

Future Oil

Crude oil prices have risen from around \$25 per barrel in early 2002 to over \$50 per barrel in recent weeks. This rapid run-up in prices has generated uncertainty about the outlook for oil prices: Will recent high prices persist, or will world oil prices moderate as supply and demand adjust?

Some analysts look to the market for oil futures as a source of information on prospective prices. Futures markets provide a direct reading on the price of a contract to deliver oil at a specified future date. Although we might expect that prices on these contracts would provide information about future spot prices, historically futures prices have not provided very accurate predictions. The spot price of oil incorporates information about current supply and demand conditions, as well as information about the future. Reflecting similar information sets, spot prices and futures prices move together closely.

As shown in the chart, futures prices (dashed lines) were persistently lower than spot prices (solid line) throughout the run-up in oil prices during 2004. Were futures markets erroneously predicting a reversal of price increases? Actually, there is a marked tendency for futures prices to lie below spot prices on average. In the jargon of commodity futures markets, this is known as “backwardation.”¹

Backwardation in the oil futures market is related to a consideration known as “convenience yield,” the marginal benefit of holding a commodity in reserve. For oil, the convenience yield lies in the option-value of allowing oil to remain in the ground. By not pumping oil in the first place, the owner of an oil field retains the option of increasing production at a later date. An unanticipated need for oil in the future is often more conveniently and less expensively met by pumping additional oil rather than buying it on spot markets. The presence of a convenience yield acts to push futures prices below spot prices.

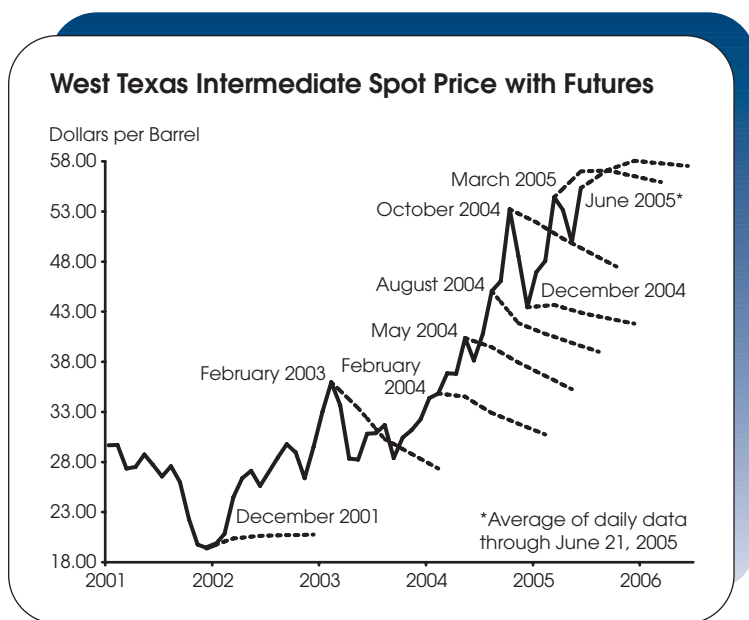
Storage costs and interest costs provide an opposing effect on the relationship between spot and futures prices. Unless one has direct access to an oil production facility, a promise to deliver oil in the future requires the purchase of oil on the spot market, the interest cost of borrowing to finance that purchase, plus storage costs. Hence, interest costs and storage costs comprise the total carrying cost of oil, placing an upper bound on the futures price relative to the spot price. To summarize, we have (Futures Price – Spot Price) = (Carrying Costs – Convenience Yield).

If futures prices were to rise high enough, a buy-and-hold strategy would become profitable—driving spot prices up and futures prices down. In the absence of a convenience yield, the existence of carrying costs implies that futures prices would generally lie above spot prices.

Backwardation characterizes the oil futures market more than two-thirds of the time, implying significant convenience yields. Recently, however, futures prices have risen above spot prices—a situation known as a “contango” market. One possible explanation for the emergence of this pattern is that futures prices are signaling an expectation of rising spot prices. On the other hand, the current high price of oil for immediate delivery might be suppressing convenience yields—a development that would be consistent with lower oil prices over time as producers increase their output. In the end we are left with the conclusion that prices of futures contracts convey little exploitable information about future spot prices.

—Michael R. Pakko

¹ For more information on this phenomenon, see Joseph G. Haubrich, Patrick Higgins, and Janet Miller, “Oil Prices: Backward to the Future?” Federal Reserve Bank of Cleveland *Economic Commentary*, December 2004.



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.

We welcome your comments addressed to:

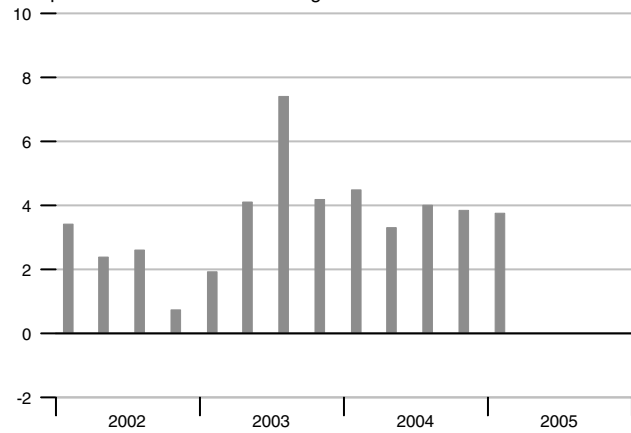
Editor, *National Economic Trends*
Research Division
Federal Reserve Bank of St. Louis
P.O. Box 442
St. Louis, MO 63166-0442

or to:

