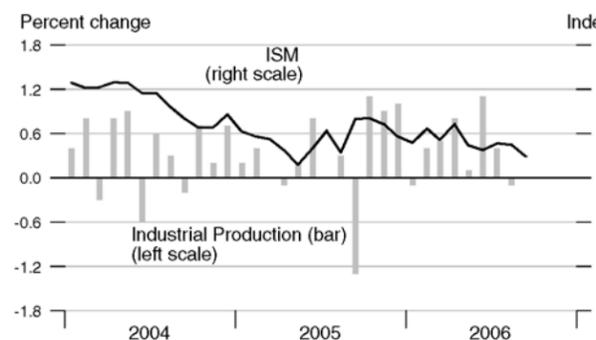
Real Final Sales and GDP



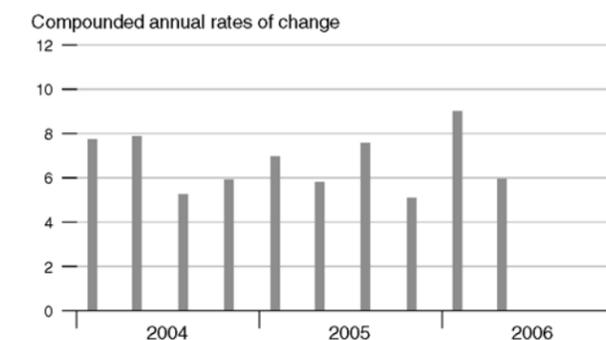
Real GDP Revisions



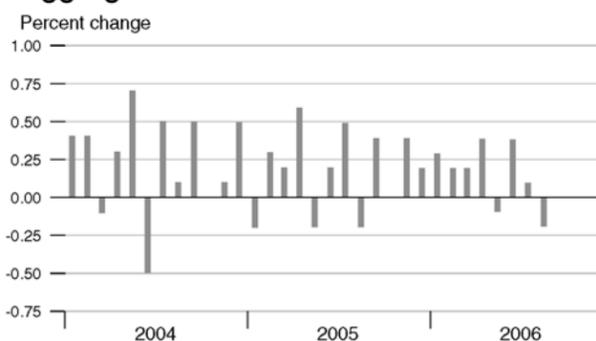
Industrial Production and ISM Index



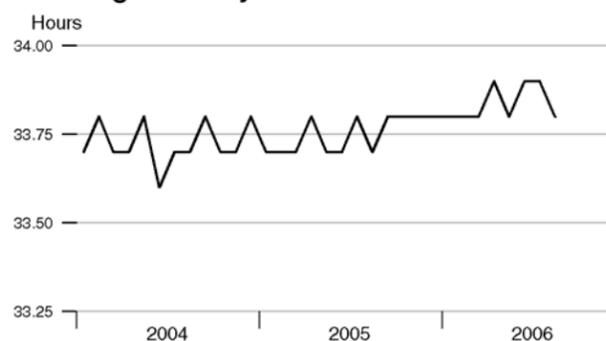
Nominal Gross Domestic Product



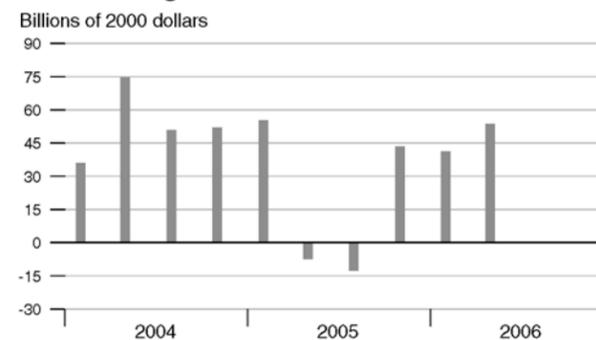
Aggregate Private Nonfarm Hours



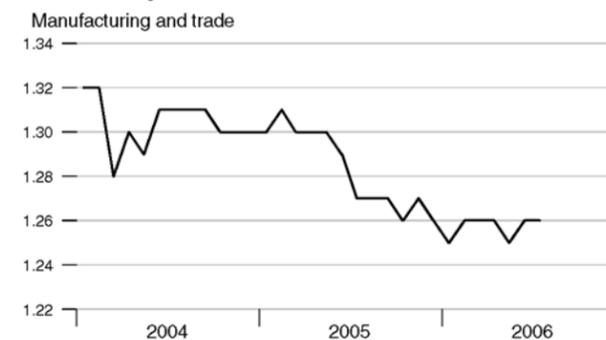
Average Weekly Private Nonfarm Hours



Real Change in Private Inventories

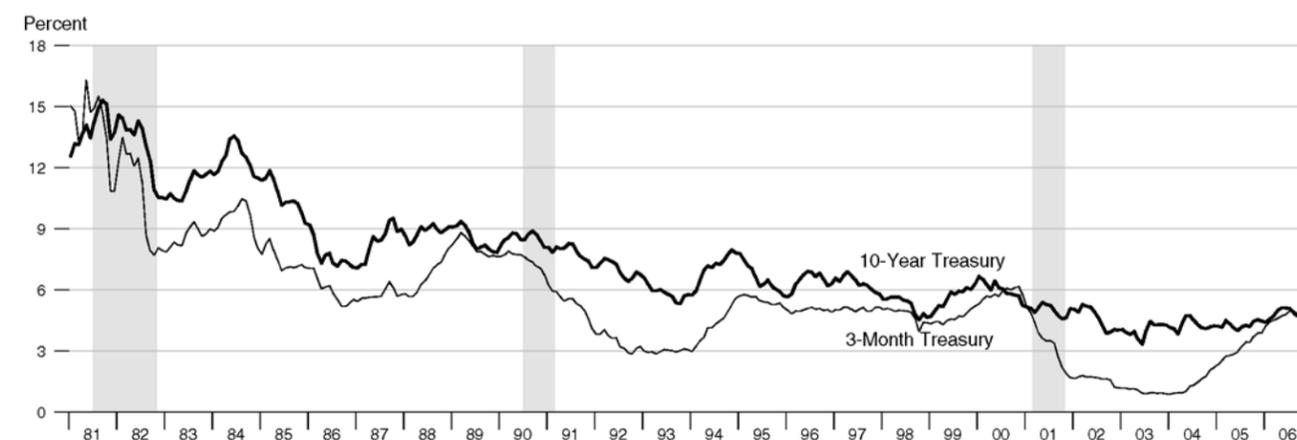


Inventory-Sales Ratio

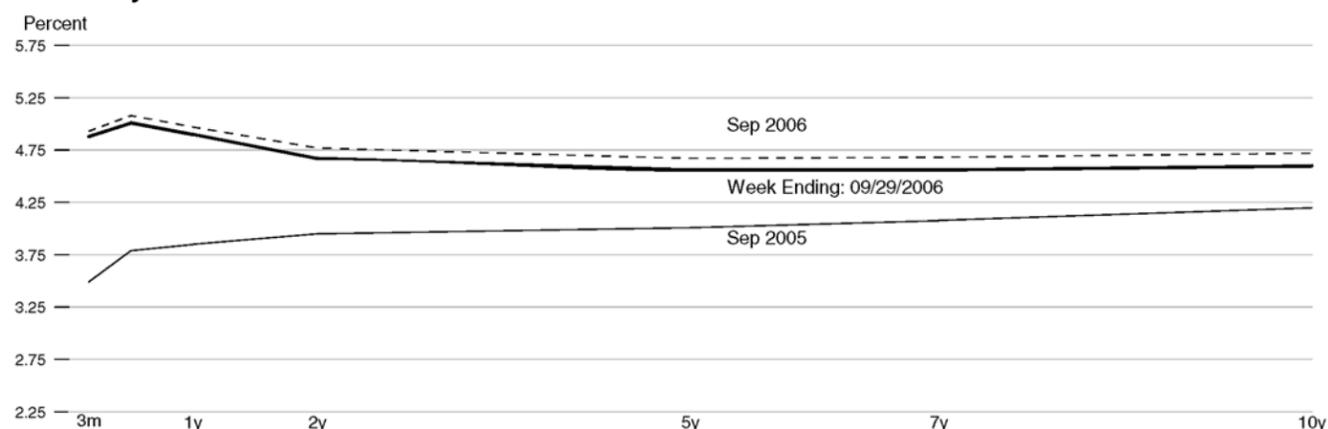


	Nominal GDP			Real GDP			Final Sales			Change in Private Inventories		
	Billions of \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Billions of 2000 \$		
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago	Last qtr	Year/Year ago	
2002	10469.6	3.4		10048.846	1.6		10036.504	1.2		12.482		
2003	10960.8	4.7		10301.044	2.5		10285.104	2.5		14.282		
2004	11712.5	6.9		10703.539	3.9		10648.291	3.5		53.350		
2005	12455.8	6.3		11048.606	3.2		11025.241	3.5		19.646		
2003 1	10705.6	4.4	3.6	10126.007	1.2	1.5	10100.923	1.3	1.1	24.282	21.106	
2	10831.8	4.8	3.9	10212.691	3.5	1.8	10213.657	4.5	1.8	-2.654	19.780	
3	11086.1	9.7	5.3	10398.723	7.5	3.1	10385.929	6.9	3.2	10.534	15.411	
4	11219.5	4.9	5.9	10466.951	2.7	3.7	10440.002	2.1	3.7	24.968	14.283	
2004 1	11430.9	7.8	6.8	10566.298	3.9	4.3	10528.725	3.4	4.2	35.889	17.184	
2	11649.3	7.9	7.5	10671.536	4.0	4.5	10596.073	2.6	3.7	74.725	36.529	
3	11799.4	5.3	6.4	10753.312	3.1	3.4	10700.119	4.0	3.0	50.764	46.587	
4	11970.3	5.9	6.7	10822.914	2.6	3.4	10768.247	2.6	3.1	52.023	53.350	
2005 1	12173.2	7.0	6.5	10913.819	3.4	3.3	10856.482	3.3	3.1	55.154	58.167	
2	12346.1	5.8	6.0	11001.779	3.3	3.1	11005.329	5.6	3.9	-7.396	37.636	
3	12573.5	7.6	6.6	11115.067	4.2	3.4	11123.529	4.4	4.0	-12.653	21.782	
4	12730.5	5.1	6.4	11163.759	1.8	3.1	11115.525	-0.3	3.2	43.481	19.647	
2006 1	13008.4	9.0	6.9	11316.413	5.6	3.7	11268.960	5.6	3.8	41.206	16.160	