stlsFRED@stls.frb.org

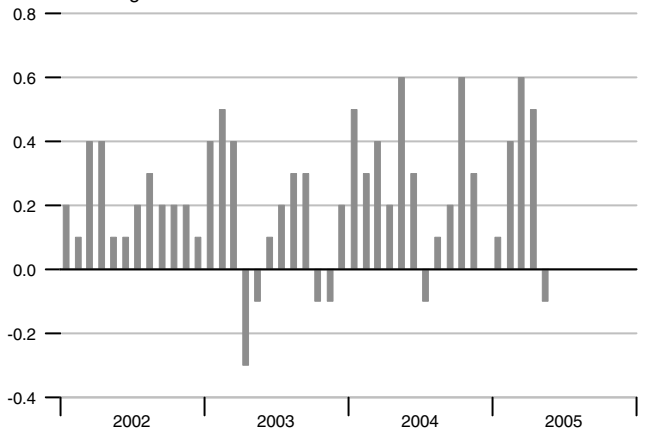
Real GDP Growth

Compounded annual rates of change



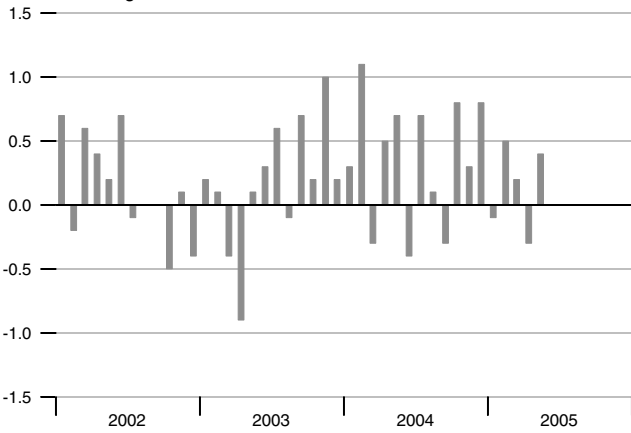
Consumer Price Index

Percent change



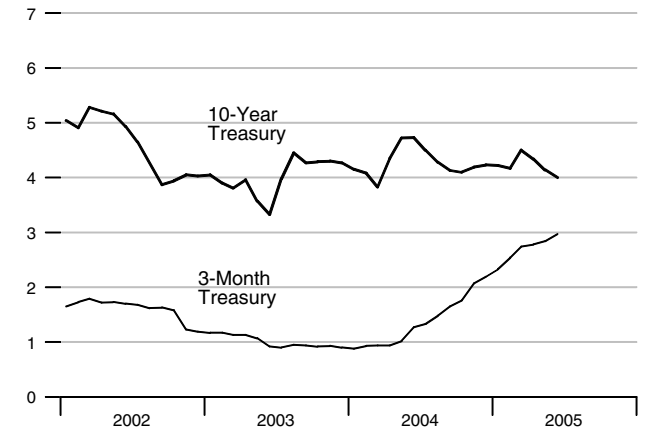
Industrial Production

Percent change



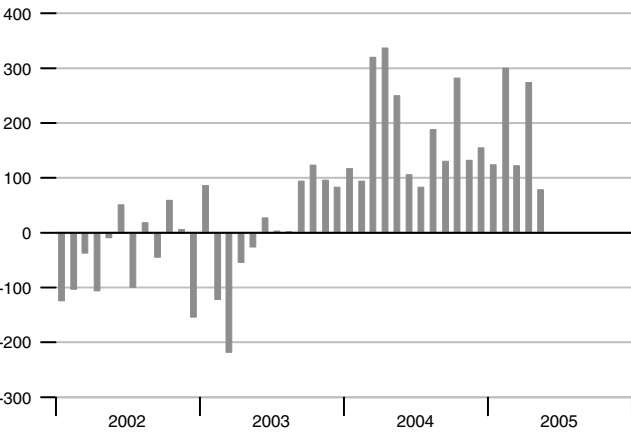
Interest Rates

Percent



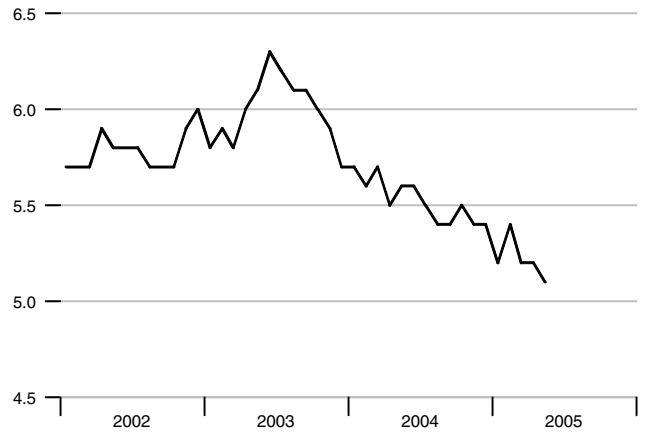
Change in Nonfarm Payrolls

Thousands



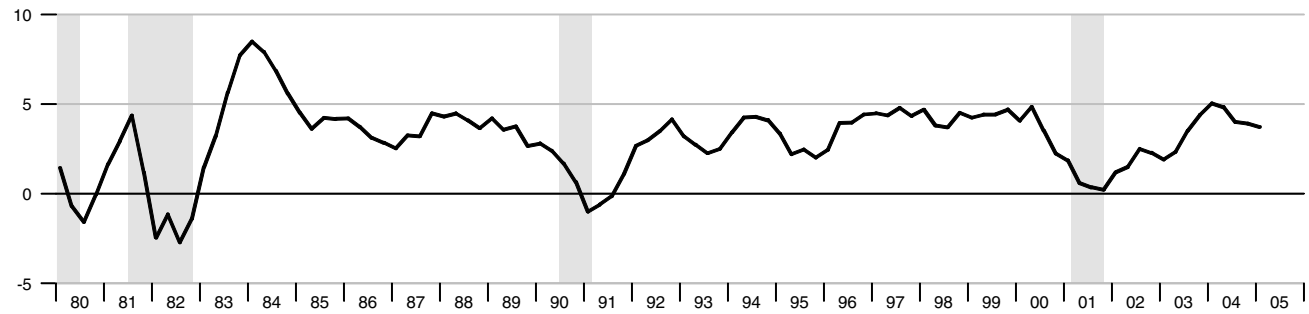
Unemployment Rate

Percent of labor force



Real Gross Domestic Product

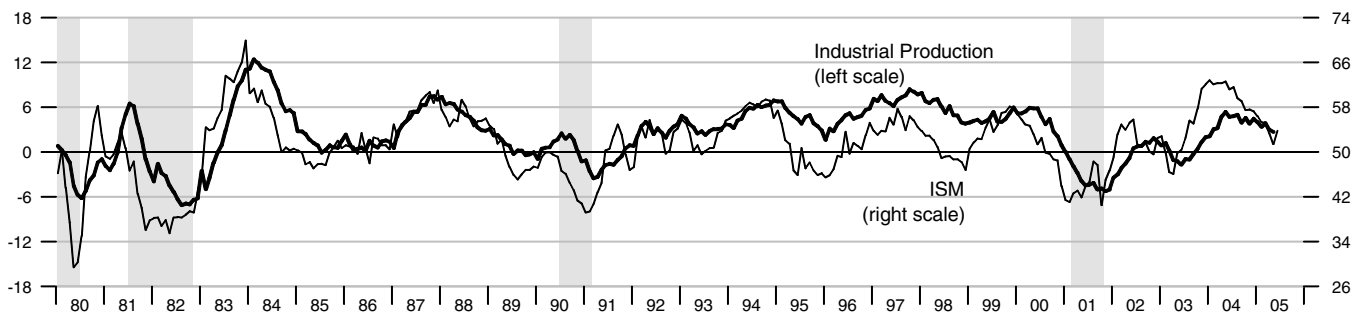
Percent change from year ago



Industrial Production and Institute for Supply Management (ISM) Indexes

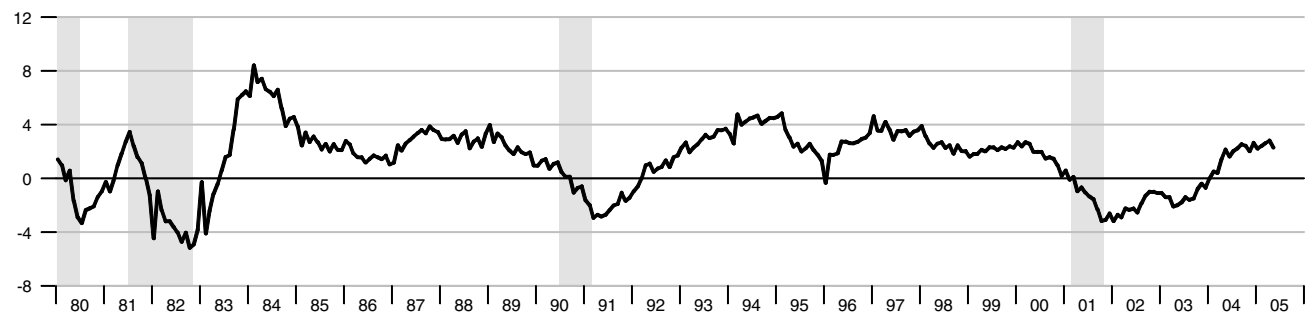
Percent change from year ago

Index



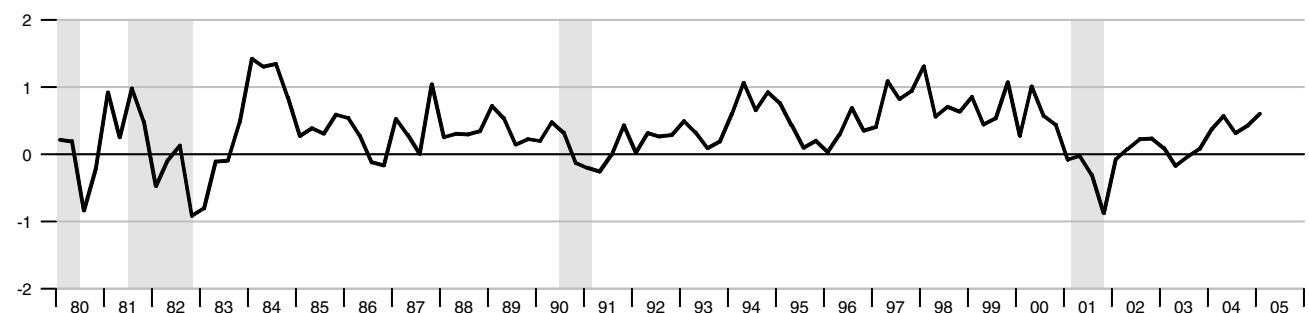
Aggregate Private Nonfarm Hours

Percent change from year ago

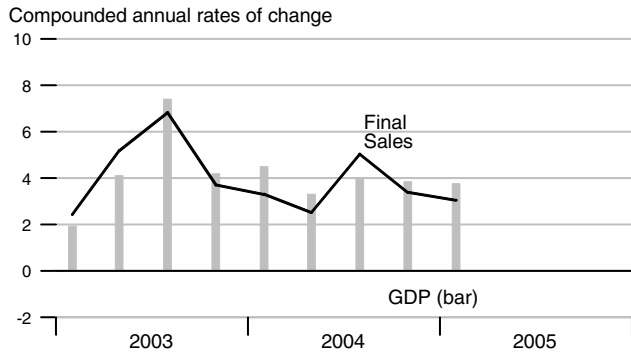


Real Change in Private Inventories

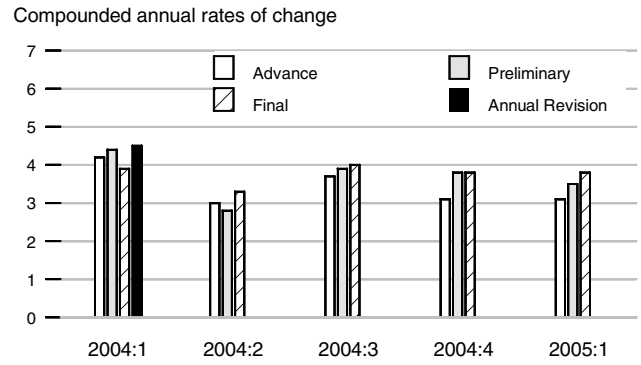
Percent of GDP



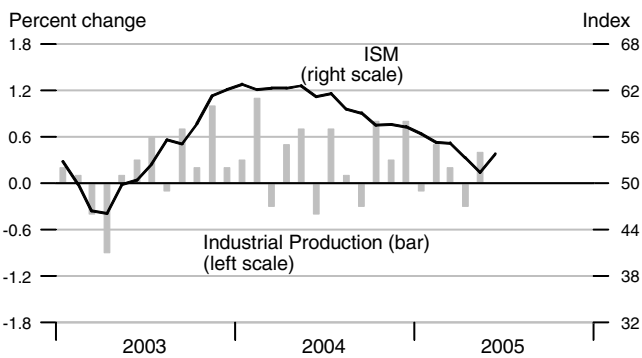
Real Final Sales and GDP



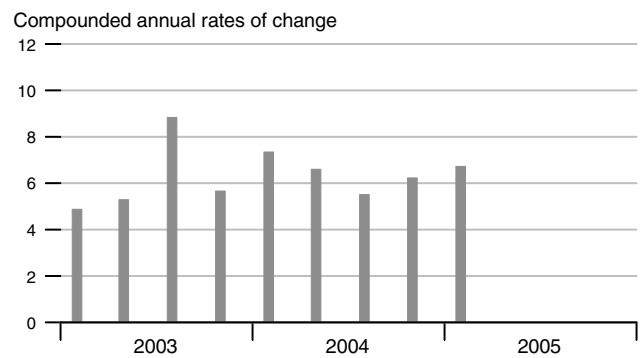
Real GDP Revisions



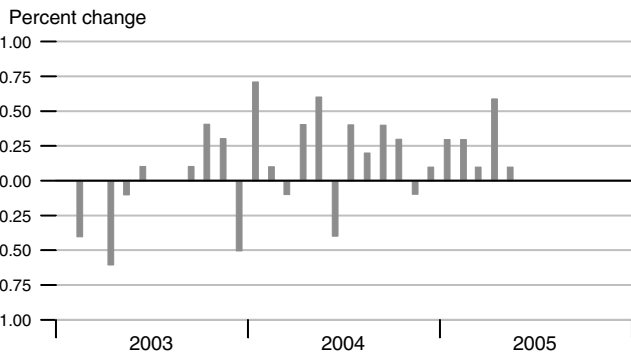
Industrial Production and ISM Index



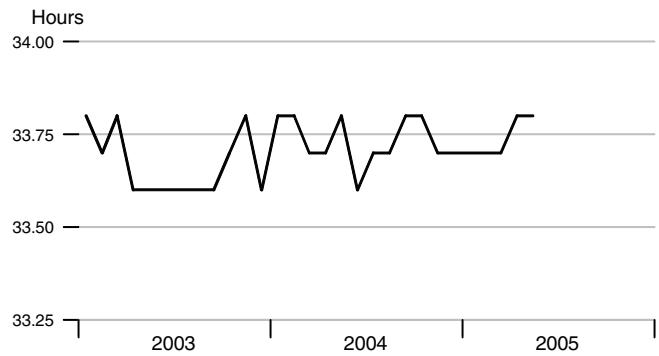
Nominal Gross Domestic Product



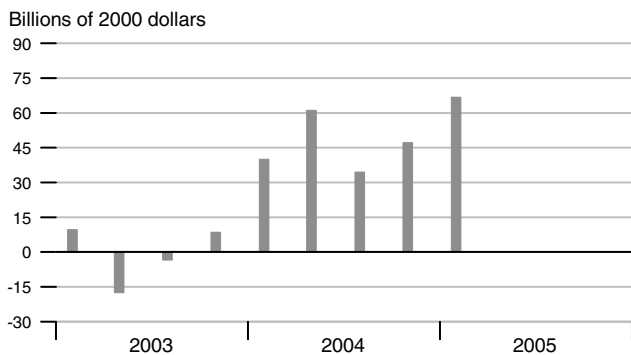
Aggregate Private Nonfarm Hours



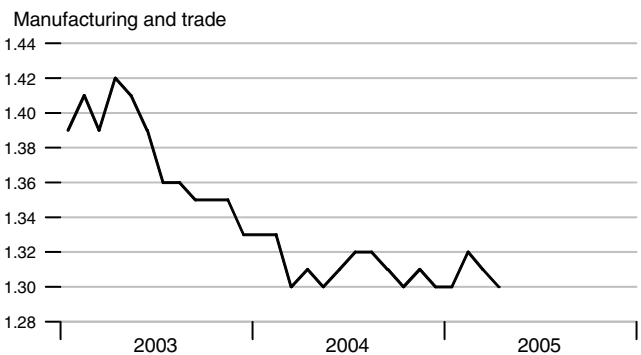
Average Weekly Private Nonfarm Hours



Real Change in Private Inventories

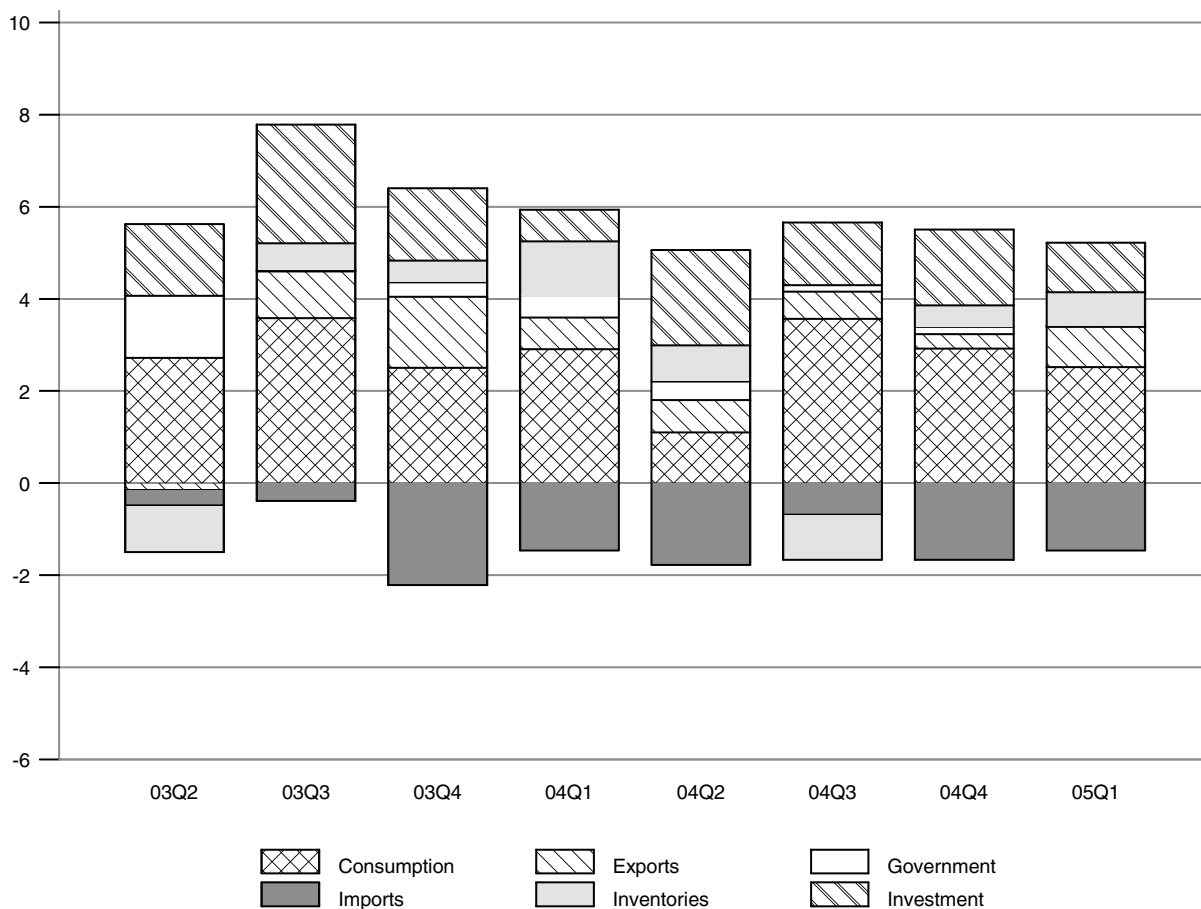


Inventory-Sales Ratio



Contribution of Components to Real GDP Growth

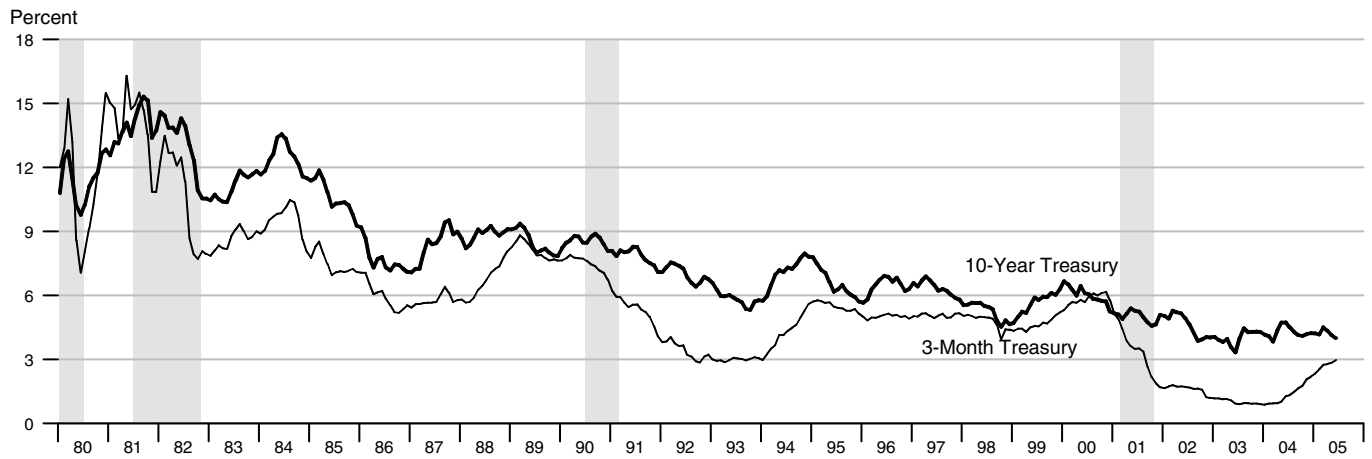
Percentage points at compounded annual rates



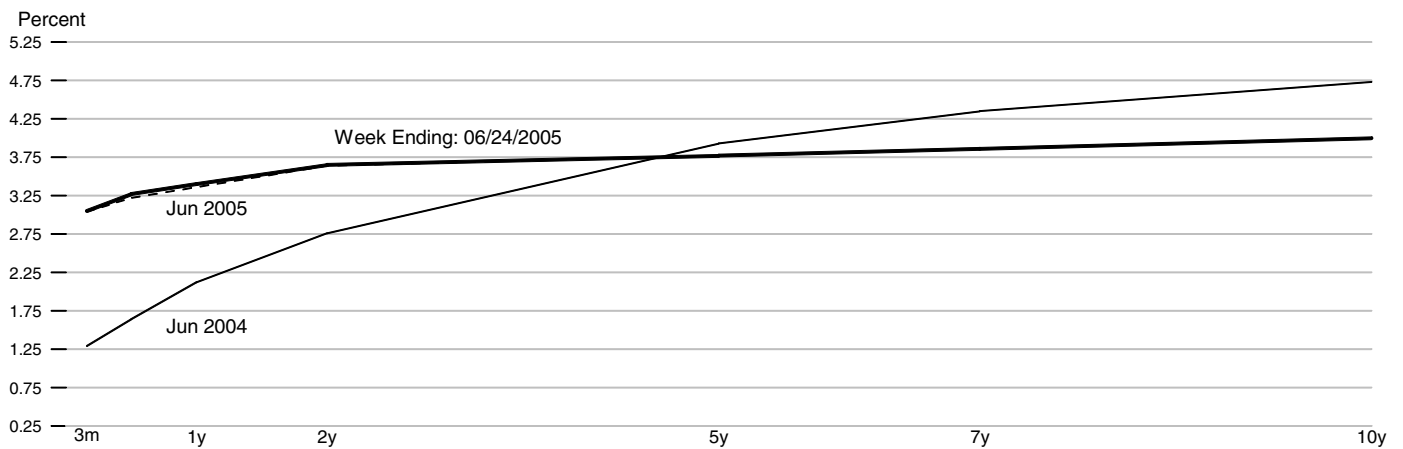
Contributions to Real GDP Growth Rate

	2003			2004				2005
	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Final Sales	5.12	6.84	3.72	3.32	2.52	4.97	3.39	3.04
Consumption	2.72	3.58	2.50	2.90	1.10	3.57	2.92	2.52
Fixed Investment	1.55	2.59	1.57	0.69	2.07	1.37	1.65	1.08
Nonresidential	1.10	1.50	1.07	0.42	1.21	1.27	1.46	0.44
Residential	0.44	1.09	0.50	0.27	0.86	0.09	0.19	0.64
Federal	1.40	-0.23	0.33	0.48	0.18	0.33	0.09	0.04
Government	1.35	0.03	0.31	0.48	0.41	0.13	0.16	0.03
State and Local	-0.05	0.26	-0.02	0.00	0.23	-0.20	0.07	-0.01
Imports	-0.34	-0.39	-2.22	-1.46	-1.77	-0.69	-1.67	-1.46
Change in Inventory	-1.01	0.57	0.47	1.17	0.78	-0.97	0.46	0.72
Exports	-0.15	1.02	1.55	0.70	0.70	0.59	0.32	0.87
Net Exports	-0.50	0.64	-0.66	-0.76	-1.06	-0.10	-1.35	-0.58
Residual	0.05	-0.10	0.02	0.02	0.01	-0.10	-0.09	0.01
Real GDP Growth	4.11	7.41	4.19	4.49	3.30	4.00	3.85	3.76