2	13197.3	5.9	6.9	11388.077	2.6	3.5	11328.011	2.1	2.9	53.686	31.430	
	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
2002	7099.261	2.7		964.784	7.1		1544.608	-5.2		1071.522	-9.2	
2003	7295.309	2.8		1020.572	5.8		1596.874	3.4		1081.810	1.0	
2004	7577.083	3.9		1085.658	6.4		1713.899	7.3		1145.767	5.9	
2005	7841.199	3.5		1145.340	5.5		1841.971	7.5		1223.770	6.8	
2003 1	7184.918	2.1	2.0	971.423	0.4	2.4	1536.297	-0.4	-1.0	1047.546	-2.6	-3.9
2	7249.279	3.6	2.3	1009.841	16.8	5.5	1575.585	10.6	1.9	1074.467	10.7	0.1
3	7352.864	5.8	3.2	1049.623	16.7	6.7	1626.743	13.6	5.4	1098.751	9.4	2.9
4	7394.311	2.3	3.4	1051.384	0.7	8.3	1648.855	5.5	7.2	1106.476	2.8	4.9
2004 1	7479.833	4.7	4.1	1066.985	6.1	9.8	1658.006	2.2	7.9	1111.232	1.7	6.1
2	7534.355	2.9	3.9	1071.439	1.7	6.1	1704.412	11.7	8.2	1130.711	7.2	5.2
3	7607.073	3.9	3.5	1093.938	8.7	4.2	1736.078	7.6	6.7	1158.840	10.3	5.5
4	7687.069	4.3	4.0	1110.263	6.1	5.6	1757.132	4.9	6.6	1182.298	8.3	6.9
2005 1	7739.367	2.7	3.5	1116.781	2.4	4.7	1790.628	7.8	8.0	1199.670	6.0	8.0
2	7819.768	4.2	3.8	1150.805	12.8	7.4	1835.776	10.5	7.7	1214.837	5.2	7.4
3	7895.316	3.9	3.8	1175.910	9.0	7.5	1864.201	6.3	7.4	1232.382	5.9	6.3
4	7910.210	0.8	2.9	1137.855	-12.3	2.5	1877.280	2.8	6.8	1248.190	5.2	5.6
2006 1	8003.753	4.8	3.4	1190.466	19.8	6.6	1914.587	8.2	6.9	1288.823	13.7	7.4
2	8054.972	2.6	3.0	1190.250	-0.1	3.4	1906.813	-1.6	3.9	1302.770	4.4	7.2

Interest Rates



Treasury Yield Curve

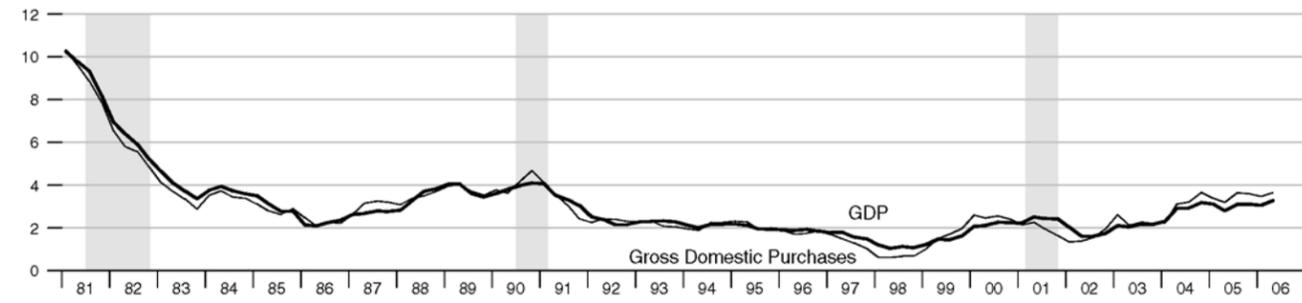


Standard and Poor's 500 Index with Reinvested Dividends



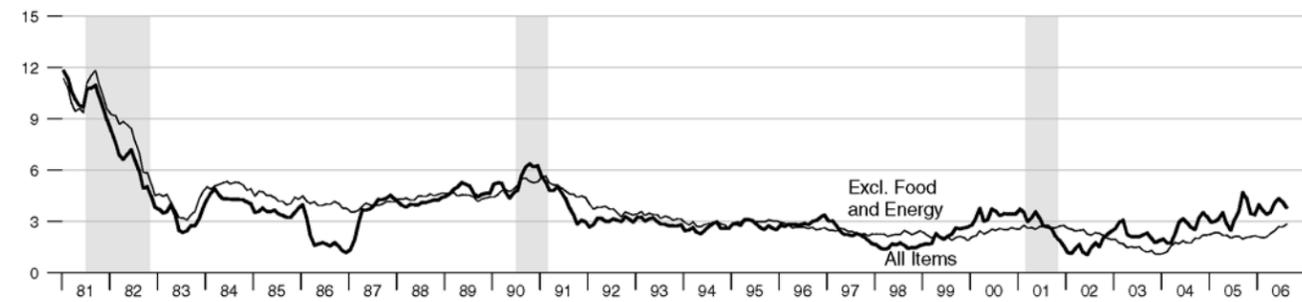
NIPA Chain Price Indexes

Percent change from year ago



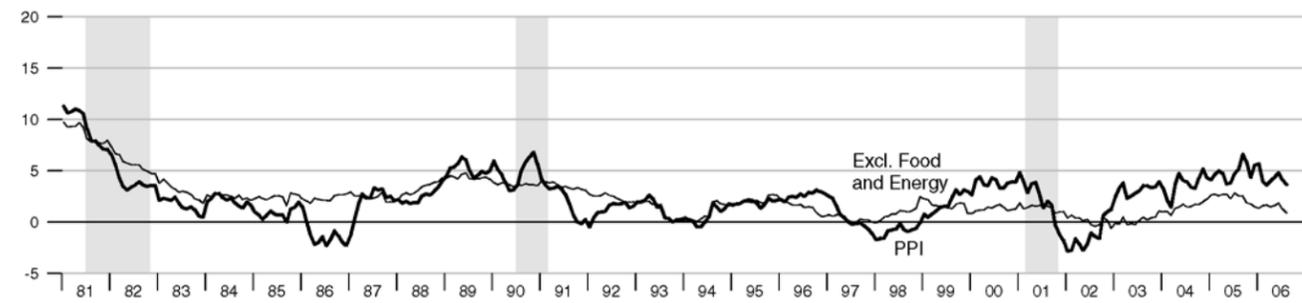
Consumer Price Index

Percent change from year ago



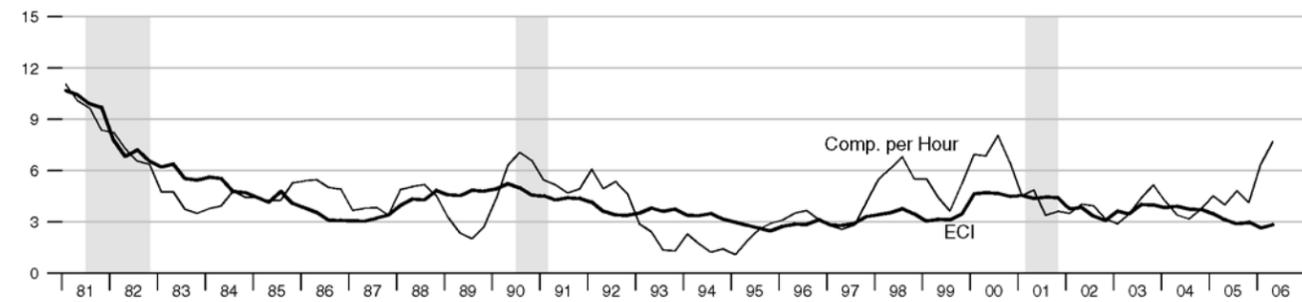
Producer Price Index, Finished Goods

Percent change from year ago



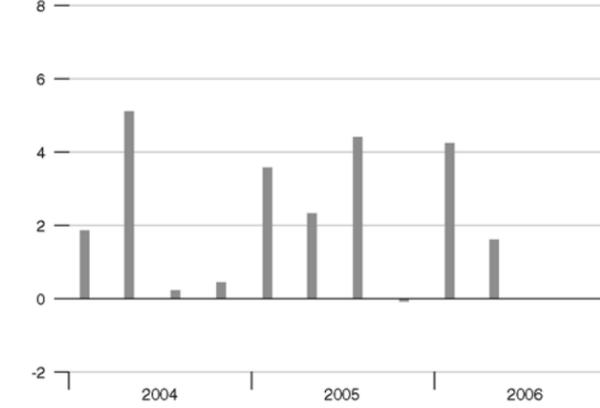
Employment Cost Index and Compensation per Hour