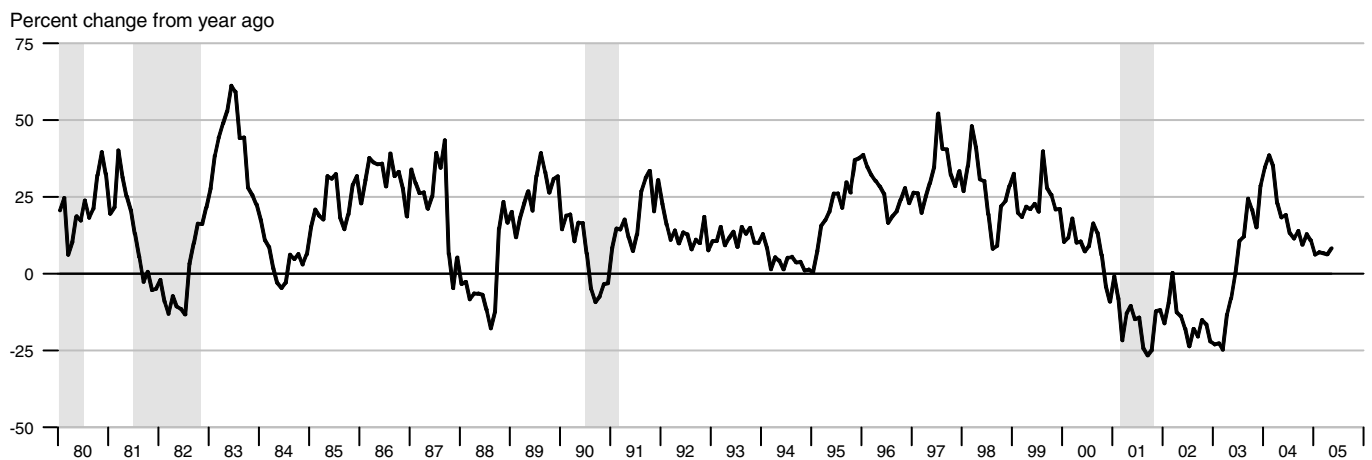
Interest Rates



Treasury Yield Curve

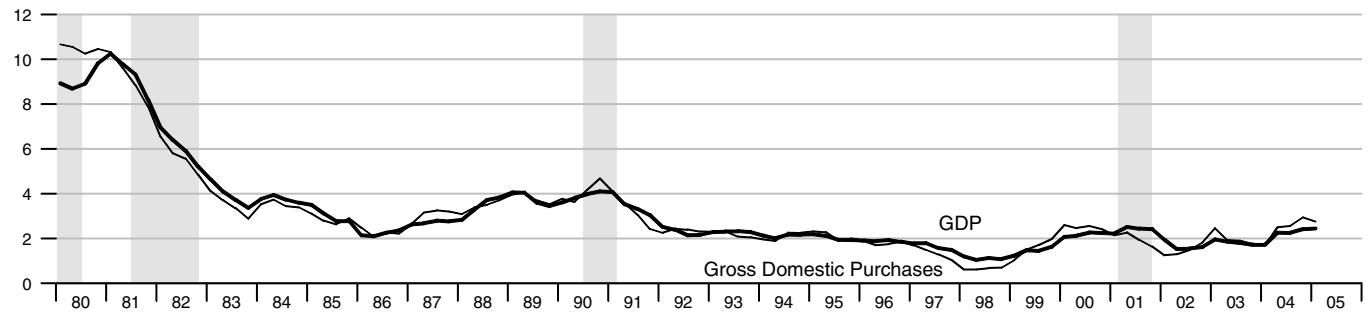


Standard and Poor's 500 Index with Reinvested Dividends



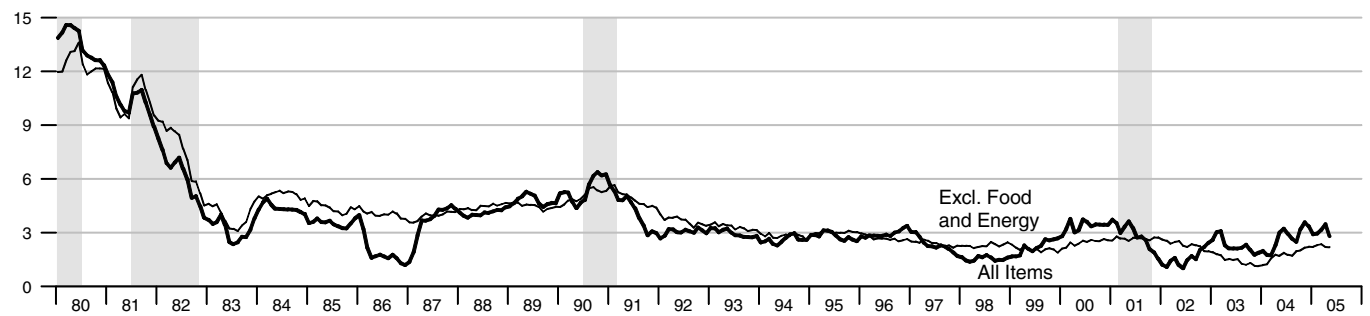
NIPA Chain Price Indexes

Percent change from year ago



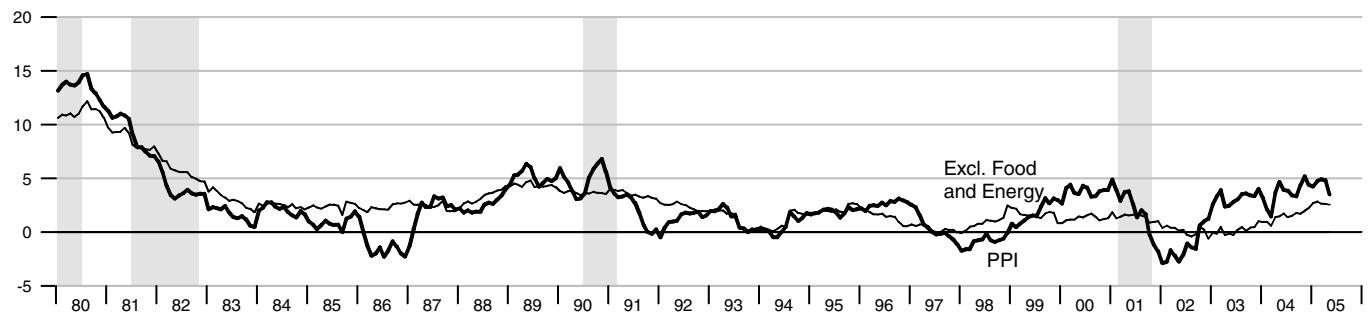
Consumer Price Index

Percent change from year ago



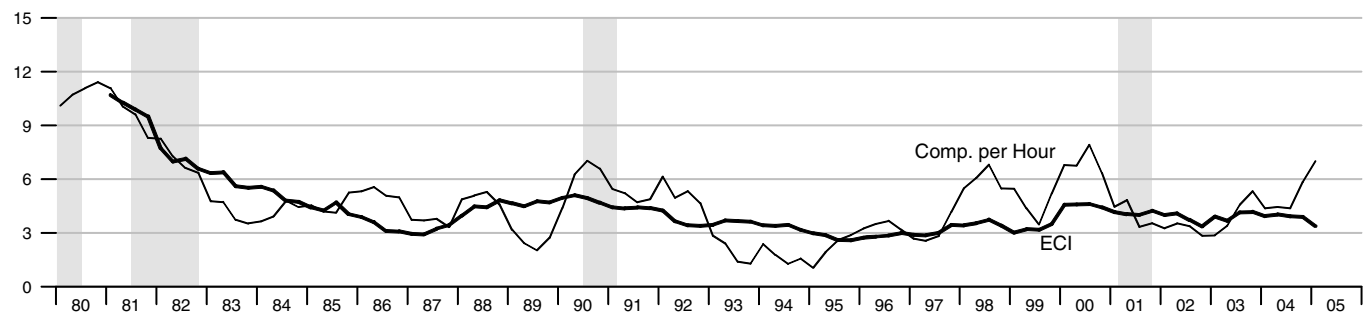
Producer Price Index, Finished Goods

Percent change from year ago

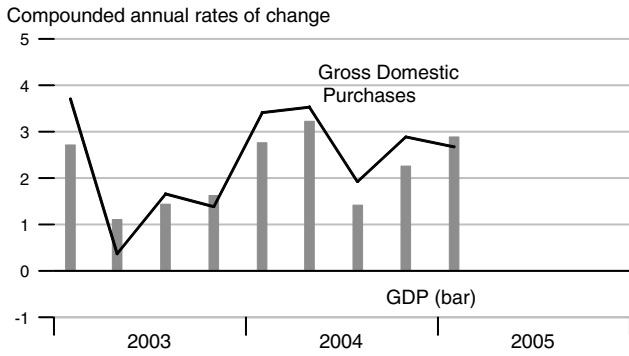


Employment Cost Index and Compensation per Hour

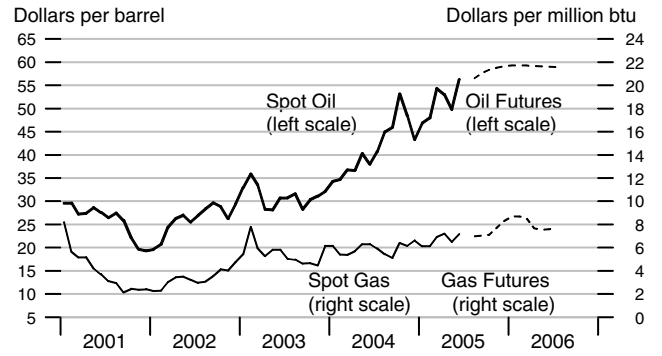
Percent change from year ago



NIPA Chain Price Indexes

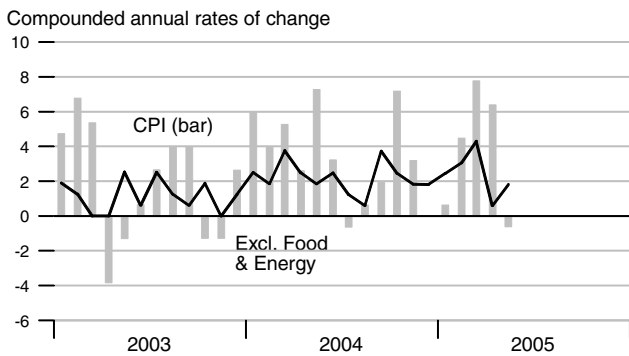


Oil & Natural Gas Prices: Spot & Futures

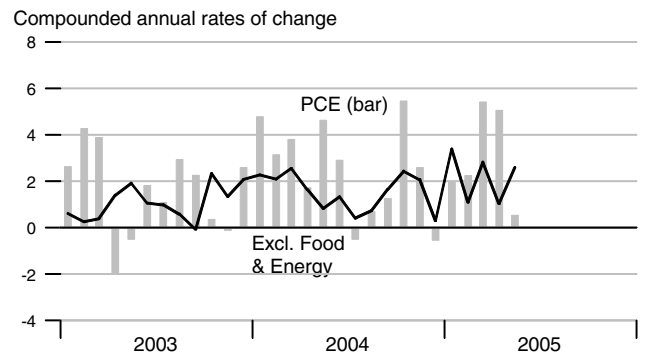


Note: Futures prices as of 06/30/2005.

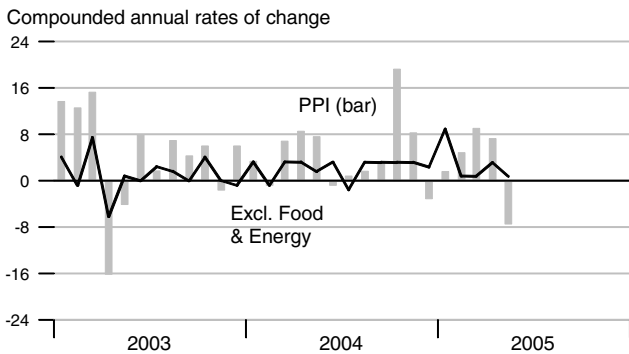
Consumer Price Index



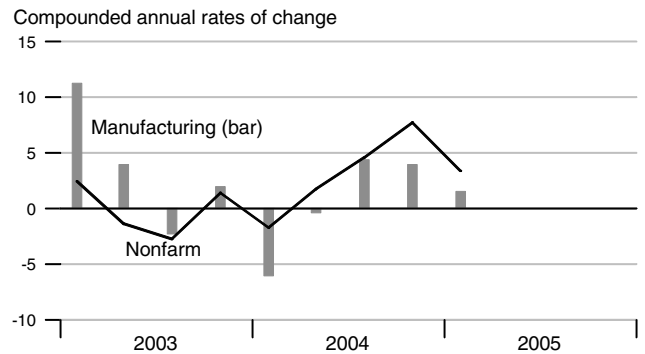
Consumption Chain Price Index



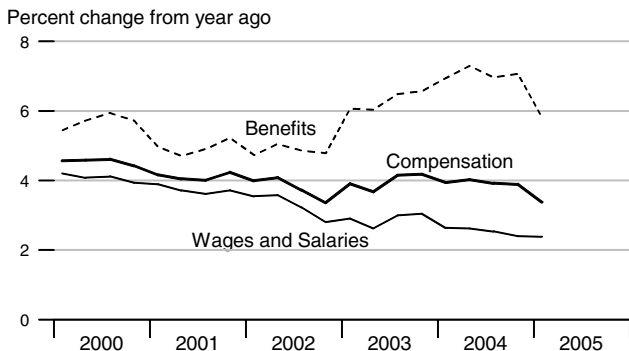
Producer Price Index, Finished Goods



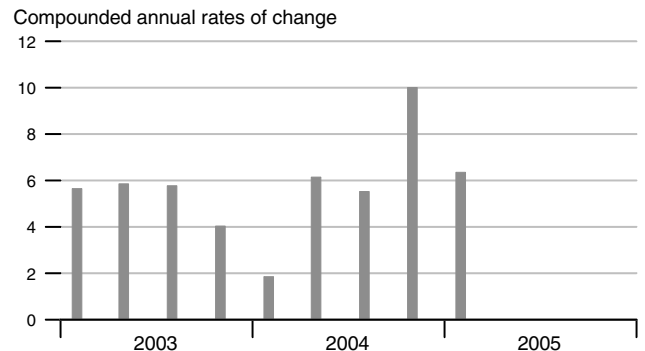
Unit Labor Cost



Employment Cost Index

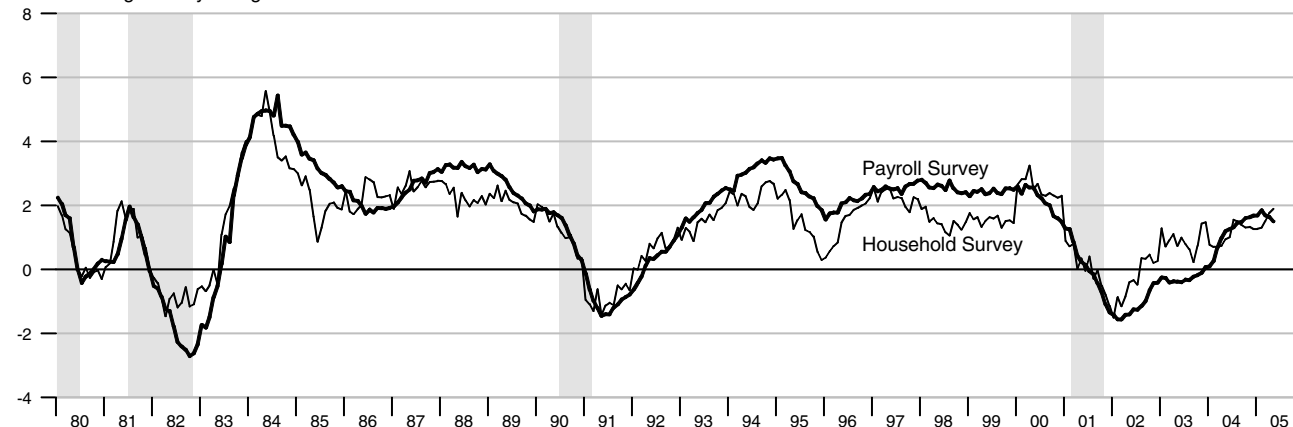


Compensation per Hour



Employment

Percent change from year ago

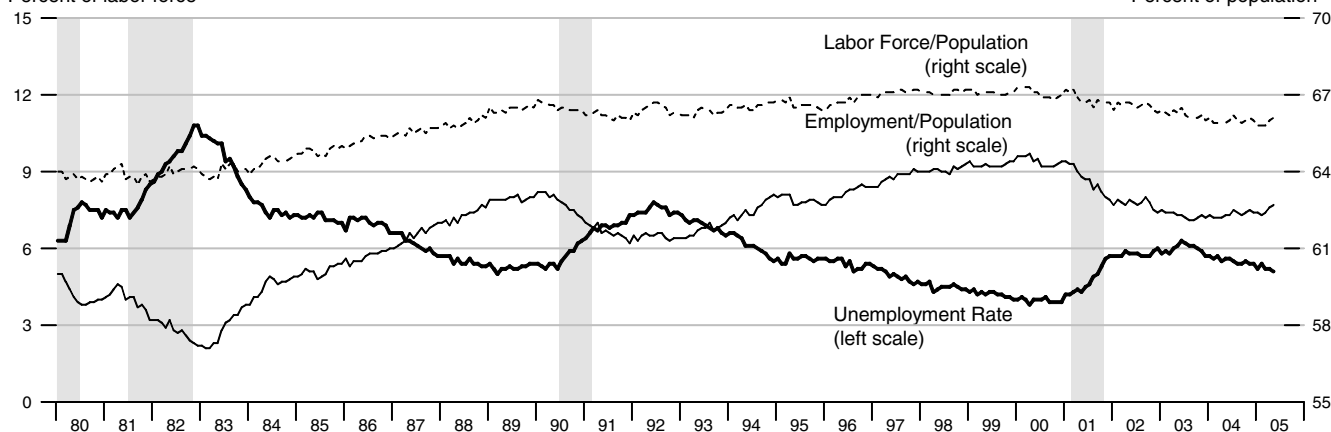


See the Notes section at the end of this publication for the Feb. 7, 2003, revisions to the Household Survey, and the June 6, 2003, revisions to the Establishment Survey.