Percent change from year ago



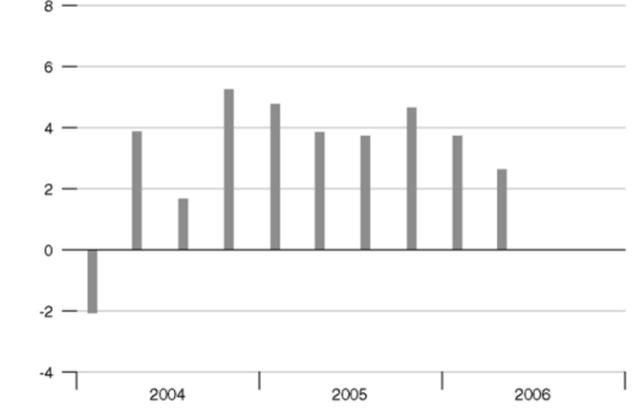
Nonfarm Output per Hour

Compounded annual rates of change

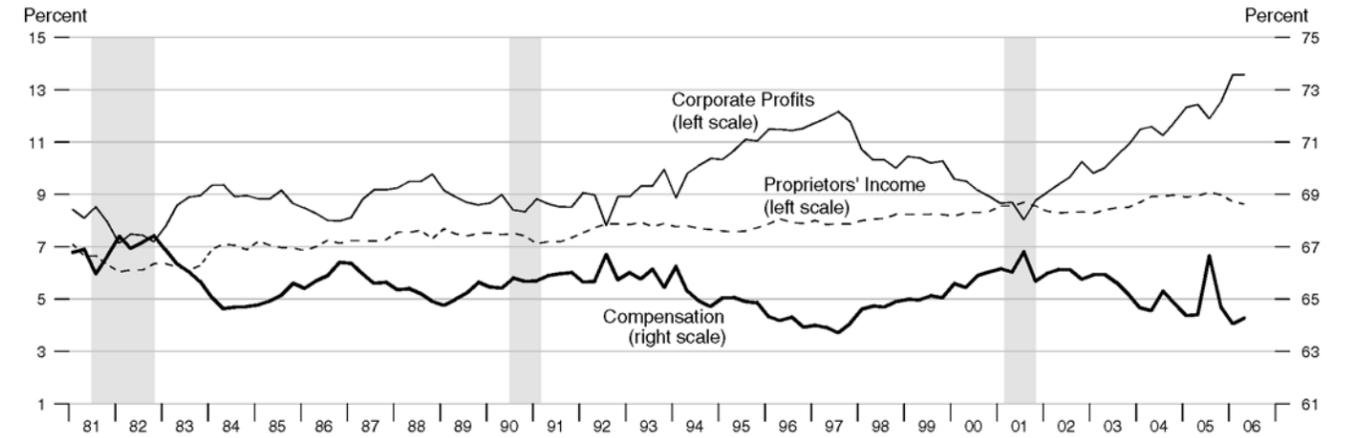


Manufacturing Output per Hour

Compounded annual rates of change

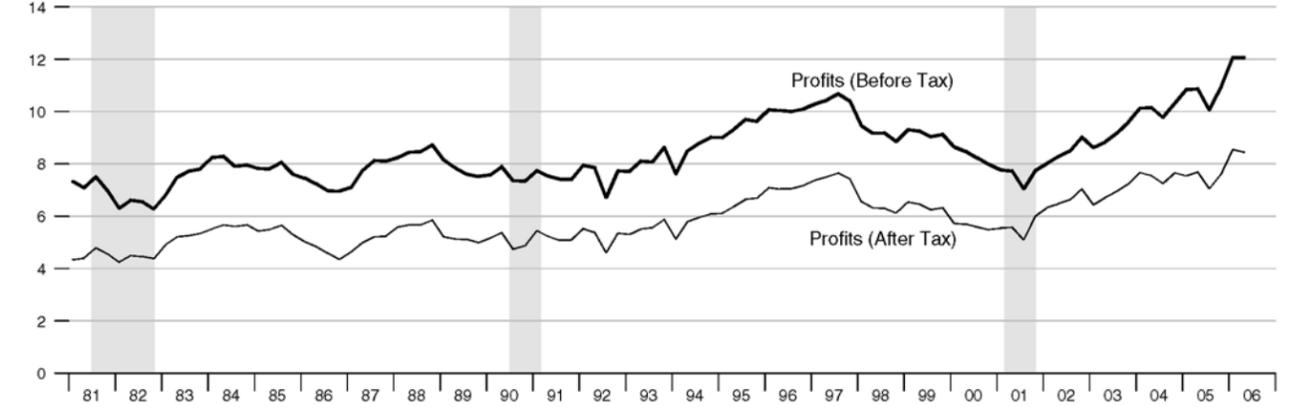


Selected Component Shares of National Income

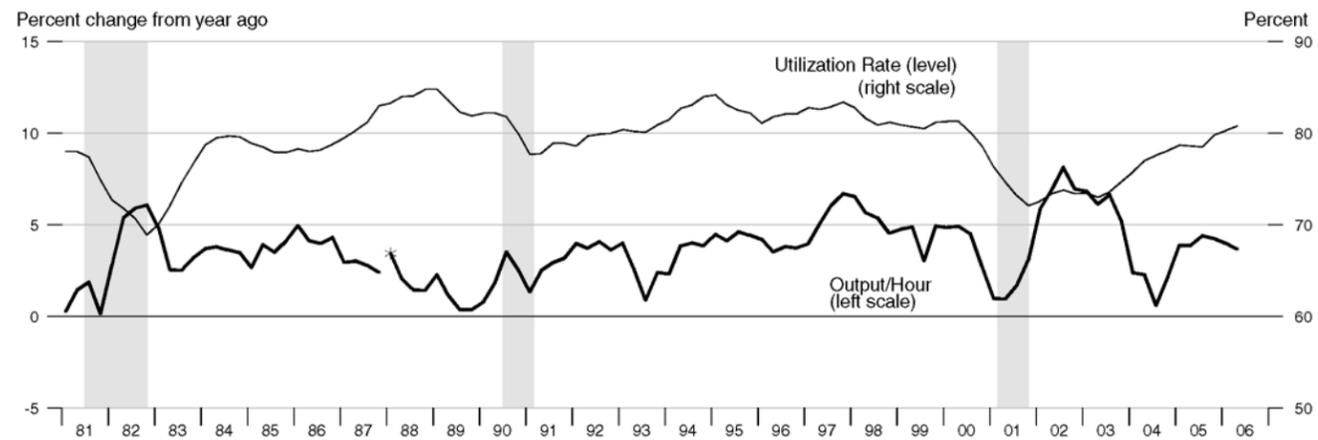


Corporate Profits

Percent of GDP

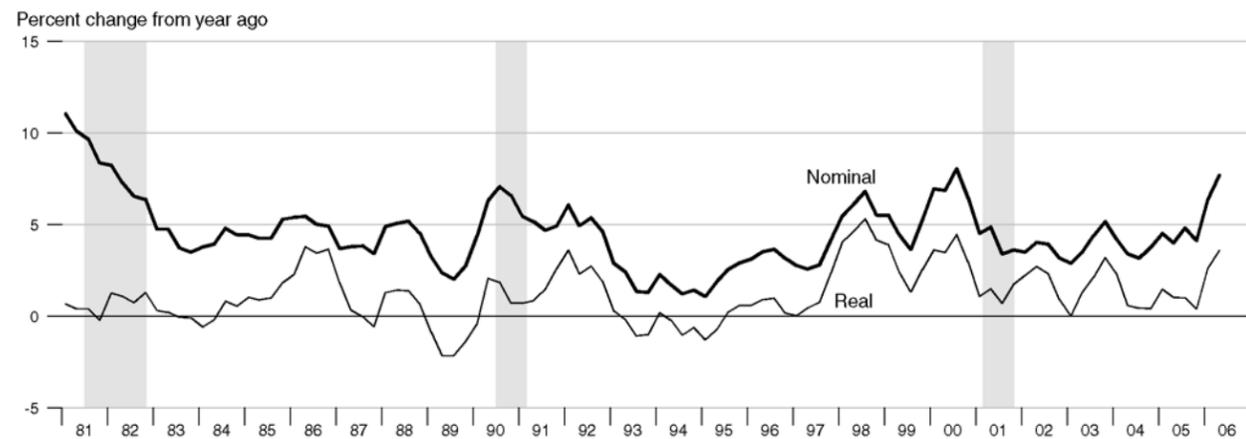


Output per Hour and Capacity Utilization, Manufacturing

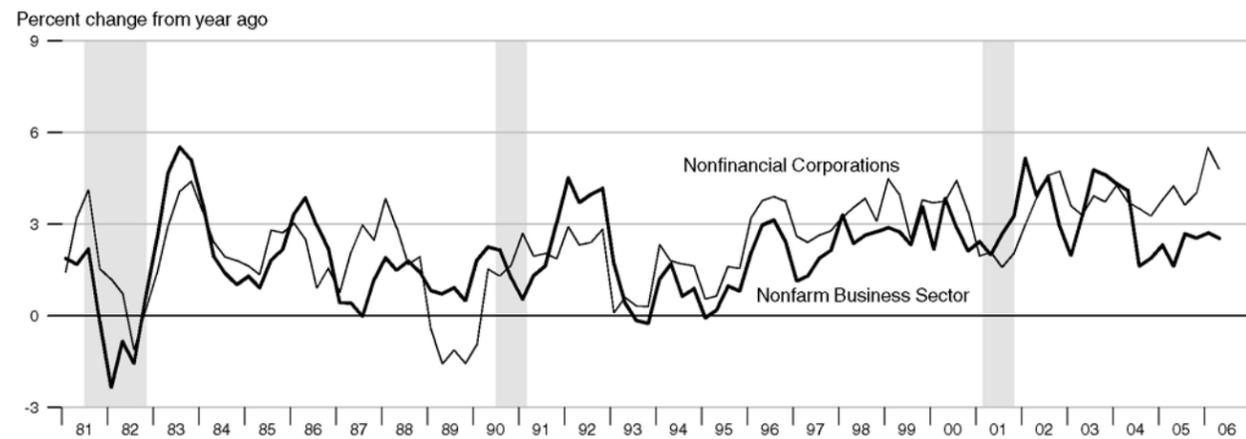


*Data from 1987 to the present are on a NAICS basis; data prior to 1987 are on an SIC basis and are not strictly comparable (see End Note).