Unemployment, Labor Force Participation, and Employment Rates

Percent of labor force

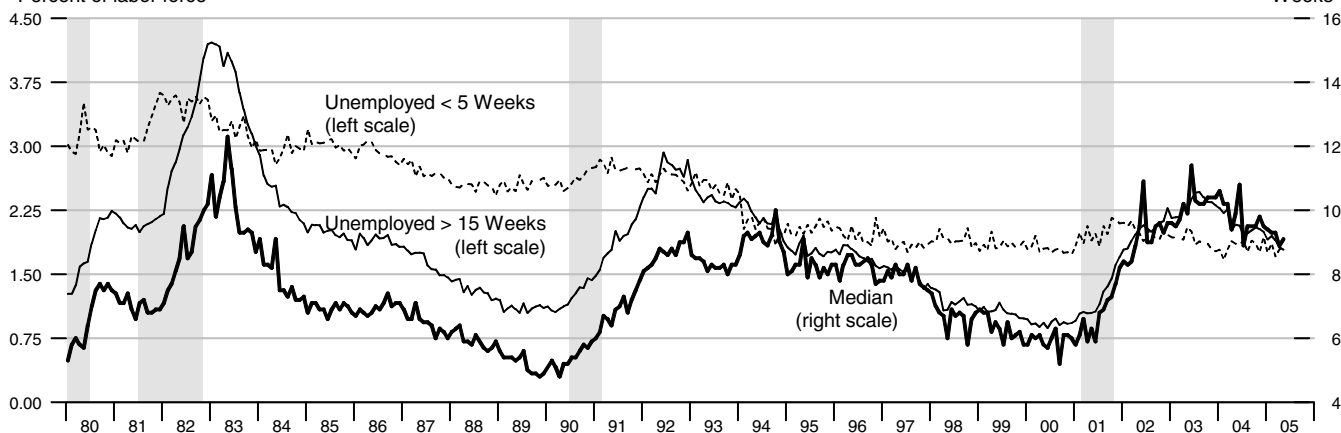
Percent of population



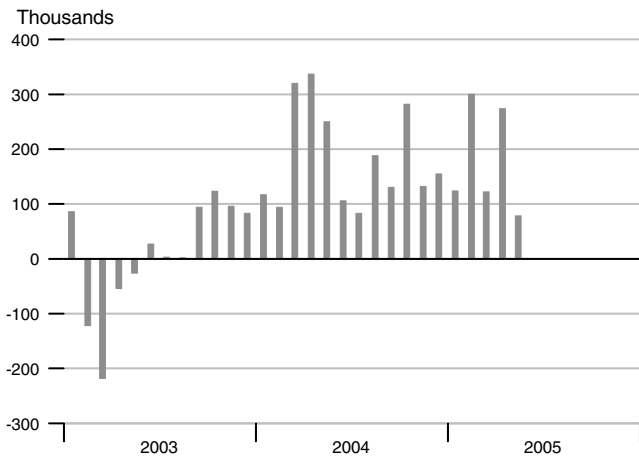
Duration of Unemployment

Percent of labor force

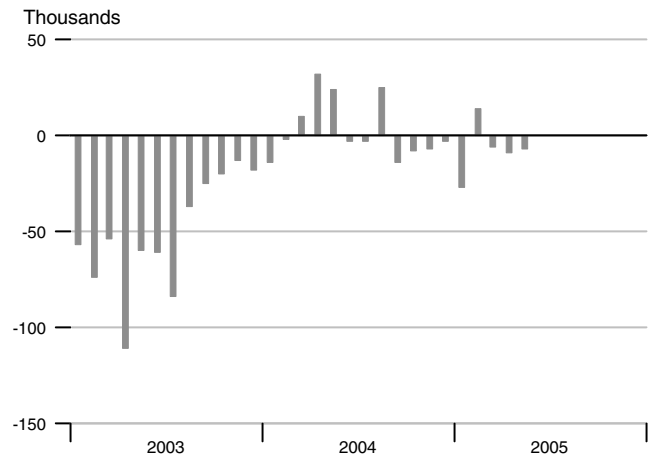
Weeks



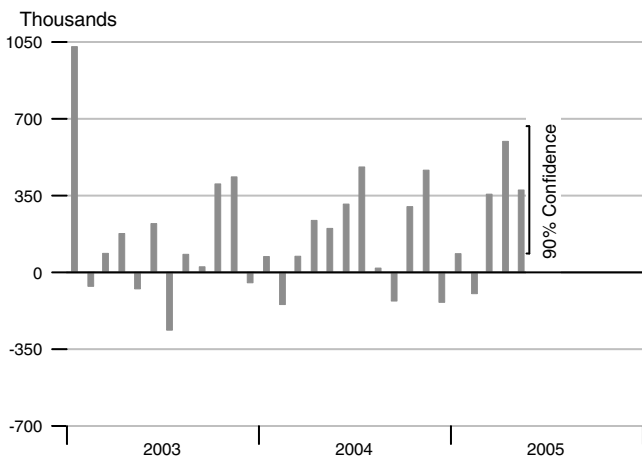
Change in Nonfarm Payrolls



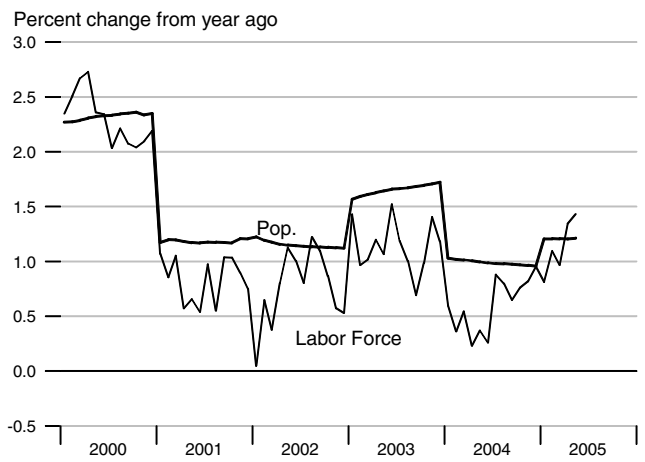
Change in Manufacturing Payrolls



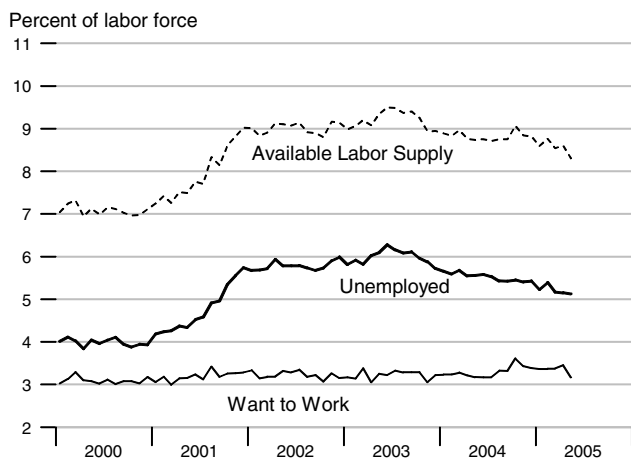
Change in Household Employment



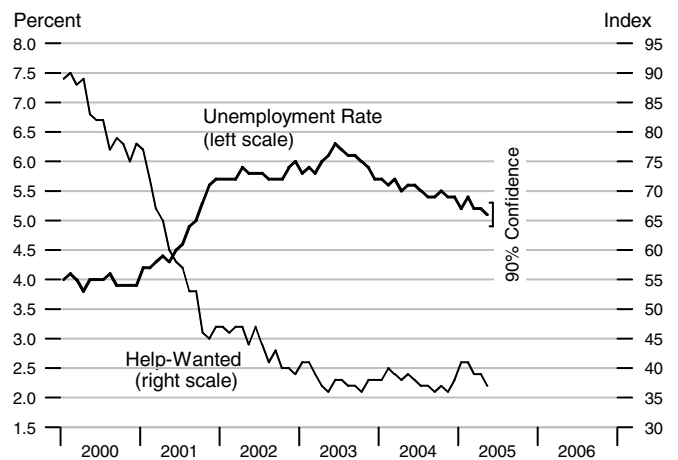
Labor Force and Population



Available Labor Supply and Components

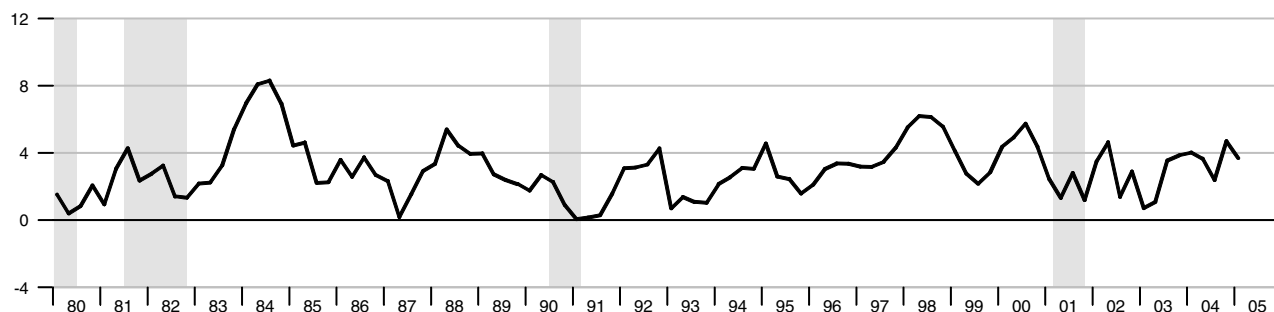


Unemployment Rate & Help-Wanted Index



Real Disposable Personal Income

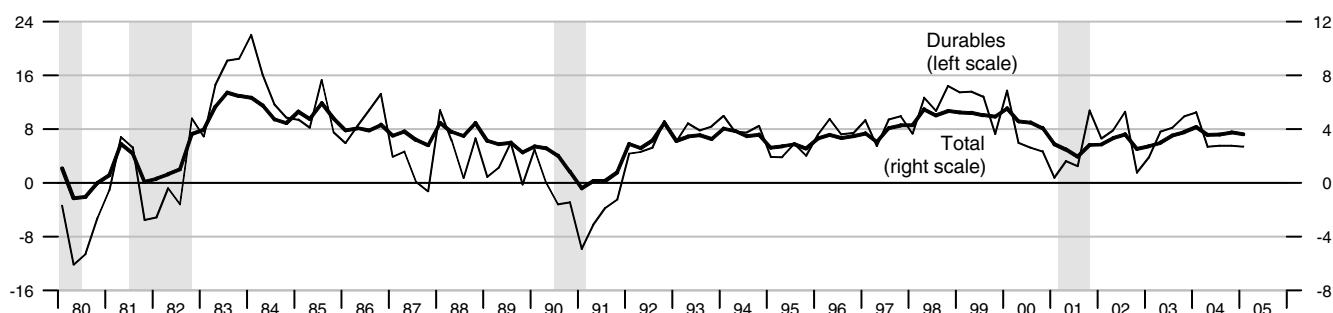
Percent change from year ago, quarterly data



Real Consumption

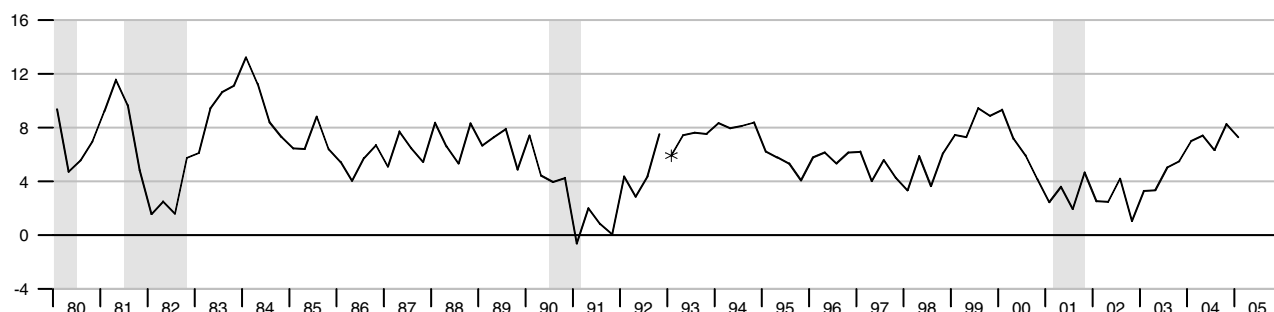
Percent change from year ago, quarterly data

Percent change from year ago, quarterly data



Retail and Food Services Sales

Percent change from year ago, quarterly average

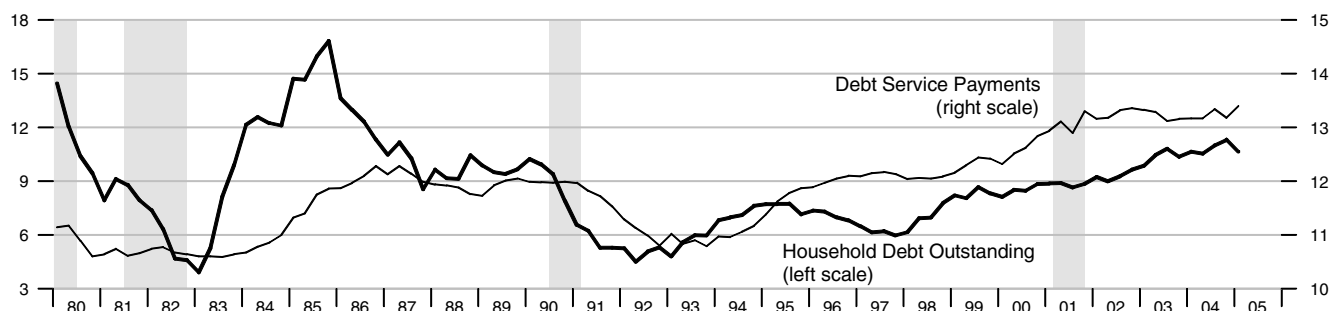


*Data from Jan. 1992 to the present are on a NAICS basis; data prior to Jan. 1992 are on an SIC basis and are not strictly comparable (see End Note).

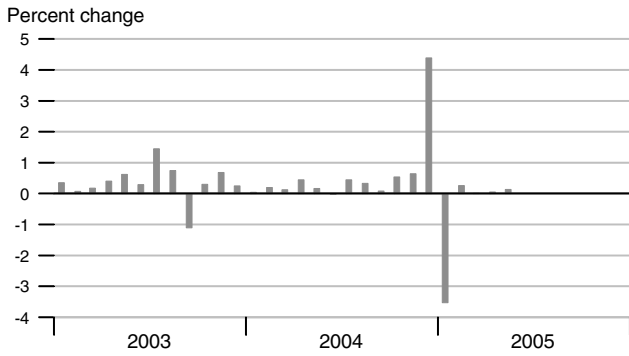
Debt Service Payments and Household Debt Outstanding

Percent change from year ago, quarterly data

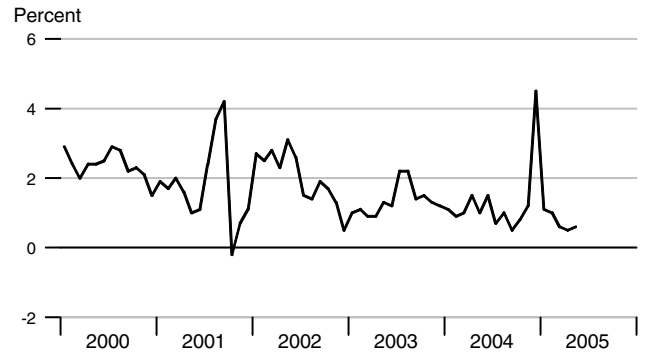
Percent of disposable personal income



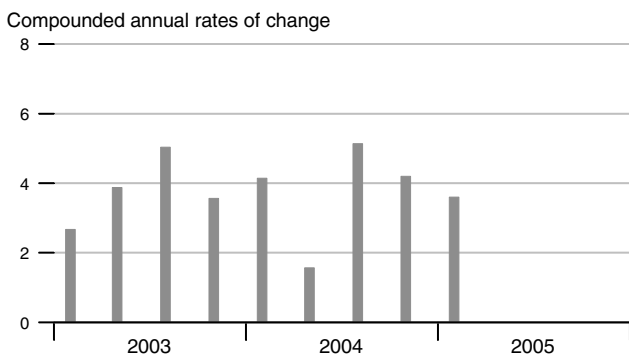
Real Disposable Personal Income



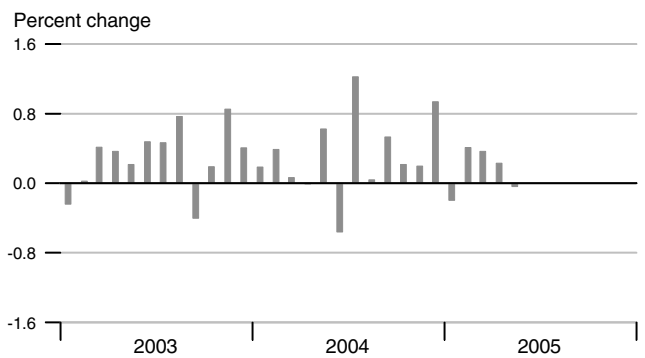
Personal Saving Rate



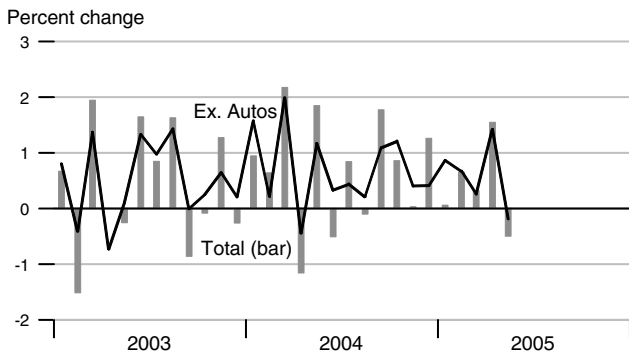
Real Consumption



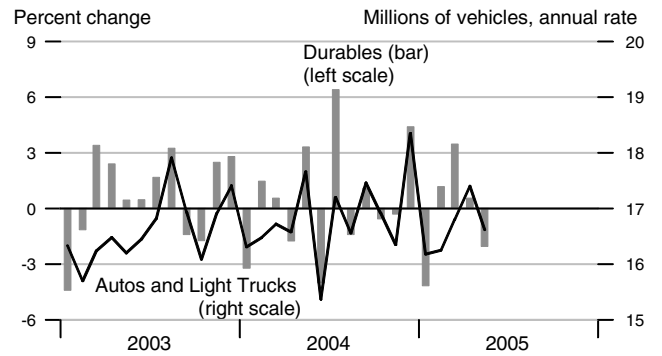
Real Consumption



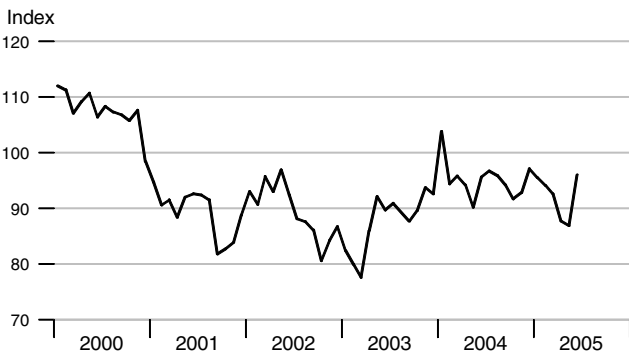
Retail & Food Services



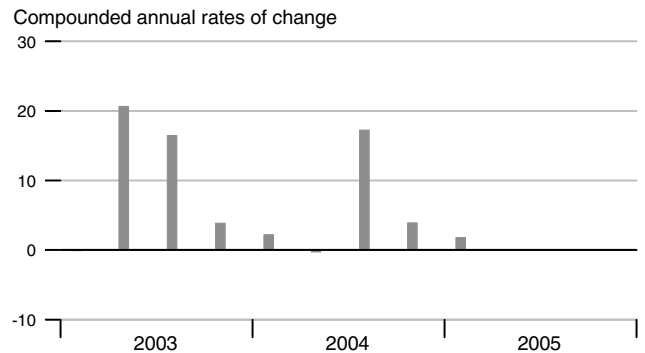
Real Durables Consumption & Vehicle Sales