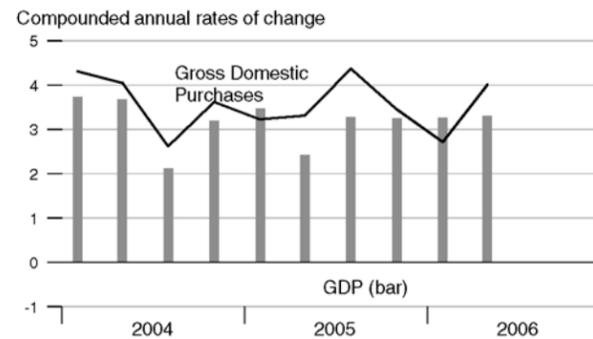
Nonfarm Compensation per Hour



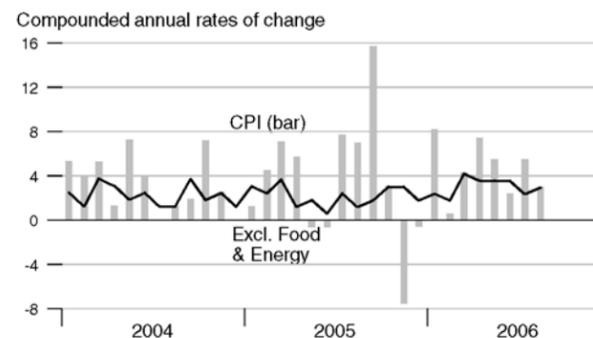
Output per Hour, Nonfarm Business and Nonfinancial Corporations



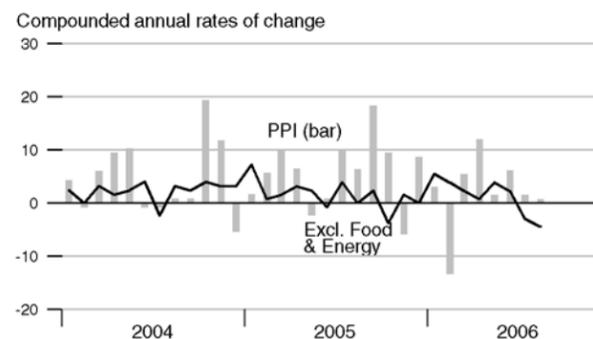
NIPA Chain Price Indexes



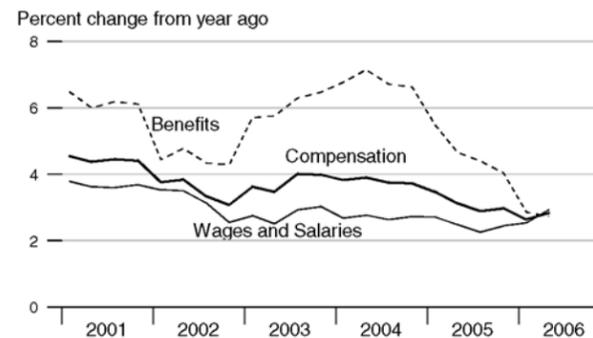
Consumer Price Index



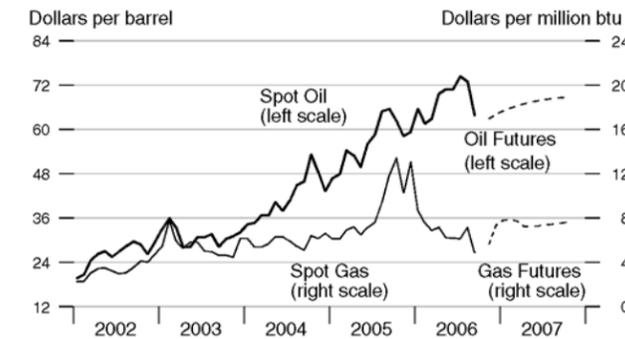
Producer Price Index, Finished Goods



Employment Cost Index

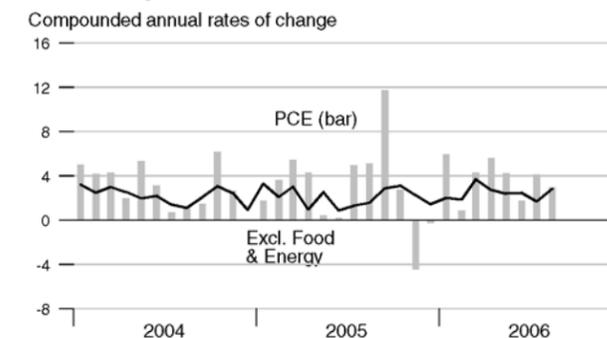


Oil & Natural Gas Prices: Spot & Futures

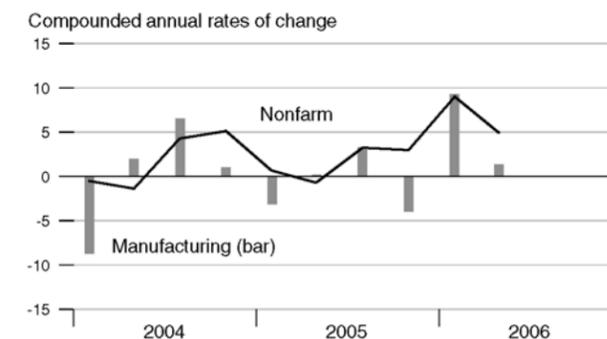


Note: Futures prices as of 09/29/2006.