Consumer Sentiment (U. of Michigan)

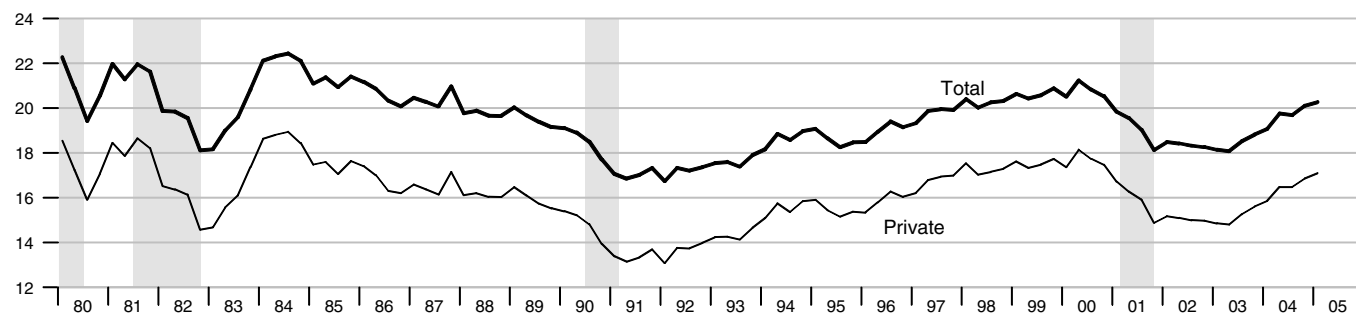


Real Durables Consumption



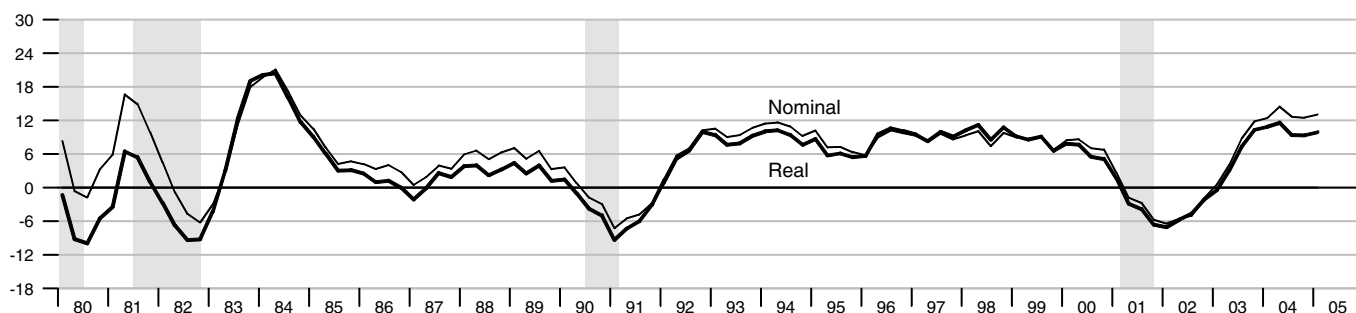
Investment

Percent of nominal GDP



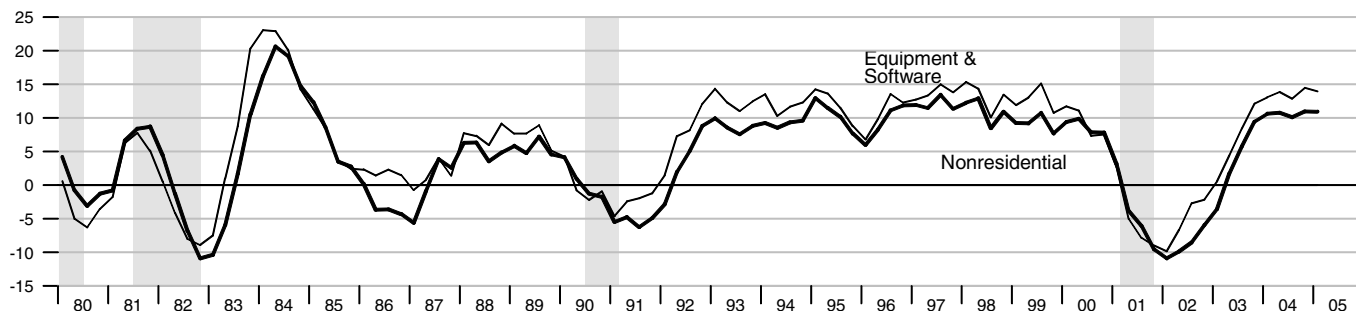
Private Fixed Investment

Percent change from year ago



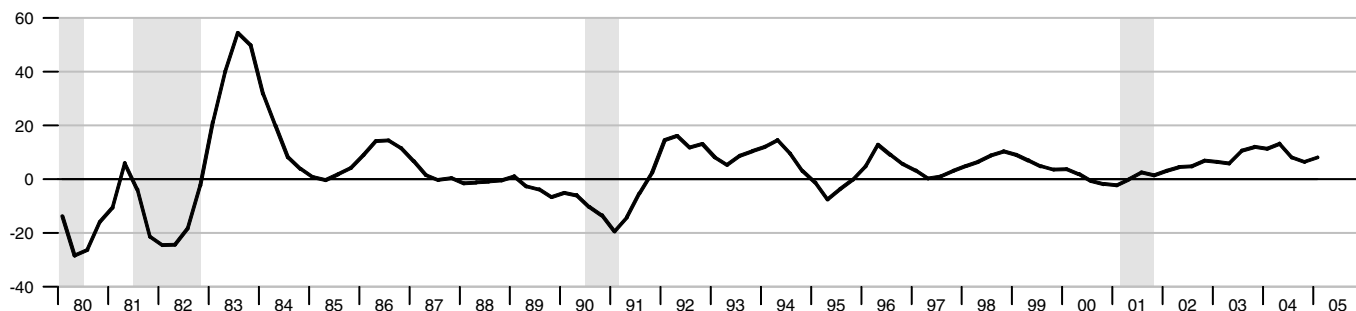
Real Nonresidential Fixed and Equipment & Software Investment

Percent change from year ago

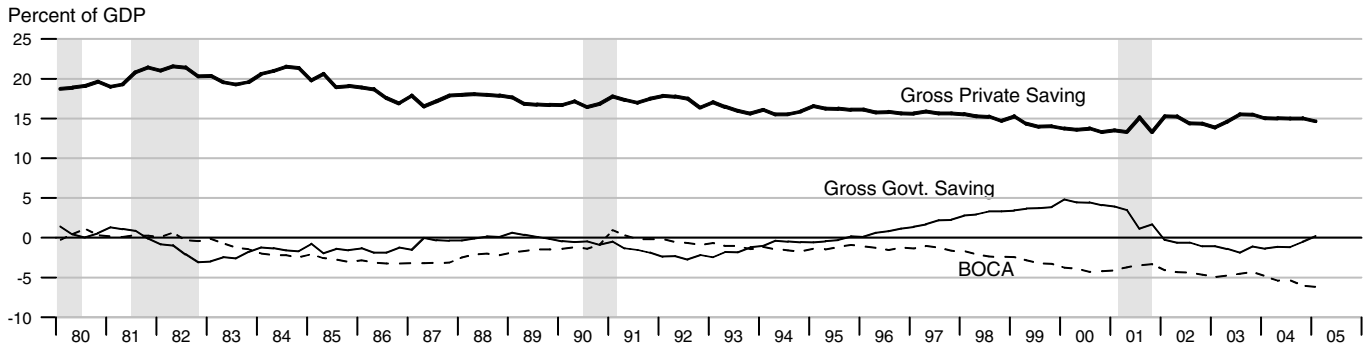


Real Residential Fixed Investment

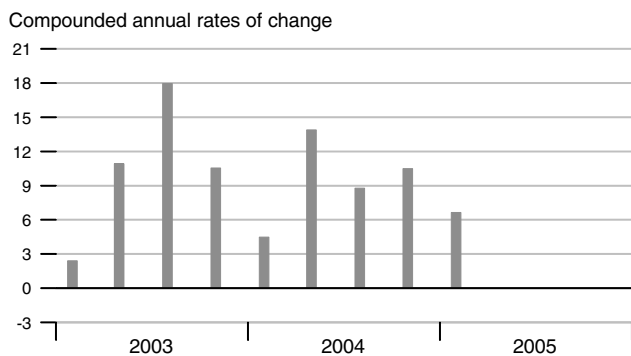
Percent change from year ago



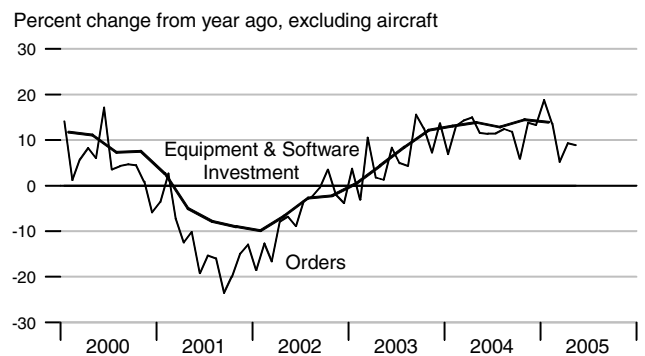
Gross Saving Rates and Balance on Current Account (NIPA)



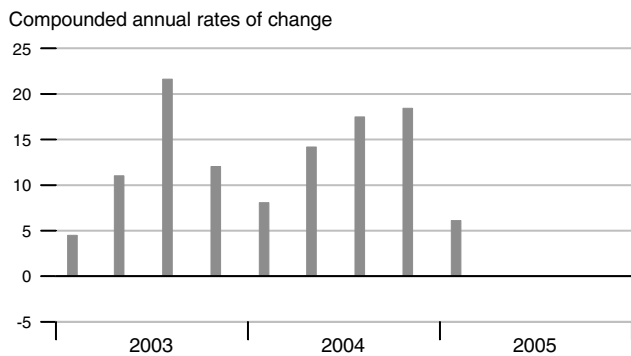
Real Private Fixed Investment



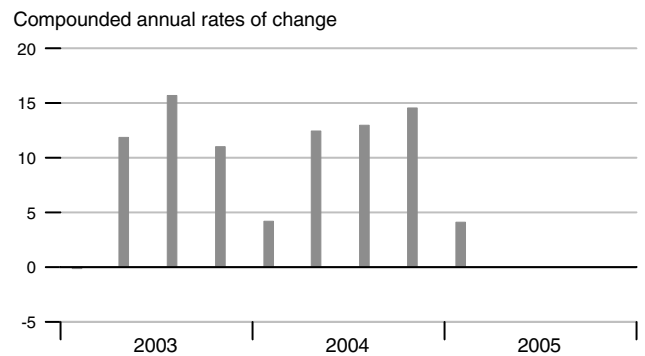
Nondefense Capital Goods Orders



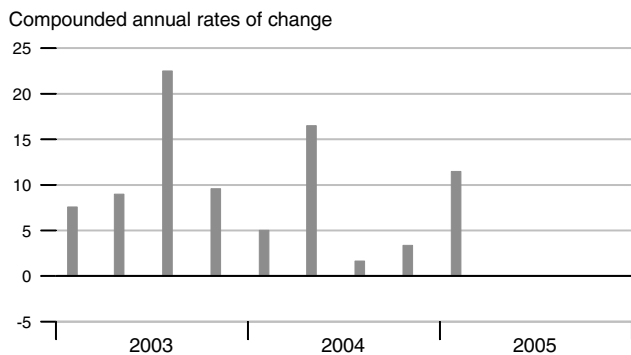
Real Equipment & Software Investment



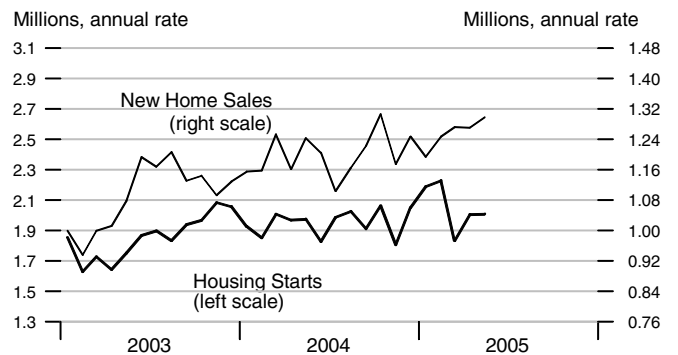
Real Nonresidential Fixed Investment



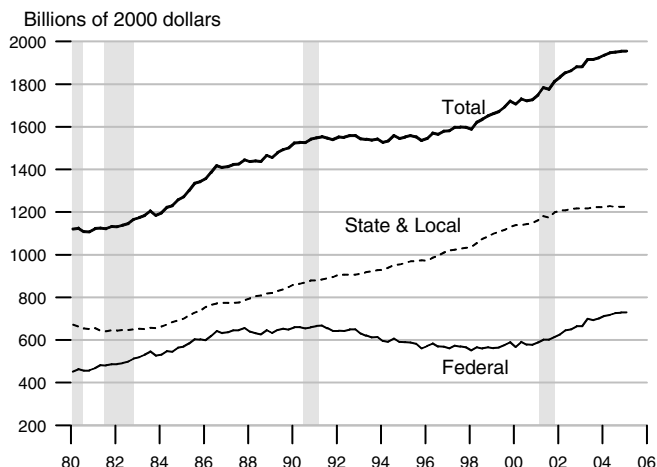
Real Residential Fixed Investment



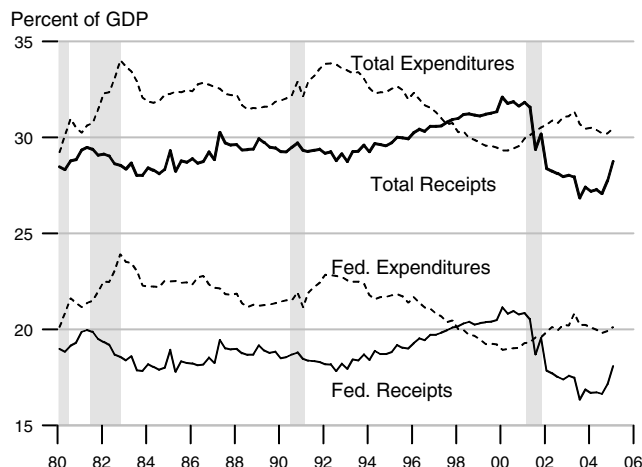
Housing Starts and New Home Sales



Govt. Consumption and Investment



Govt. Current Receipts and Expenditures



Government Budgets

Billions of dollars

National Income Accounts

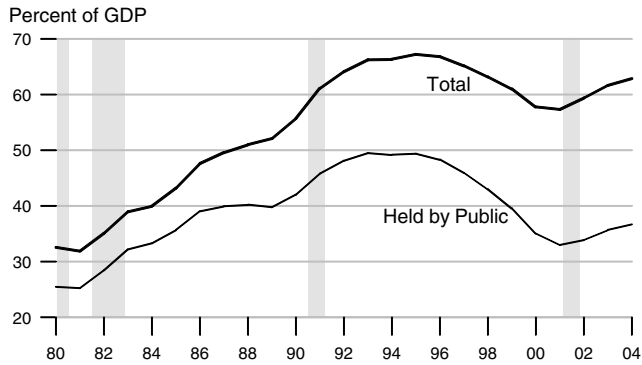
Calendar Years

Unified Budget

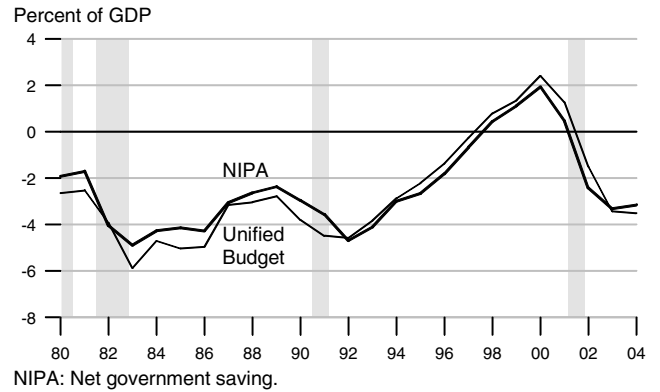
Fiscal Years

	State and Local			Federal			Federal		
	Receipts	Expenditures	Surplus or Deficit (-)	Receipts	Expenditures	Surplus or Deficit (-)	Receipts	Outlays	Surplus or Deficit (-)
1991	789.2	793.3	-4.1	1101.3	1315.0	-213.7	1055.0	1324.3	-269.3
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	1154.4	1409.5	-255.1
1994	942.9	932.4	10.5	1320.8	1533.1	-212.3	1258.6	1461.9	-203.2
1995	990.2	978.2	12.0	1406.5	1603.5	-197.0	1351.8	1515.8	-164.0
1996	1043.3	1017.5	25.8	1524.0	1665.8	-141.8	1453.1	1560.5	-107.5
1997	1097.4	1058.3	39.1	1653.1	1708.9	-55.8	1579.3	1601.2	-21.9
1998	1163.2	1111.2	52.0	1773.8	1734.9	38.9	1721.8	1652.6	69.2
1999	1236.7	1186.3	50.4	1891.2	1787.6	103.6	1827.5	1701.9	125.5
2000	1319.5	1269.5	50.0	2053.8	1864.4	189.4	2025.2	1789.1	236.2
2001	1373.0	1368.2	4.8	2016.2	1969.5	46.7	1991.2	1863.0	128.2
2002	1411.9	1436.9	-25.0	1847.3	2101.8	-254.5	1853.2	2011.0	-157.8
2003	1494.9	1498.1	-3.2	1877.0	2241.6	-364.6	1782.3	2159.9	-377.6
2004	1585.3	1567.8	17.5	1971.8	2341.2	-369.4	1880.1	2292.2	-412.1
2003Q1	1437.7	1486.6	-48.9	1888.6	2170.2	-281.6	397.8	541.7	-143.9
2003Q2	1484.6	1490.2	-5.6	1902.5	2266.9	-364.4	527.7	545.9	-18.3
2003Q3	1511.4	1504.9	6.5	1816.4	2249.4	-433.0	429.5	533.8	-104.3
2003Q4	1545.8	1510.5	35.3	1900.6	2279.8	-379.2	440.8	570.9	-130.2
2004Q1	1550.6	1538.8	11.8	1915.3	2306.3	-391.0	409.6	580.8	-171.2
2004Q2	1583.9	1565.7	18.2	1949.1	2329.1	-380.0	549.9	575.7	-25.8
2004Q3	1574.7	1570.2	4.5	1965.8	2340.8	-375.0	479.5	565.2	-85.7
2004Q4	1632.0	1596.4	35.6	2057.0	2388.7	-331.7	487.2	605.2	-118.1
2005Q1	1660.1	1625.5	34.6	2204.7	2453.7	-249.0	451.8	628.4	-176.6