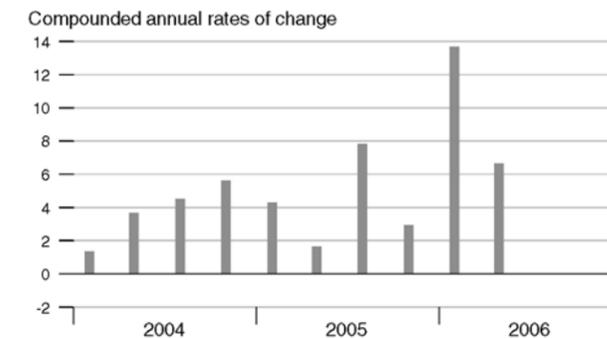
Consumption Chain Price Index



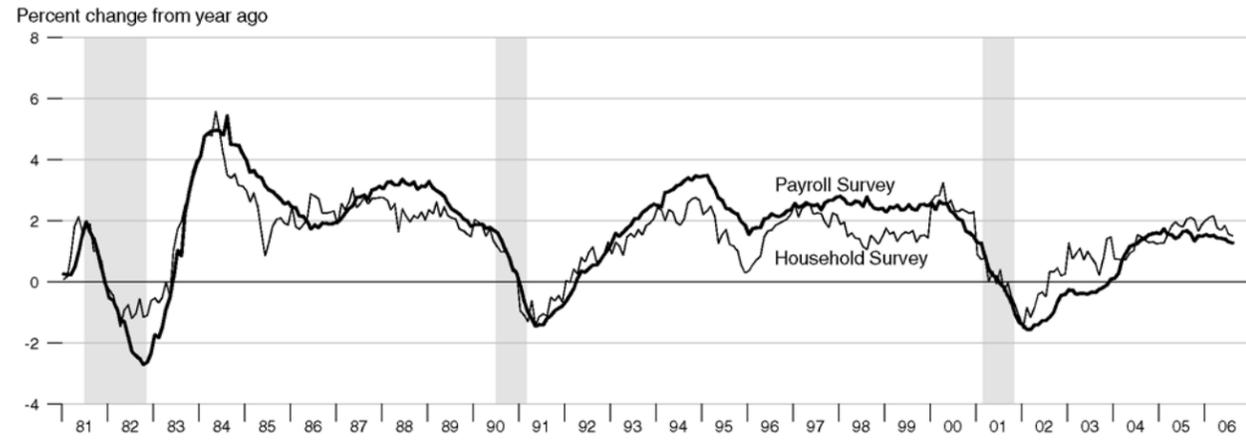
Unit Labor Cost



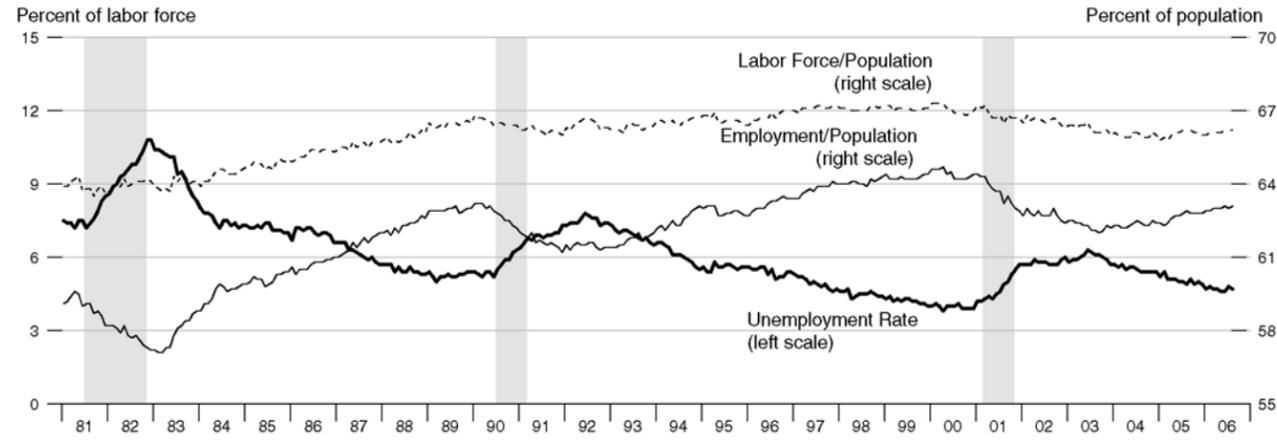
Compensation per Hour



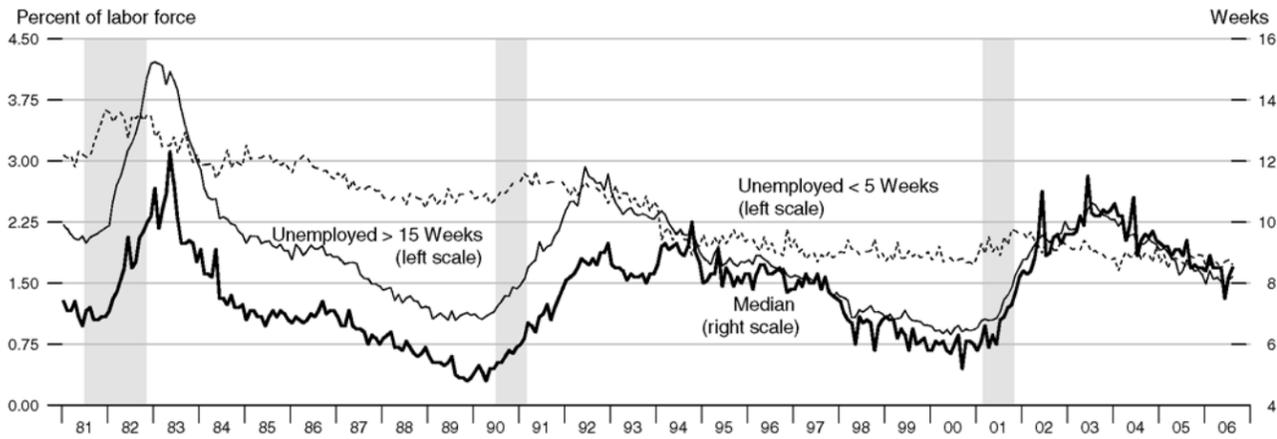
Employment



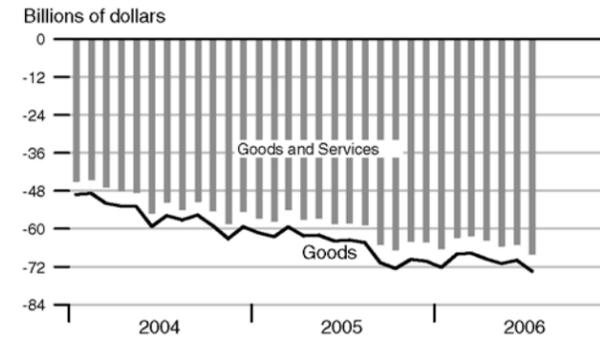
Unemployment, Labor Force Participation, and Employment Rates



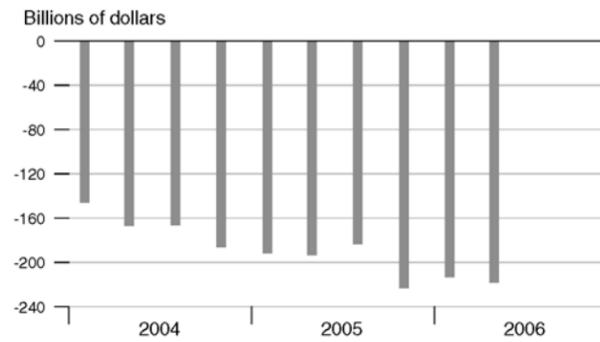
Duration of Unemployment



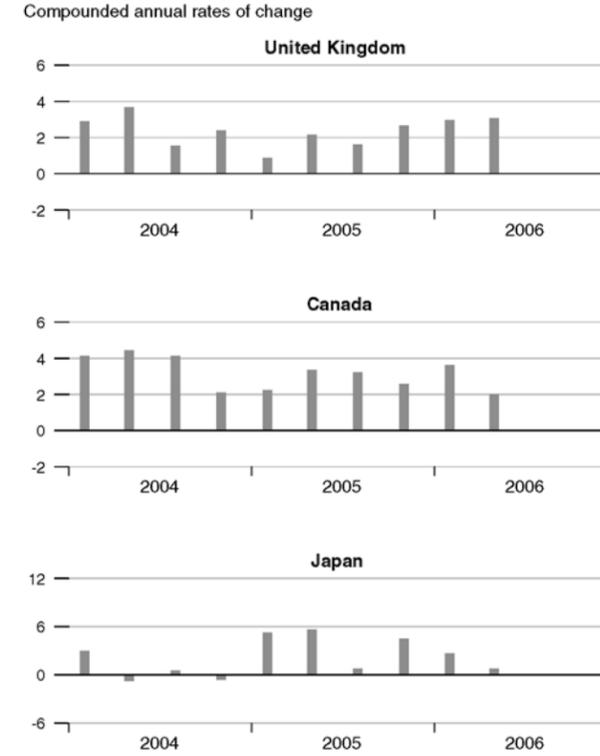
Trade Balance



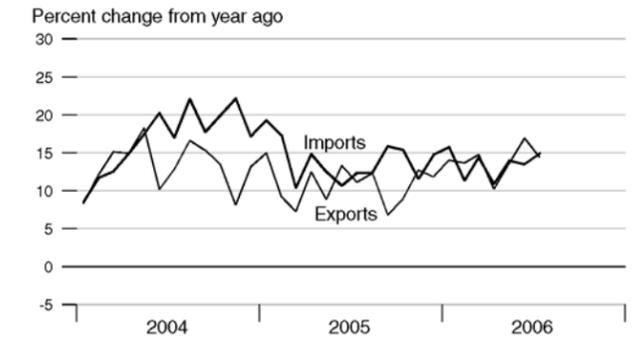
Current Account Balance



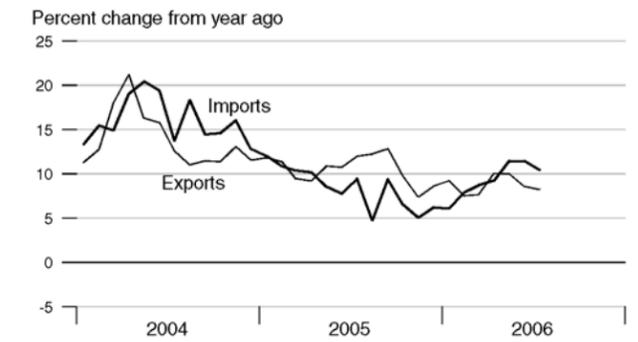
Real GDP Growth of Major Trading Partners



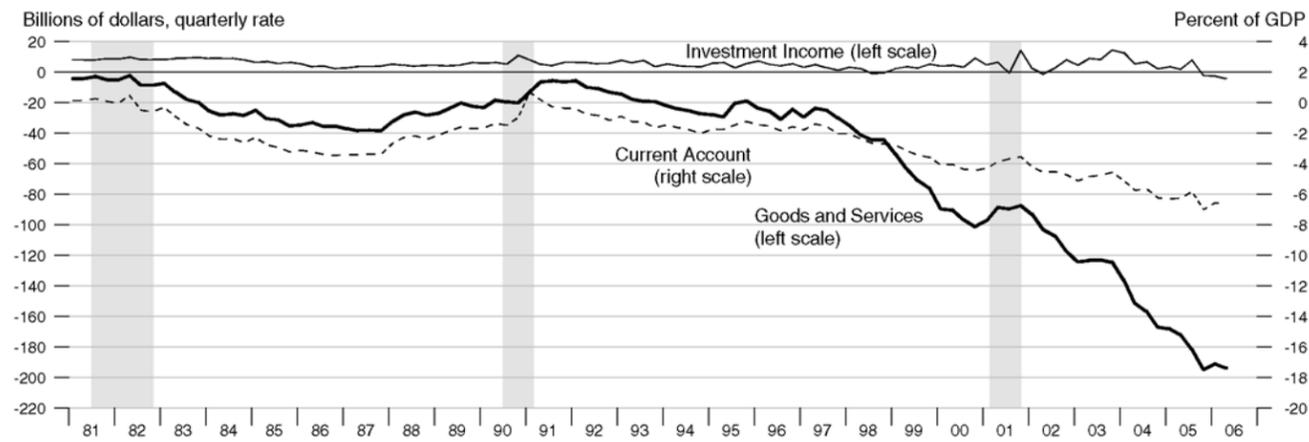
Goods Trade



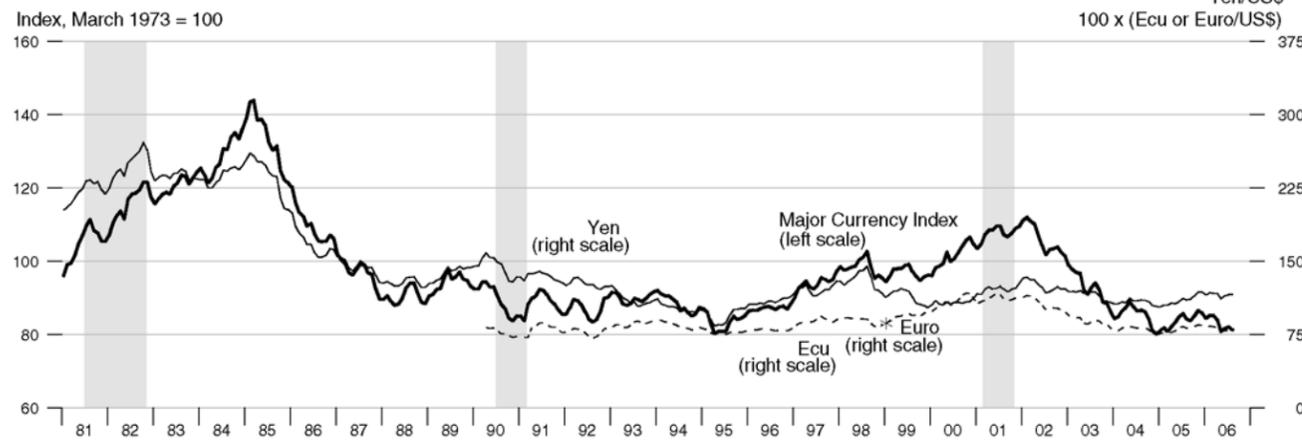
Services Trade



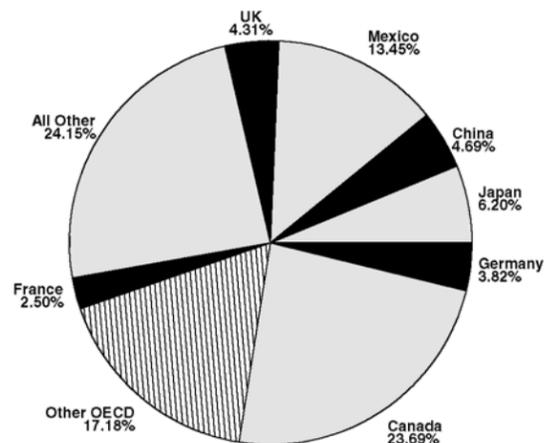
Current Account, Trade and Investment Income Balances