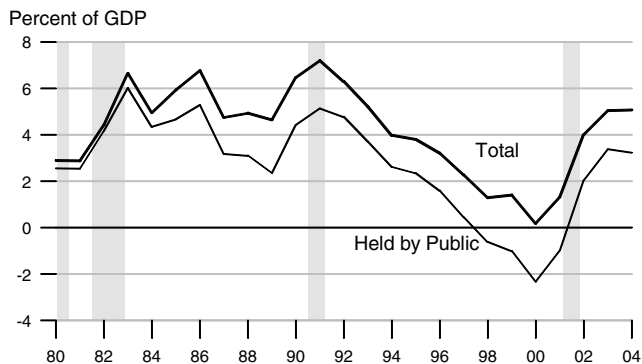
Federal Debt



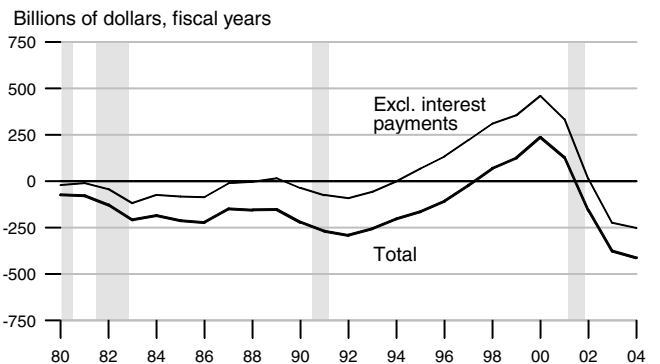
Federal Surplus (+) / Deficit (-)



Change in Federal Debt



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

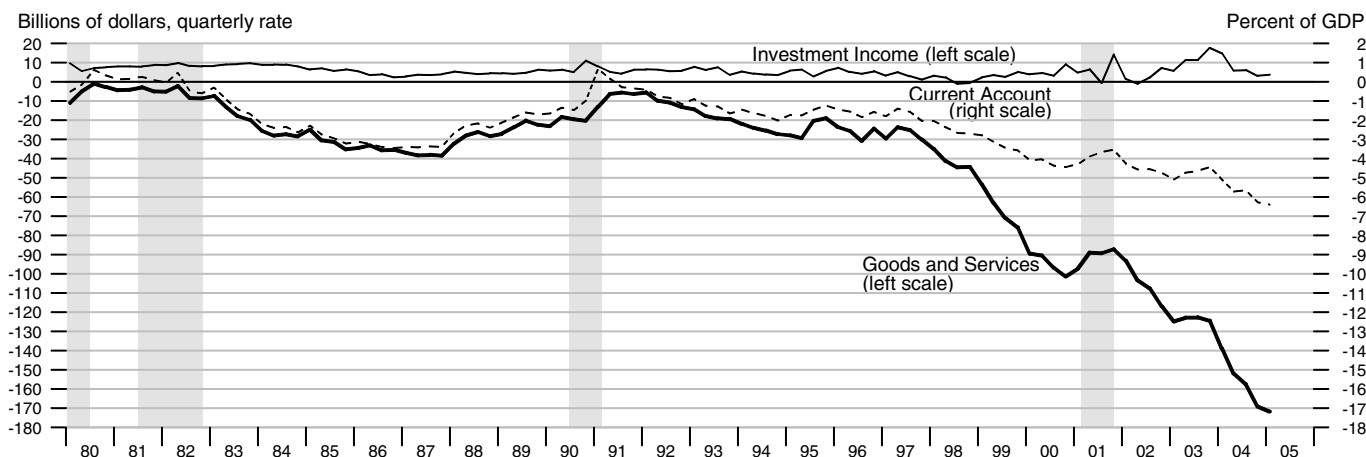


Federal Government Debt

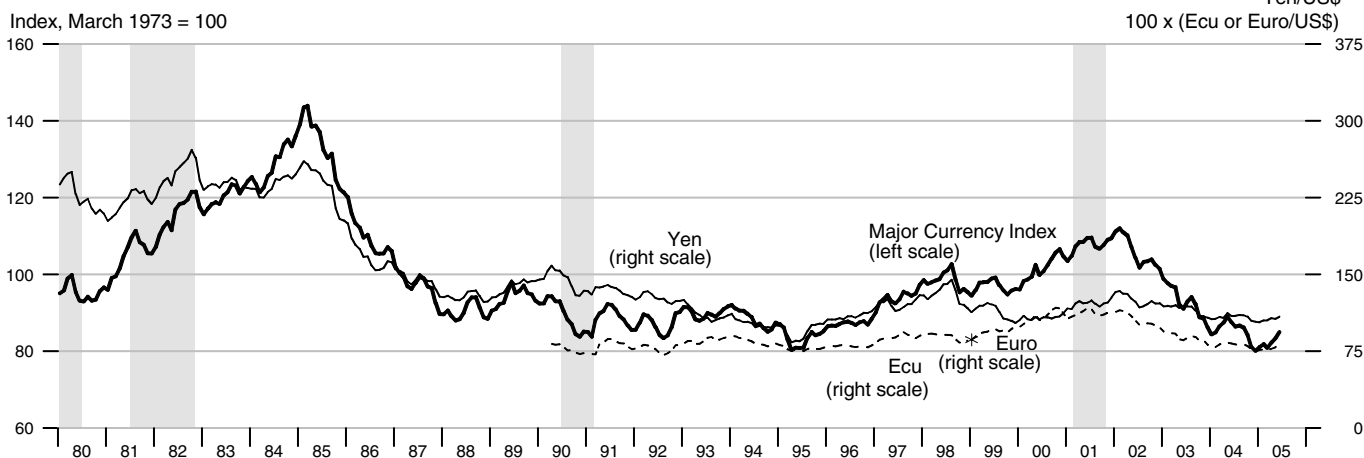
Billions of dollars, end of month or fiscal year
Excludes Agency-issued debt

	Total Public Debt	Held by Agencies and Trusts	Held by Public		Held by Private Investors	
			Total	Federal Reserve Banks	Total	Foreign and International
2002	6228.2	2675.7	3552.6	604.2	2924.8	1200.8
2003	6783.2	2859.3	3923.9	656.1	3268.0	1458.5
2004	7379.1	3075.7	4303.4	700.3	3607.0	1884.4
2002 March	6006.0	2562.4	3443.7	575.4	2849.2	1067.1
June	6126.5	2662.9	3463.5	590.7	2849.8	1135.4
September	6228.2	2675.7	3552.6	604.2	2924.8	1200.8
December	6405.7	2758.3	3647.4	629.4	3018.5	1246.8
2003 March	6460.8	2750.0	3710.8	641.5	3069.9	1285.9
June	6670.1	2853.8	3816.3	652.1	3164.7	1382.8
September	6783.2	2859.3	3923.9	656.1	3268.0	1458.5
December	6998.0	2954.5	4044.1	666.7	3377.9	1537.6
2004 March	7131.1	2954.4	4176.7	674.1	3502.8	1681.7
June	7274.3	3055.6	4218.7	687.4	3531.5	1827.9
September	7379.1	3075.7	4303.4	700.3	3607.0	1884.4
December	7596.1	3189.1	4407.1	717.8	3667.1	1944.2
2005 March	7776.9	3204.5	4572.4	717.3	3855.4	2037.0

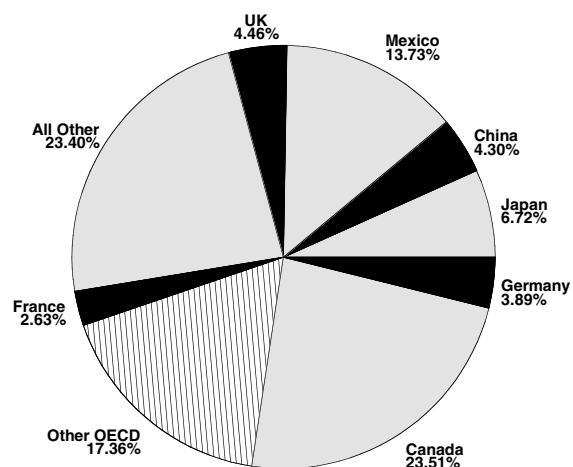
Current Account, Trade and Investment Income Balances



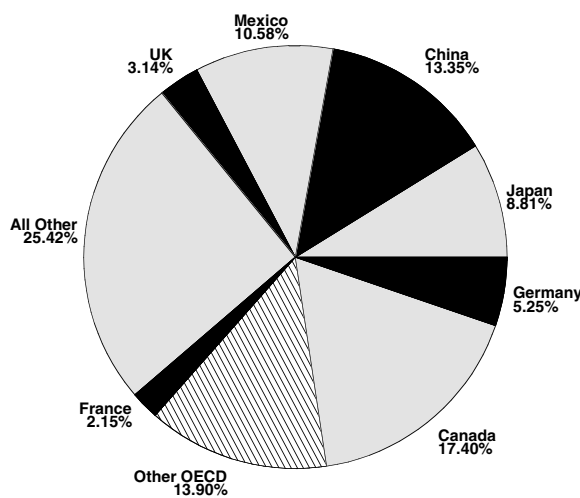
Exchange Rates



Goods Export Shares, 2004



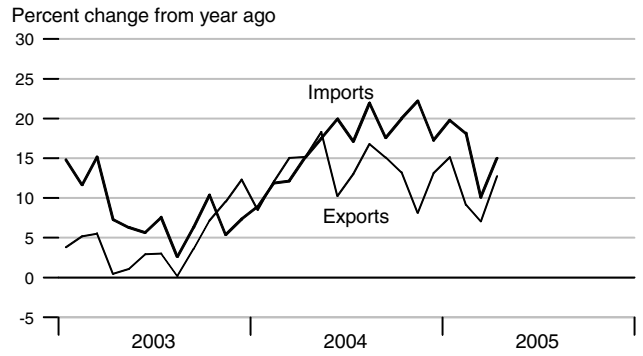
Goods Import Shares, 2004



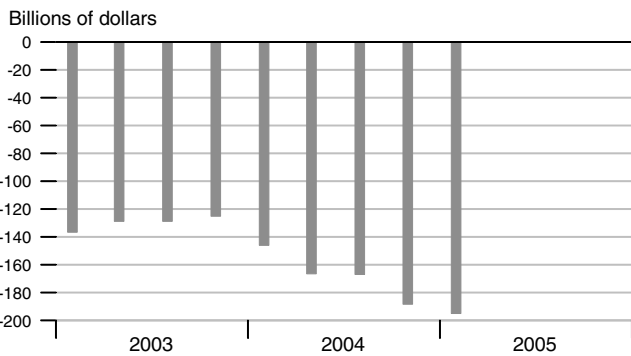
Trade Balance



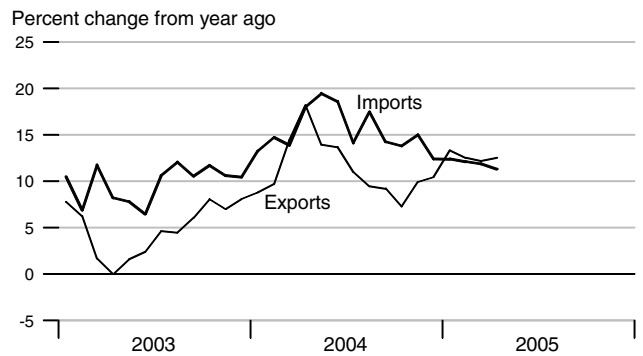
Goods Trade



Current Account Balance



Services Trade



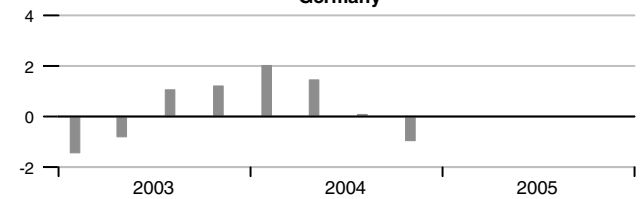
Real GDP Growth of Major Trading Partners

Compounded annual rates of change

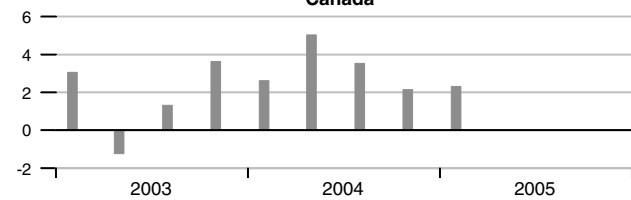
United Kingdom



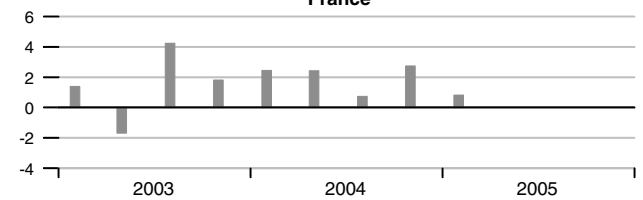
Germany



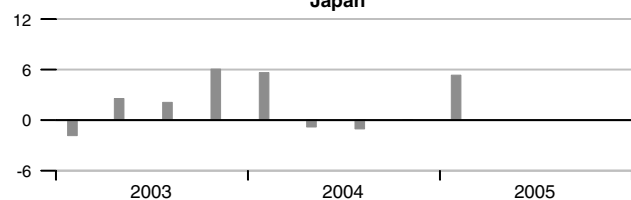
Canada



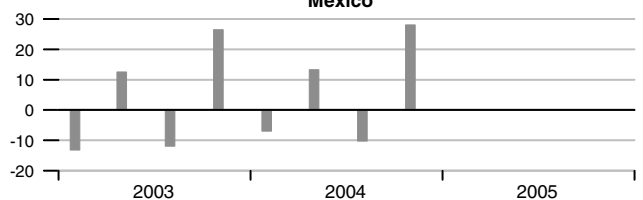
France



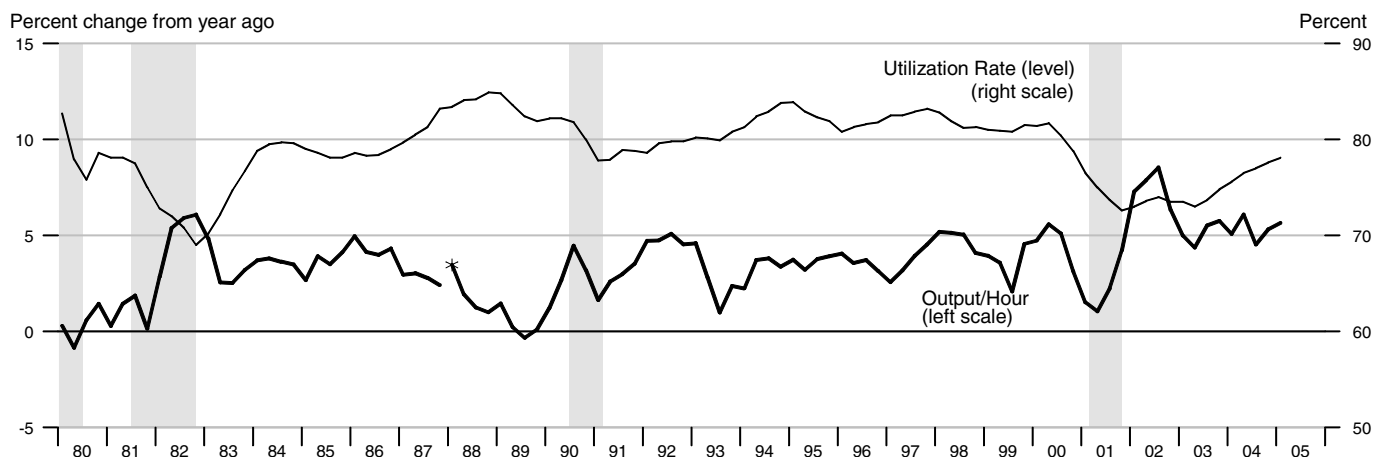
Japan



Mexico

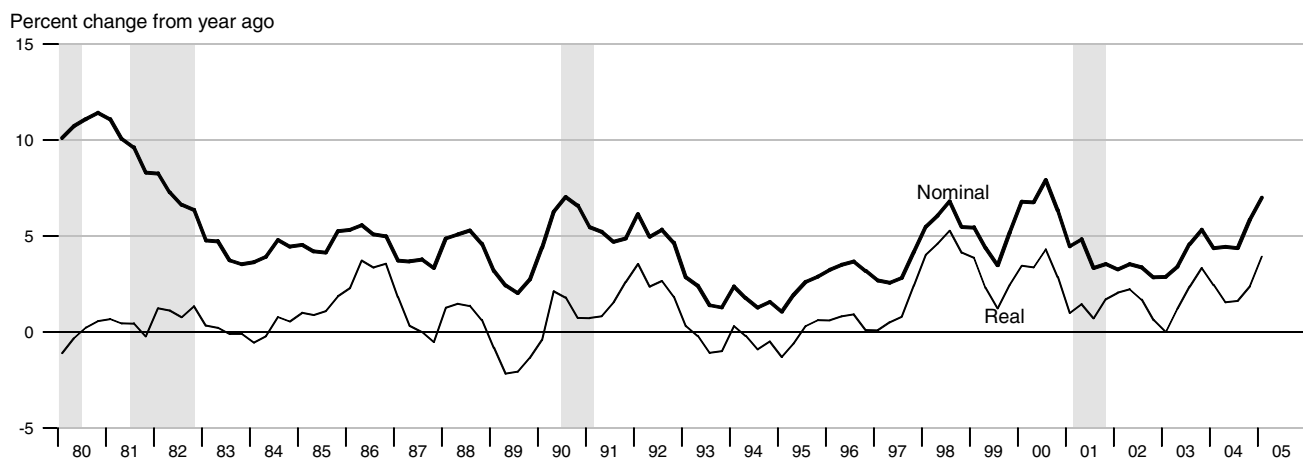


Output per Hour and Capacity Utilization, Manufacturing

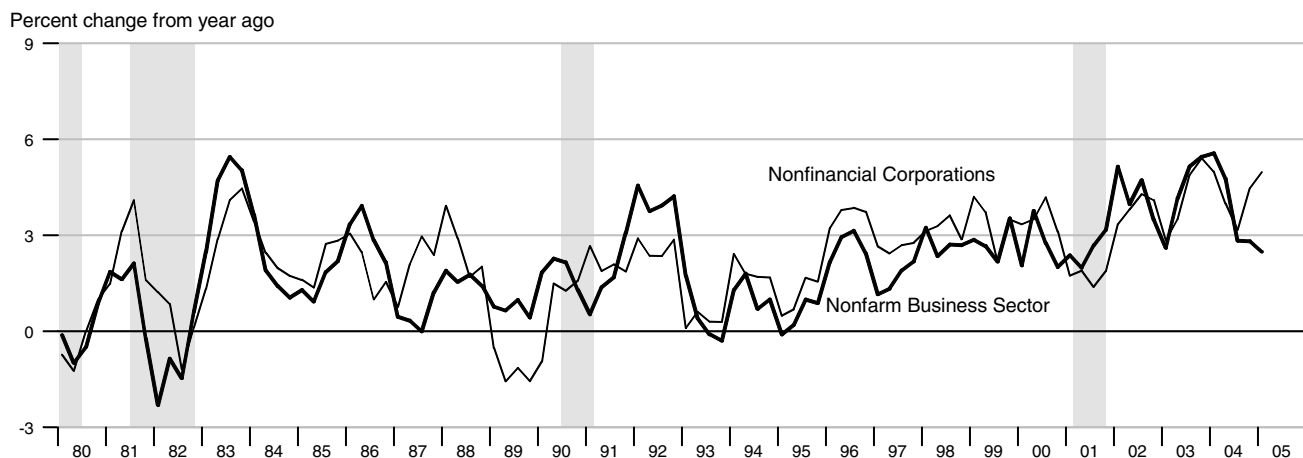


*Data from 1987 to the present are on a NAICS basis; data prior to 1987 are on an SIC basis and are not strictly comparable (see End Note).

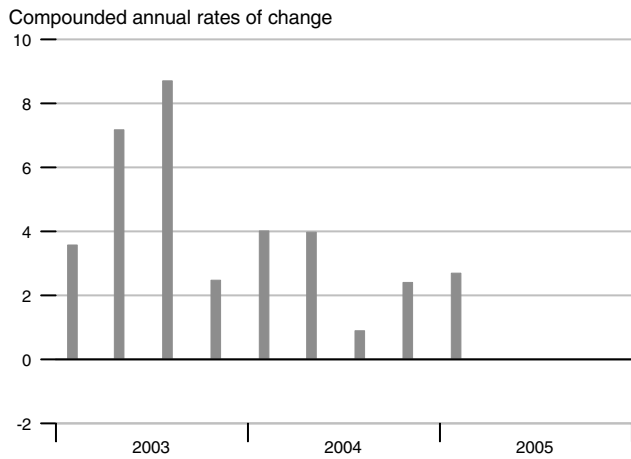
Nonfarm Compensation per Hour



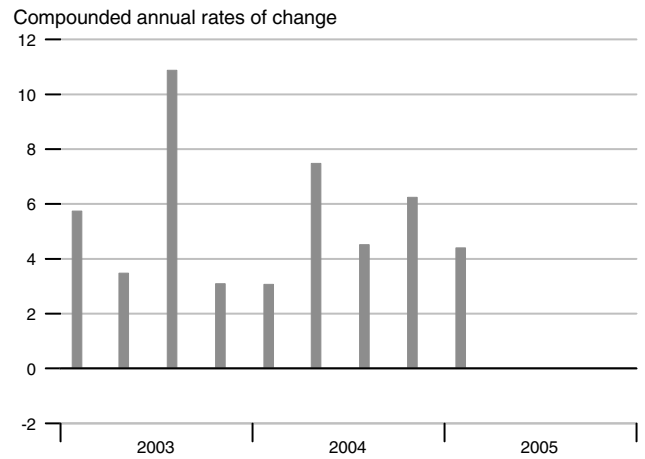
Output per Hour, Nonfarm Business and Nonfinancial Corporations



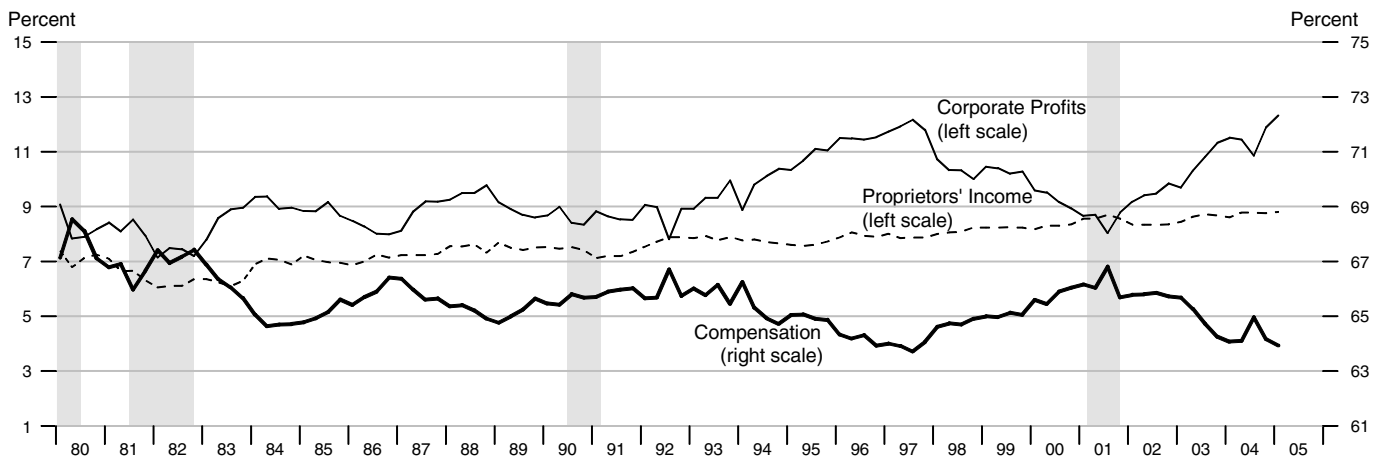
Nonfarm Output per Hour



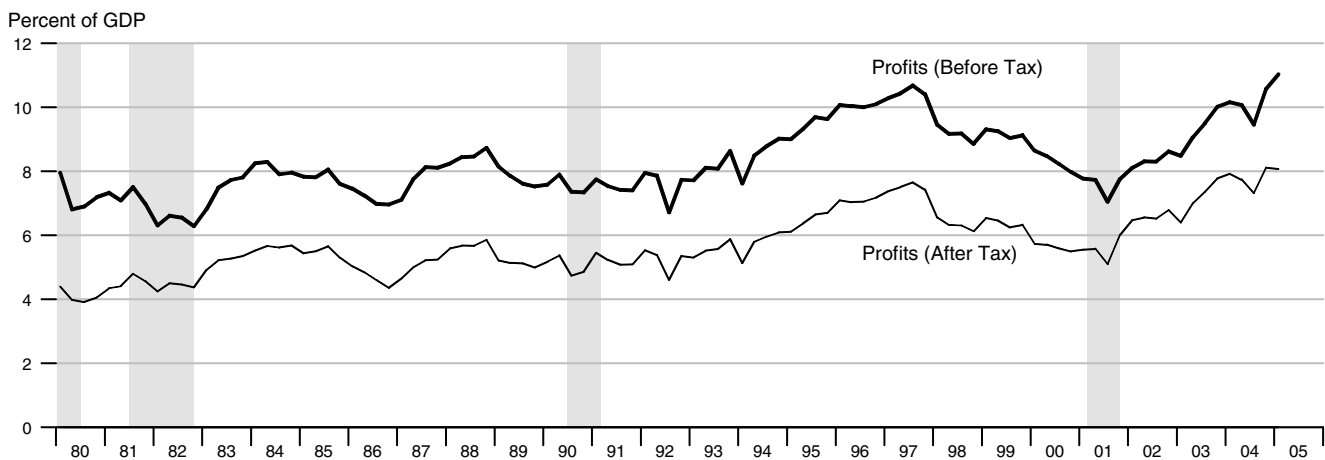
Manufacturing Output per Hour



Selected Component Shares of National Income



Corporate Profits



	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	
2001	10128.0		3.2	9890.694		0.8	9920.940		1.6		-31.720	
2002	10487.0		3.5	10074.763		1.9	10063.248		1.4		11.736	
2003	11004.0		4.9	10381.347		3.0	10379.878		3.1		-0.753	
2004	11735.0		6.6	10841.885		4.4	10794.576		4.0		45.686	
2002 1	10338.2	4.4	3.2	9993.478	3.4	1.2	10000.391	0.3	1.2	-7.403	-31.630	
2	10445.7	4.2	3.1	10052.576	2.4	1.5	10044.898	1.8	1.4	7.893	-29.042	
3	10546.5	3.9	4.1	10117.270	2.6	2.5	10095.165	2.0	2.0	22.687	-15.886	
4	10617.5	2.7	3.8	10135.922	0.7	2.3	10112.538	0.7	1.2	23.765	11.736	
2003 1	10744.6	4.9	3.9	10184.418	1.9	1.9	10173.346	2.4	1.7	9.585	15.983	
2	10884.0	5.3	4.2	10287.398	4.1	2.3	10302.477	5.2	2.6	-17.629	9.602	
3	11116.7	8.8	5.4	10472.841	7.4	3.5	10473.871	6.8	3.8	-3.524	3.049	
4	11270.9	5.7	6.2	10580.729	4.2	4.4	10569.622	3.7	4.5	8.556	-0.753	
2004 1	11472.6	7.4	6.8	10697.453	4.5	5.0	10655.807	3.3	4.7	40.020	6.856	
2	11657.5	6.6	7.1	10784.726	3.3	4.8	10722.276	2.5	4.1	61.073	26.531	
3	11814.9	5.5	6.3	10891.044	4.0	4.0	10854.725	5.0	3.6	34.502	36.038	
4	11994.8	6.2	6.4	10994.318	3.8	3.9	10945.498	3.4	3.6	47.150	45.686	
2005 1	12191.7	6.7	6.3	11096.218	3.8	3.7	11027.876	3.0	3.5	66.823	52.387	
	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
2001	6910.356		2.5	900.682		4.3	1629.396		-3.0	1180.536		-4.2
2002	7123.388		3.1	959.587		6.5	1548.906		-4.9	1075.625		-8.9
2003	7355.559		3.3	1030.621		7.4	1627.331		5.1	1110.801		3.3
2004	7632.548		3.8	1099.340		6.7	1794.443		10.3	1228.624		10.6
2002 1	7049.659	1.8	2.9	937.779	-8.5	6.6	1559.618	-4.3	-7.1	1099.786	-9.7	-10.9
2	7099.193	2.8	3.3	947.837	4.4	7.8	1545.867	-3.5	-5.8	1072.360	-9.6	-9.9
3	7149.941	2.9	3.6	979.297	14.0	10.6	1546.622	0.2	-4.6	1069.502	-1.1	-8.5
4	7194.623	2.5	2.5	973.443	-2.4	1.5	1543.516	-0.8	-2.1	1060.853	-3.2	-6.0
2003 1	7242.203	2.7	2.7	973.236	-0.1	3.8	1552.700	2.4	-0.4	1060.508	-0.1	-3.6
2	7311.416	3.9	3.0	1019.985	20.6	7.6	1593.382	10.9	3.1	1090.607	11.8	1.7
3	7401.724	5.0	3.5	1059.586	16.5	8.2	1660.574	18.0	7.4	1131.069	15.7	5.8
4	7466.826	3.6	3.8	1069.678	3.9	9.9	1702.683	10.5	10.3	1161.045	11.0	9.4
2004 1	7543.049	4.1	4.2	1075.462	2.2	10.5	1721.437	4.5	10.9	1172.984	4.2	10.6
2	7572.365	1.6	3.6	1074.685	-0.3	5.4	1778.254	13.9	11.6	1207.938	12.5	10.8
3	7667.795	5.1	3.6	1118.258	17.2	5.5	1816.148	8.8	9.4	1245.319	13.0	10.1
4	7746.982	4.2	3.8	1128.954	3.9	5.5	1861.934	10.5	9.4	1288.257	14.5	11.0
2005 1	7815.791	3.6	3.6	1133.996	1.8	5.4	1892.055	6.6	9.9	1301.317	4.1	10.9