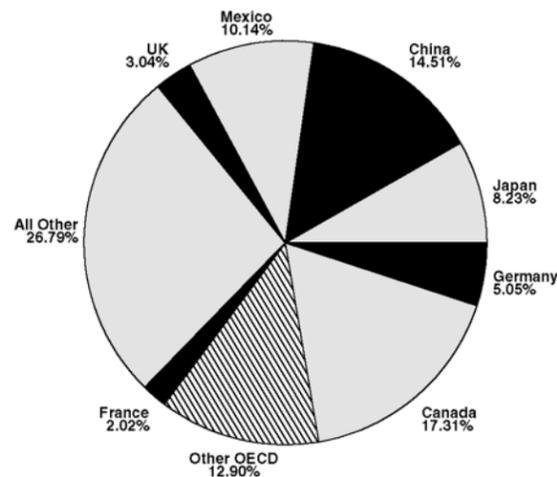
Exchange Rates



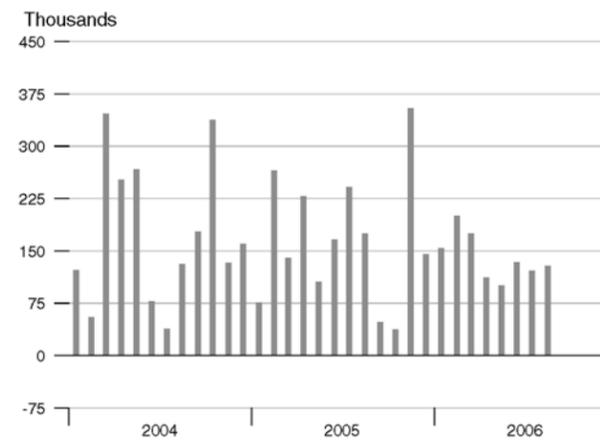
Goods Export Shares, 2005



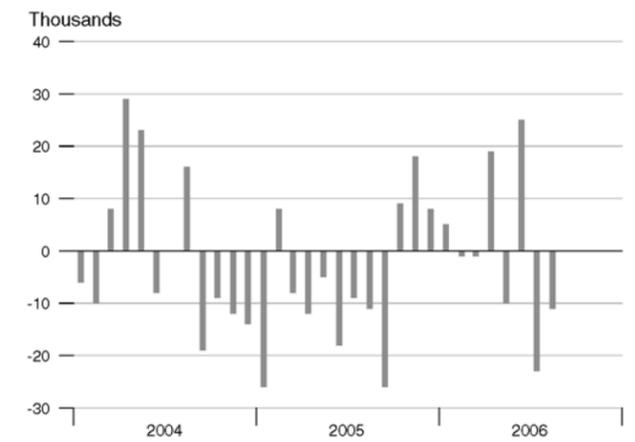
Goods Import Shares, 2005



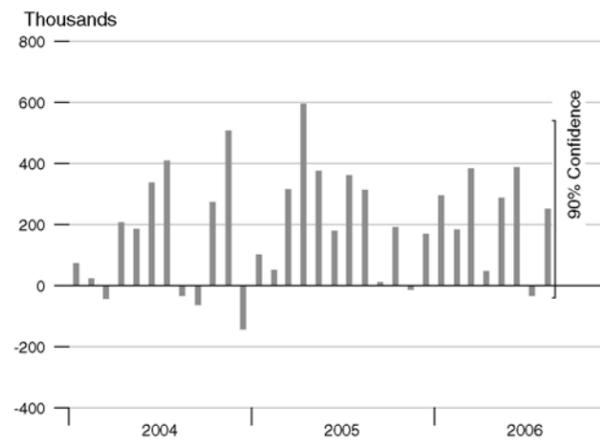
Change in Nonfarm Payrolls



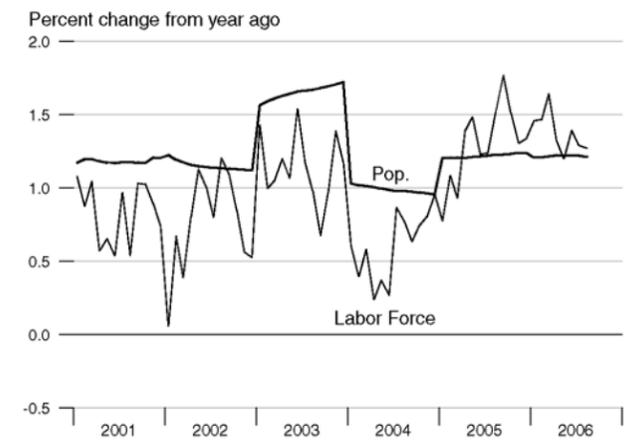
Change in Manufacturing Payrolls



Change in Household Employment



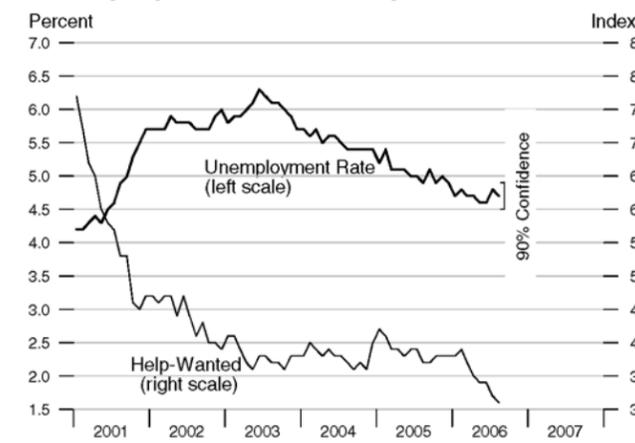
Labor Force and Population



Available Labor Supply and Components

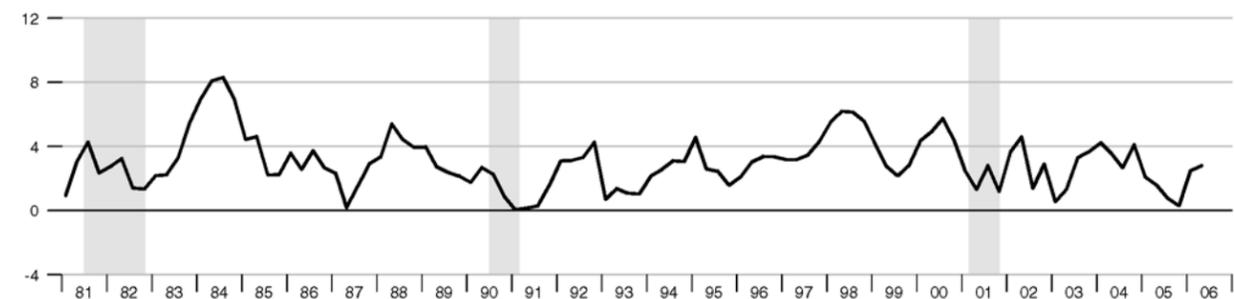


Unemployment Rate & Help-Wanted Index



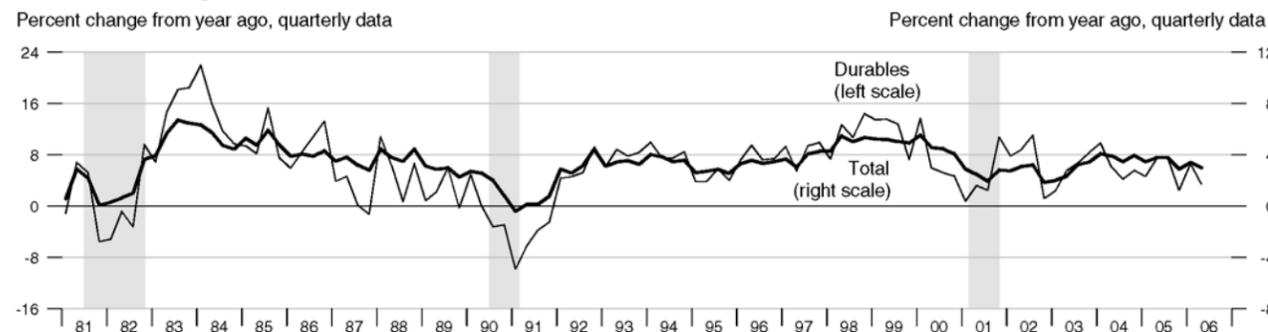
Real Disposable Personal Income

Percent change from year ago, quarterly data



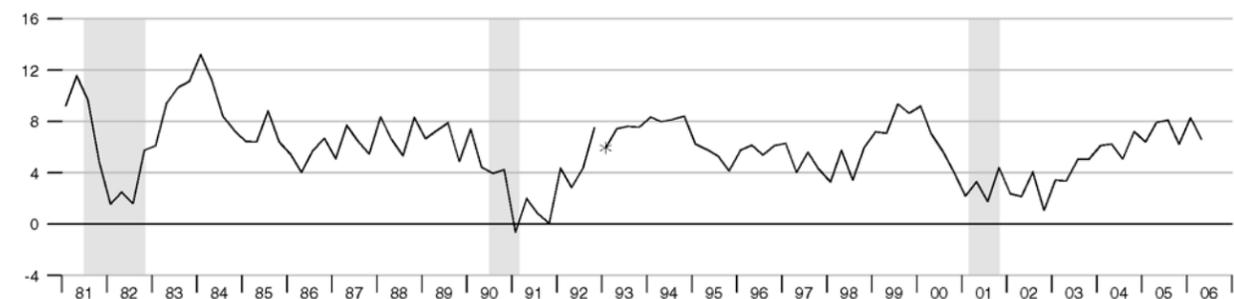
Real Consumption

Percent change from year ago, quarterly data



Retail and Food Services Sales

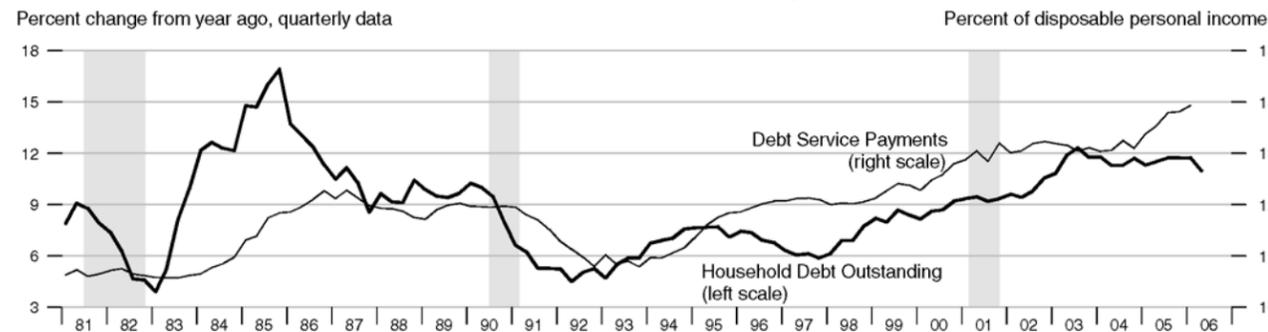
Percent change from year ago, quarterly average



*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).

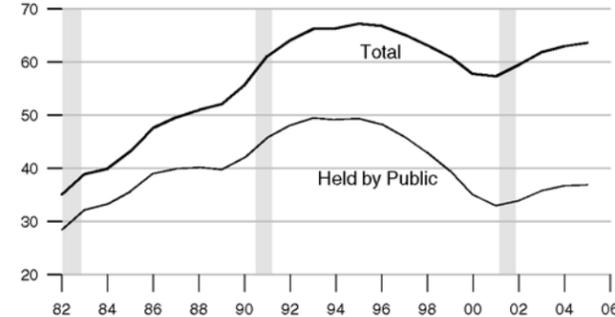
Debt Service Payments and Household Debt Outstanding

Percent change from year ago, quarterly data



Federal Debt

Percent of GDP



Change in Federal Debt

Percent of GDP



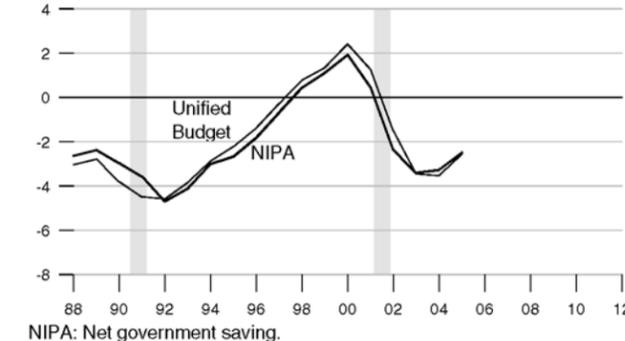
Federal Government Debt

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
2003	6783.2	2859.3	3923.9	656.1	3268.0	1454.2
2004	7379.1	3075.7	4303.4	700.3	3607.0	1798.7
2005	7932.7	3331.1	4601.6	733.4	3864.9	1933.4
2003						
March	6460.8	2750.0	3710.8	641.5	3069.9	1286.3
June	6670.1	2853.8	3816.3	652.1	3164.7	1382.8
September	6783.2	2859.3	3923.9	656.1	3268.0	1454.2
December	6998.0	2954.5	4044.1	666.7	3377.9	1533.0
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	3667.1	1853.4
2005						
March	7776.9	3204.5	4572.4	717.3	3855.4	1956.9
June	7836.5	3308.9	4527.6	721.9	3803.0	1879.6
September	7932.7	3331.1	4601.6	733.4	3864.9	1933.4
December	8170.4	3455.8	4714.6	732.9	3970.6	2041.1
2006						
March	8371.2	3498.4	4872.8	755.2	4113.9	2082.3
June	8420.0	3622.6	4797.5	762.6	4030.8	2091.7

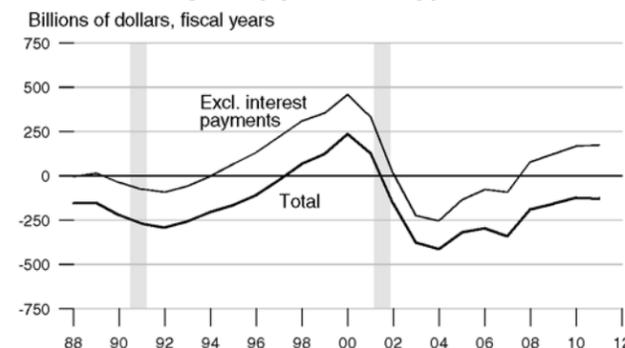
Federal Surplus (+) / Deficit (-)