	GDP Chain Price Index			Employment Cost Index			ECI: Wages			ECI: Benefits		
	Index	Percent change		Index	Percent change		Index	Percent change		Index	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
2001	102.402		2.4	155.0		4.1	151.4		3.7	163.8		5.0
2002	104.097		1.7	160.9		3.8	156.4		3.3	171.7		4.9
2003	106.003		1.8	167.3		4.0	160.9		2.9	182.5		6.3
2004	108.298		2.2	173.9		3.9	165.0		2.5	195.4		7.1
2002 1	103.470	1.4	1.9	158.8	3.3	4.0	154.8	3.7	3.5	168.3	2.7	4.7
2	103.853	1.5	1.5	160.5	4.4	4.1	156.2	3.7	3.6	170.6	5.6	5.0
3	104.280	1.7	1.5	161.5	2.5	3.7	156.9	1.8	3.2	172.7	5.0	4.9
4	104.786	2.0	1.6	162.8	3.3	3.4	157.7	2.1	2.8	175.2	5.9	4.8
2003 1	105.490	2.7	2.0	165.0	5.5	3.9	159.3	4.1	2.9	178.5	7.7	6.1
2	105.780	1.1	1.9	166.4	3.4	3.7	160.3	2.5	2.6	180.9	5.5	6.0
3	106.158	1.4	1.8	168.2	4.4	4.1	161.6	3.3	3.0	183.9	6.8	6.5
4	106.586	1.6	1.7	169.6	3.4	4.2	162.5	2.2	3.0	186.7	6.2	6.6
2004 1	107.314	2.8	1.7	171.5	4.6	3.9	163.5	2.5	2.6	190.9	9.3	6.9
2	108.169	3.2	2.3	173.1	3.8	4.0	164.5	2.5	2.6	194.1	6.9	7.3
3	108.551	1.4	2.3	174.8	4.0	3.9	165.7	3.0	2.5	196.7	5.5	7.0
4	109.159	2.3	2.4	176.2	3.2	3.9	166.4	1.7	2.4	199.9	6.7	7.1
2005 1	109.938	2.9	2.4	177.3	2.5	3.4	167.4	2.4	2.4	202.0	4.3	5.8
	Exports			Imports			Nonfarm Output per Hour			Nonfarm Compensation per Hour		
	Billions of 2000 \$	Percent change		Billions of 2000 \$	Percent change		Index	Percent change		Index	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
2001	1036.699		-5.4	1435.782		-2.7	118.5		2.5	139.3		4.0
2002	1012.340		-2.3	1484.393		3.4	123.6		4.3	143.8		3.2
2003	1031.777		1.9	1550.256		4.4	129.0		4.4	149.6		4.0
2004	1120.348		8.6	1704.034		9.9	134.2		4.0	156.8		4.8
2002 1	991.576	4.7	-9.6	1436.505	12.5	-3.9	122.6	7.2	5.1	142.5	5.5	3.3
2	1017.799	11.0	-4.0	1475.922	11.4	2.1	122.9	1.0	4.0	143.8	3.7	3.5
3	1025.517	3.1	1.7	1495.314	5.4	6.3	124.3	4.6	4.7	144.2	1.1	3.4
4	1014.456	-4.2	3.5	1529.847	9.6	9.7	124.7	1.3	3.5	144.6	1.1	2.8
2003 1	1010.575	-1.5	1.9	1522.261	-2.0	6.0	125.8	3.6	2.6	146.6	5.6	2.9
2	1006.529	-1.6	-1.1	1531.721	2.5	3.8	128.0	7.2	4.1	148.7	5.9	3.4
3	1033.794	11.3	0.8	1542.494	2.8	3.2	130.7	8.7	5.1	150.8	5.8	4.6
4	1076.220	17.5	6.1	1604.520	17.1	4.9	131.5	2.5	5.5	152.3	4.0	5.3
2004 1	1095.449	7.3	8.4	1645.531	10.6	8.1	132.8	4.0	5.6	153.0	1.9	4.4
2	1114.809	7.3	10.8	1695.087	12.6	10.7	134.1	4.0	4.8	155.3	6.2	4.4
3	1131.100	6.0	9.4	1714.346	4.6	11.1	134.4	0.9	2.8	157.4	5.5	4.4
4	1140.035	3.2	5.9	1761.172	11.4	9.8	135.2	2.4	2.8	161.2	10.0	5.8
2005 1	1164.635	8.9	6.3	1802.124	9.6	9.5	136.1	2.7	2.5	163.7	6.3	7.0

		Household Survey Employment				Nonfarm Payroll Employment				Nonfarm Aggregate Hours			
		Thousands	Change	Percent change		Thousands	Change	Percent change		Index	Percent change		
				Annual rate	Year ago			Annual rate	Year ago		Monthly rate	Annual rate	Year ago
2000		136901	3400		2.5	131792	2800		2.2	103.5			1.8
2001		136940	40		0.0	131833	41		0.0	102.1			-1.4
2002		136483	-458		-0.3	130345	-1487		-1.1	100.0			-2.0
2003		137734	1252		0.9	129999	-347		-0.3	98.6			-1.4
2004		139248	1513		1.1	131475	1476		1.1	100.3			1.7
2003	1	137415	773	2.3	1.0	130093	-169	-0.5	-0.3	99.0	-0.4	-1.7	-1.3
	2	137652	237	0.7	0.9	129845	-248	-0.8	-0.4	98.3	-0.8	-3.1	-2.0
	3	137574	-77	-0.2	0.5	129890	45	0.1	-0.3	98.3	0.1	0.3	-1.5
	4	138296	722	2.1	1.2	130168	278	0.9	-0.1	98.8	0.5	2.0	-0.6
2004	1	138408	112	0.3	0.7	130541	374	1.2	0.3	99.3	0.5	2.0	0.3
	2	138883	475	1.4	0.9	131325	784	2.4	1.1	100.0	0.6	2.6	1.7
	3	139608	725	2.1	1.5	131731	406	1.2	1.4	100.6	0.6	2.4	2.3
	4	140092	484	1.4	1.3	132302	571	1.7	1.6	101.2	0.6	2.4	2.4
2005	1	140295	203	0.6	1.4	132814	512	1.6	1.7	101.7	0.6	2.3	2.4
2003	May	137552	-76	-0.7	0.7	129827	-26	-0.2	-0.4	98.2	-0.1	-1.2	-2.0
	Jun	137775	223	2.0	1.0	129854	27	0.2	-0.4	98.3	0.1	1.2	-1.8
	Jul	137511	-264	-2.3	0.8	129857	3	0.0	-0.3	98.3	0.0	0.0	-1.4
	Aug	137593	82	0.7	0.6	129859	2	0.0	-0.3	98.3	0.0	0.0	-1.6
	Sep	137619	26	0.2	0.2	129953	94	0.9	-0.2	98.4	0.1	1.2	-1.5
	Oct	138022	403	3.6	0.7	130076	123	1.1	-0.2	98.8	0.4	5.0	-0.8
	Nov	138457	435	3.8	1.4	130172	96	0.9	-0.1	99.1	0.3	3.7	-0.4
	Dec	138409	-48	-0.4	1.5	130255	83	0.8	0.1	98.6	-0.5	-5.9	-0.7
2004	Jan	138481	72	0.6	0.8	130372	117	1.1	0.1	99.3	0.7	8.9	0.0
	Feb	138334	-147	-1.3	0.7	130466	94	0.9	0.3	99.4	0.1	1.2	0.5
	Mar	138408	74	0.6	0.7	130786	320	3.0	0.7	99.3	-0.1	-1.2	0.4
	Apr	138645	237	2.1	0.7	131123	337	3.1	1.0	99.7	0.4	4.9	1.4
	May	138846	201	1.8	0.9	131373	250	2.3	1.2	100.3	0.6	7.5	2.1
	Jun	139158	312	2.7	1.0	131479	106	1.0	1.3	99.9	-0.4	-4.7	1.6
	Jul	139639	481	4.2	1.5	131562	83	0.8	1.3	100.3	0.4	4.9	2.0
	Aug	139658	19	0.2	1.5	131750	188	1.7	1.5	100.5	0.2	2.4	2.2
	Sep	139527	-131	-1.1	1.4	131880	130	1.2	1.5	100.9	0.4	4.9	2.5
	Oct	139827	300	2.6	1.3	132162	282	2.6	1.6	101.2	0.3	3.6	2.4
	Nov	140293	466	4.1	1.3	132294	132	1.2	1.6	101.1	-0.1	-1.2	2.0
	Dec	140156	-137	-1.2	1.3	132449	155	1.4	1.7	101.2	0.1	1.2	2.6
2005	Jan	140241	85	0.7	1.3	132573	124	1.1	1.7	101.5	0.3	3.6	2.2
	Feb	140144	-97	-0.8	1.3	132873	300	2.7	1.8	101.8	0.3	3.6	2.4
	Mar	140501	357	3.1	1.5	132995	122	1.1	1.7	101.9	0.1	1.2	2.6
	Apr	141099	598	5.2	1.8	133269	274	2.5	1.6	102.5	0.6	7.3	2.8
	May	141475	376	3.2	1.9	133347	78	0.7	1.5	102.6	0.1	1.2	2.3

	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		
2000	4.0	3284.226			6.6	115.380			4.3	5.82	6.03		
2001	4.8	3388.094			3.2	111.266			-3.6	3.39	5.02		
2002	5.8	3474.391			2.5	110.959			-0.3	1.60	4.61		
2003	6.0	3623.849			4.3	110.932			-0.0	1.01	4.02		
2004	5.5	3886.585			7.3	115.528			4.1	1.37	4.27		
2003	1	5.8	884.854	0.9	3.8	3.3	110.825	-0.2	-0.7	0.8	1.16	3.92	
	2	6.1	895.092	1.2	4.7	3.3	109.707	-1.0	-4.0	-1.3	1.04	3.62	
	3	6.1	919.020	2.7	11.1	5.0	110.825	1.0	4.1	-0.7	0.93	4.23	
	4	5.9	924.883	0.6	2.6	5.5	112.369	1.4	5.7	1.2	0.92	4.29	
2004	1	5.7	946.761	2.4	9.8	7.0	113.920	1.4	5.6	2.8	0.92	4.02	
	2	5.6	961.388	1.5	6.3	7.4	115.130	1.1	4.3	4.9	1.08	4.60	
	3	5.4	977.181	1.6	6.7	6.3	115.893	0.7	2.7	4.6	1.49	4.30	
	4	5.4	1001.255	2.5	10.2	8.3	117.168	1.1	4.5	4.3	2.01	4.17	
2005	1	5.3	1015.851	1.5	6.0	7.3	118.188	0.9	3.5	3.7	2.54	4.30	
	2										2.86	4.16	
2003	Jun	6.3	301.370	1.6	21.7	4.0	109.942	0.3	3.4	-1.7	0.92	3.33	
	Jul	6.2	303.921	0.8	10.6	4.1	110.616	0.6	7.6	-1.0	0.90	3.98	
	Aug	6.1	308.875	1.6	21.4	5.1	110.528	-0.1	-1.0	-1.0	0.95	4.45	
	Sep	6.1	306.224	-0.9	-9.8	5.9	111.331	0.7	9.1	-0.3	0.94	4.27	
	Oct	6.0	305.969	-0.1	-1.0	5.3	111.559	0.2	2.5	0.4	0.92	4.29	
	Nov	5.9	309.864	1.3	16.4	6.2	112.657	1.0	12.5	1.3	0.93	4.30	
	Dec	5.7	309.050	-0.3	-3.1	5.1	112.892	0.2	2.5	2.0	0.90	4.27	
2004	Jan	5.7	311.973	0.9	12.0	5.4	113.223	0.3	3.6	2.1	0.88	4.15	
	Feb	5.6	313.973	0.6	8.0	7.7	114.426	1.1	13.5	3.1	0.93	4.08	
	Mar	5.7	320.815	2.2	29.5	7.9	114.110	-0.3	-3.3	3.2	0.94	3.83	
	Apr	5.5	317.103	-1.2	-13.0	6.7	114.736	0.5	6.8	4.7	0.94	4.35	
	May	5.6	322.966	1.8	24.6	8.9	115.534	0.7	8.7	5.4	1.02	4.72	
	Jun	5.6	321.319	-0.5	-6.0	6.6	115.120	-0.4	-4.2	4.7	1.27	4.73	
	Jul	5.5	324.034	0.8	10.6	6.6	115.930	0.7	8.8	4.8	1.33	4.50	
	Aug	5.4	323.700	-0.1	-1.2	4.8	116.036	0.1	1.1	5.0	1.48	4.28	
	Sep	5.4	329.447	1.8	23.5	7.6	115.714	-0.3	-3.3	3.9	1.65	4.13	
	Oct	5.5	332.280	0.9	10.8	8.6	116.649	0.8	10.1	4.6	1.76	4.10	
	Nov	5.4	332.392	0.0	0.4	7.3	116.948	0.3	3.1	3.8	2.07	4.19	
	Dec	5.4	336.583	1.3	16.2	8.9	117.908	0.8	10.3	4.4	2.19	4.23	
2005	Jan	5.2	336.785	0.1	0.7	8.0	117.753	-0.1	-1.6	4.0	2.33	4.22	
	Feb	5.4	338.991	0.7	8.1	8.0	118.303	0.5	5.8	3.4	2.54	4.17	
	Mar	5.2	340.075	0.3	3.9	6.0	118.507	0.2	2.1	3.9	2.74	4.50	
	Apr	5.2	345.339	1.5	20.2	8.9	118.165	-0.3	-3.4	3.0	2.78	4.34	
	May	5.1	343.623	-0.5	-5.8	6.4	118.641	0.4	4.9	2.7	2.84	4.14	
	Jun										2.97	4.00	

		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
2000		172.2			3.4		181.3			2.4		138.0			3.8
2001		177.1			2.8		186.1			2.7		140.7			1.9
2002		179.8			1.6		190.4			2.3		138.9			-1.3
2003		184.0			2.3		193.2			1.5		143.3			3.2
2004		188.9			2.7		196.6			1.8		148.5			3.6
2003	1	183.2	1.0	4.2	2.9	4.2	192.4	0.3	1.4	1.8	1.4	142.7	2.0	8.4	3.3
	2	183.4	0.1	0.4	2.2	2.3	192.8	0.2	0.8	1.5	1.1	142.2	-0.4	-1.5	2.5
	3	184.4	0.5	2.2	2.2	2.2	193.6	0.4	1.6	1.3	1.3	143.5	0.9	3.8	3.4
	4	184.8	0.2	0.9	1.9	1.9	194.1	0.3	1.0	1.2	1.2	144.9	1.0	4.0	3.6
2004	1	186.6	1.0	3.9	1.8	3.9	195.0	0.5	1.9	1.3	1.9	145.9	0.7	2.8	2.2
	2	188.6	1.1	4.4	2.8	4.2	196.2	0.6	2.6	1.8	2.2	148.0	1.4	5.8	4.1
	3	189.4	0.4	1.6	2.7	3.3	197.1	0.4	1.7	1.8	2.1	148.6	0.4	1.6	3.5
	4	191.0	0.9	3.6	3.4	3.4	198.2	0.6	2.3	2.1	2.1	151.6	2.1	8.5	4.6
2005	1	192.2	0.6	2.4	3.0	2.4	199.5	0.6	2.6	2.3	2.6	152.7	0.7	2.8	4.6
2003	May	183.3	-0.1	-1.3	2.1	2.3	192.9	0.2	2.5	1.5	1.1	141.7	-0.4	-4.1	2.5
	Jun	183.4	0.1	0.7	2.1	2.0	193.0	0.1	0.6	1.5	1.0	142.6	0.6	7.9	2.8
	Jul	183.8	0.2	2.6	2.1	2.1	193.4	0.2	2.5	1.5	1.3	142.8	0.1	1.7	3.0
	Aug	184.4	0.3	4.0	2.2	2.3	193.6	0.1	1.2	1.3	1.3	143.6	0.6	6.9	3.5
	Sep	185.0	0.3	4.0	2.3	2.5	193.7	0.1	0.6	1.2	1.2	144.1	0.3	4.3	3.6
	Oct	184.8	-0.1	-1.3	2.0	2.1	194.0	0.2	1.9	1.3	1.3	144.8	0.5	6.0	3.4
	Nov	184.6	-0.1	-1.3	1.8	1.8	194.0	0.0	0.0	1.1	1.1	144.6	-0.1	-1.6	3.4
	Dec	185.0	0.2	2.6	1.9	1.9	194.2	0.1	1.2	1.1	1.1	145.3	0.5	6.0	4.0
2004	Jan	185.9	0.5	6.0	2.0	6.0	194.6	0.2	2.5	1.2	2.5	145.7	0.3	3.4	3.2
	Feb	186.5	0.3	3.9	1.7	5.0	194.9	0.2	1.9	1.2	2.2	145.6	-0.1	-0.8	2.1
	Mar	187.3	0.4	5.3	1.7	5.1	195.5	0.3	3.8	1.6	2.7	146.4	0.5	6.8	1.5
	Apr	187.7	0.2	2.6	2.3	4.4	195.9	0.2	2.5	1.8	2.6	147.4	0.7	8.5	3.7
	May	188.8	0.6	7.3	3.0	5.0	196.2	0.2	1.9	1.7	2.5	148.3	0.6	7.6	4.7
	Jun	189.3	0.3	3.2	3.2	4.7	196.6	0.2	2.5	1.9	2.5	148.2	-0.1	-0.8	3.9
	Jul	189.2	-0.1	-0.6	2.9	3.9	196.8	0.1	1.2	1.8	2.3	148.3	0.1	0.8	3.9
	Aug	189.3	0.1	0.6	2.7	3.5	196.9	0.1	0.6	1.7	2.1	148.5	0.1	1.6	3.4
	Sep	189.6	0.2	1.9	2.5	3.3	197.5	0.3	3.7	2.0	2.3	148.9	0.3	3.3	3.3
	Oct	190.7	0.6	7.2	3.2	3.7	197.9	0.2	2.5	2.0	2.3	151.1	1.5	19.2	4.4
	Nov	191.2	0.3	3.2	3.6	3.7	198.2	0.2	1.8	2.2	2.2	152.1	0.7	8.2	5.2
	Dec	191.2	0.0	0.0	3.4	3.4	198.5	0.2	1.8	2.2	2.2	151.7	-0.3	-3.1	4.4
2005	Jan	191.3	0.1	0.6	2.9	0.6	198.9	0.2	2.4	2.2	2.4	151.9	0.1	1.6	4.3
	Feb	192.0	0.4	4.5	2.9	2.5	199.4	0.3	3.1	2.3	2.8	152.5	0.4	4.8	4.7
	Mar	193.2	0.6	7.8	3.2	4.3	200.1	0.4	4.3	2.4	3.3	153.6	0.7	9.0	4.9
	Apr	194.2	0.5	6.4	3.5	4.8	200.2	0.0	0.6	2.2	2.6	154.5	0.6	7.3	4.8
	May	194.1	-0.1	-0.6	2.8	3.7	200.5	0.1	1.8	2.2	2.4	153.5	-0.6	-7.5	3.5

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 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.

The Conference Board

Help-wanted advertising index.

Organization for Economic Cooperation and Development (OECD)

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