Percent of GDP

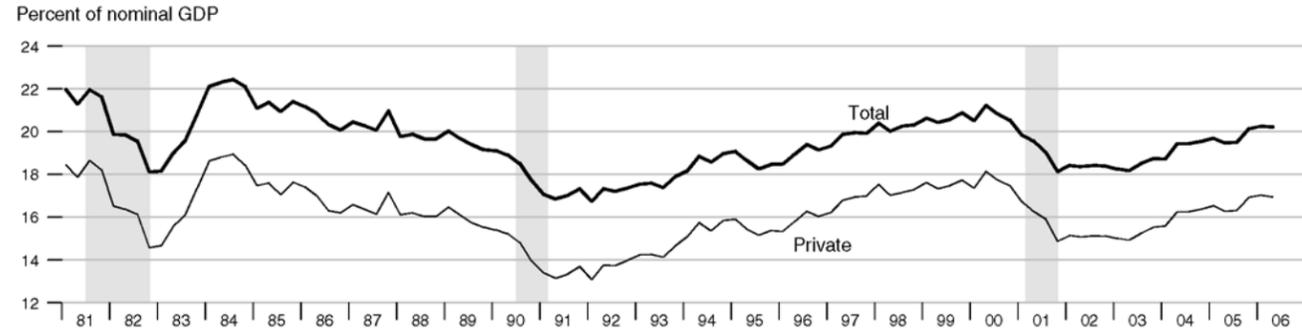


Federal Surplus (+) / Deficit (-), Unified Basis

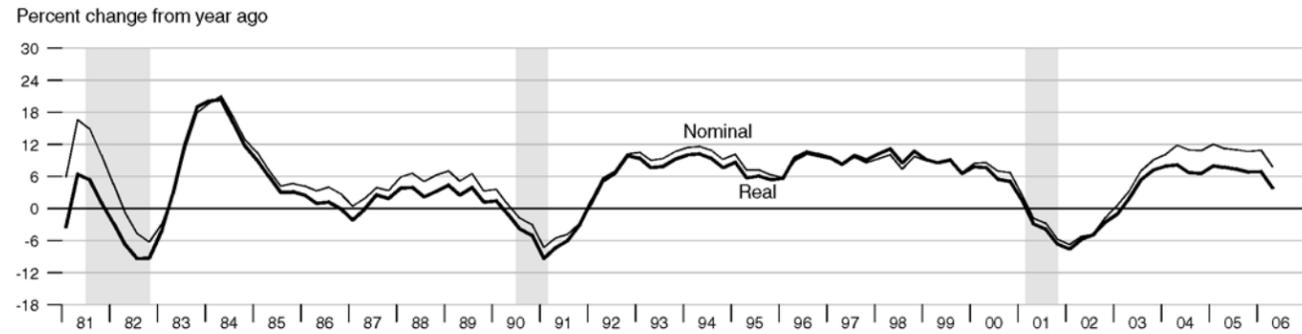
Billions of dollars, fiscal years



Investment



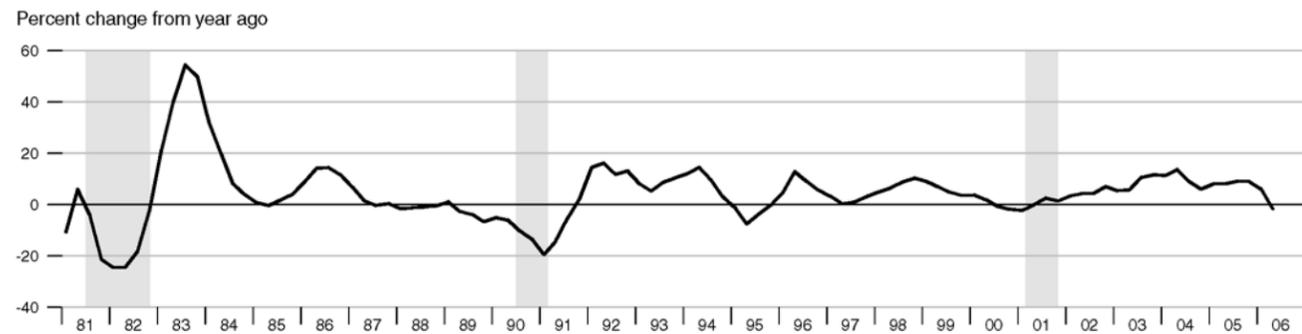
Private Fixed Investment



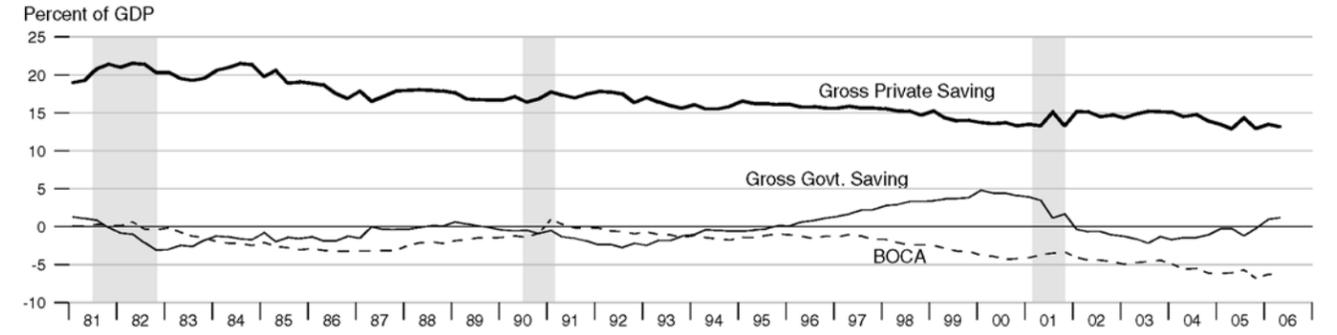
Real Nonresidential Fixed and Equipment & Software Investment



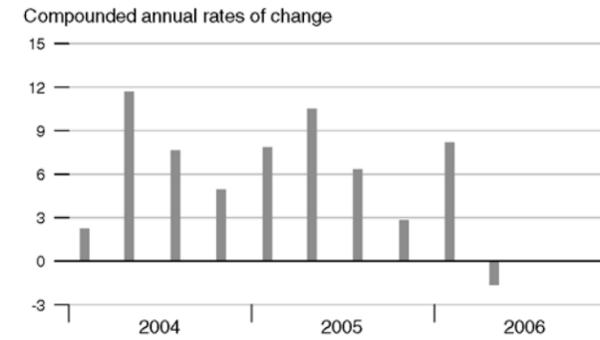
Real Residential Fixed Investment



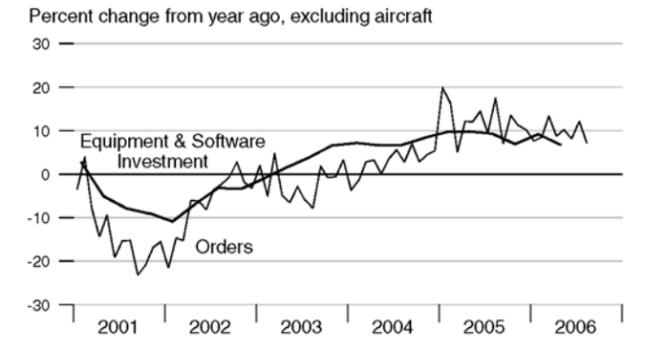
Gross Saving Rates and Balance on Current Account (NIPA)



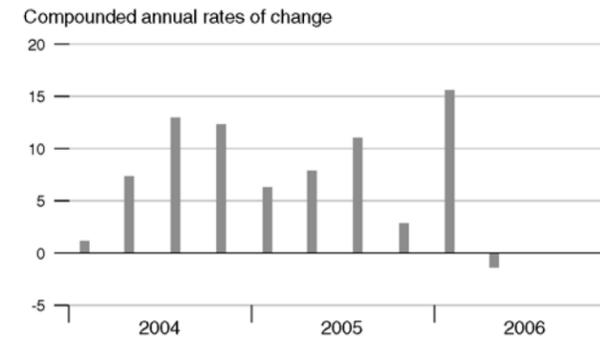
Real Private Fixed Investment



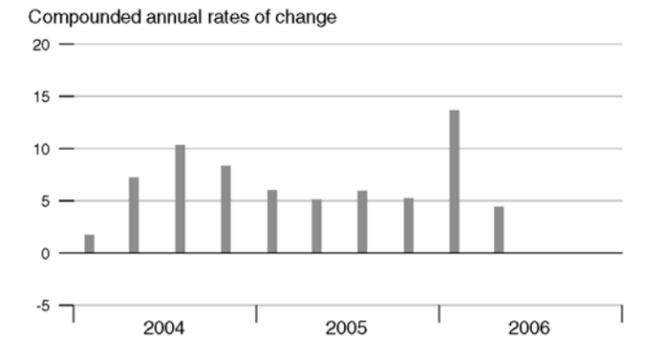
Nondefense Capital Goods Orders



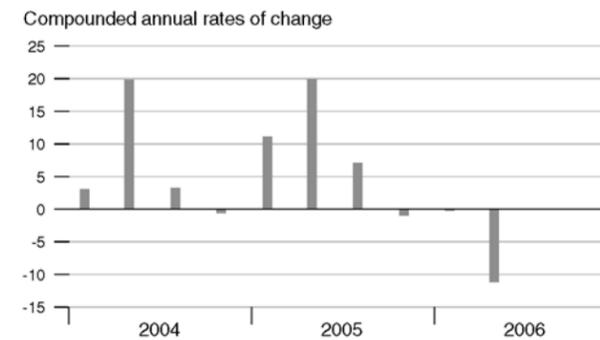
Real Equipment & Software Investment



Real Nonresidential Fixed Investment



Real Residential Fixed Investment



Housing Starts and New Home Sales

