

Productivity and Technology

Increases in labor productivity—the ratio of output to hours worked—are often attributed to improvements in technology. This ratio is the common measure of productivity that the Bureau of Labor Statistics (BLS) updates quarterly and is regularly reported in the news. Labor productivity may grow for many reasons: people are more skilled or working harder, they are working with more or better inputs, or managers have discovered ways to make the production process more efficient.

For the overall economy, labor productivity slowed sharply after 1973. The manufacturing sector was an exception, continuing to produce a relatively constant share of the nation's output with a declining share of its labor force. Although manufacturing output is only 17 percent of GDP, it is the only major sector for which the government has good data on inputs and output. Between 1949 and 1973, manufacturing output rose at an average annual rate of 4.1 percent. At the same time, the labor input grew at a 1.4 percent annual rate, implying that labor productivity rose at an average annual rate of 2.6 percent. After 1973, manufacturing output growth slowed to 2.2 percent per year. Despite the dramatic decline in output growth, labor productivity growth slowed only slightly, to an annual average rate of 2.5 percent, because manufacturing employment fell (the index of hours worked fell 0.3 percent per year).

For the manufacturing sector, the BLS tries to separate the effects of using more inputs from the effects of improved technology with an annual statistic called multifactor productivity (MFP). MFP in manufacturing is the ratio of manufacturing output to an index of inputs—labor, capital and

intermediate inputs including energy, materials and purchased business services—weighted by their respective shares of total costs. So, MFP growth measures the excess of output growth over the growth in this index of combined inputs and is an attempt to measure that part of output growth that cannot be explained by changes in the quantity of inputs. (MFP growth is shown on page 20.)

During the 1949 to 1973 period, the index of combined inputs rose at an annual rate of 2.3 percent—suggesting that some of the increase in labor productivity should be attributed to greater use of machines and other inputs. In fact, MFP grew 1.7 percent per year. From 1974 to 1993, the index of combined inputs grew at a 1.1 percent annual rate, just half the growth rate of output, so that MFP in manufacturing also rose at a 1.1 percent annual rate.

MFP growth is what remains after the BLS tries to account for the use of all inputs, so it is arguably a better way to measure technological change than labor productivity. But nearly 40 years ago, Robert Solow referred to MFP as a “confession of ignorance rather than a claim to knowledge.” Despite more elaborate measurement and extensive research, it is still mostly that.

—William T. Gavin

Components of Manufacturing Productivity Growth

Compound annual growth rates

		1949-73	1974-93
1	Manufacturing output	4.1	2.2
2	Hours worked	1.4	-0.3
3	Labor productivity (approximately 1 - 2)	2.6	2.5
4	Combined Inputs	2.3	1.1
5	Multifactor productivity (approximately 1 - 4)	1.7	1.1

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

Table of Contents

Page	
3	Economy at a glance
4	Output and growth
7	Interest rates
8	Inflation and prices
10	Labor markets
12	Consumer spending
14	Investment spending
16	Government revenues, spending, and debt
18	International trade
20	Productivity and profits
22	Quick reference tables
27	Notes and sources

Conventions used in this publication:

1. Charts and tables contain data that was current on May 1, 1997.
2. Shaded areas indicate recessions, as determined by the National Bureau of Economic Research.
3. *Percent change* refers to simple percent changes. *Percent change from year ago* refers to the percent change from the same month or quarter in the previous year. The *percent change at annual rate* 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 percent change at annual rate of X between the previous quarter $t-1$ and the current quarter t is:

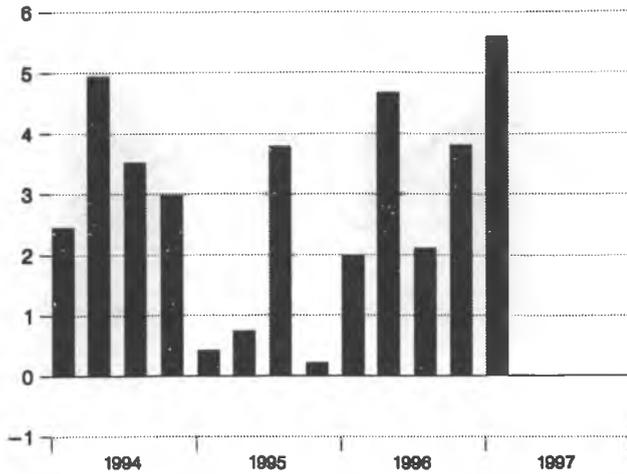
$$100 \times \left[\left(\frac{X_t}{X_{t-1}} \right)^4 - 1 \right]$$

For monthly data replace 4 with 12.

4. All data with significant seasonal patterns are seasonally adjusted, unless labeled NSA.

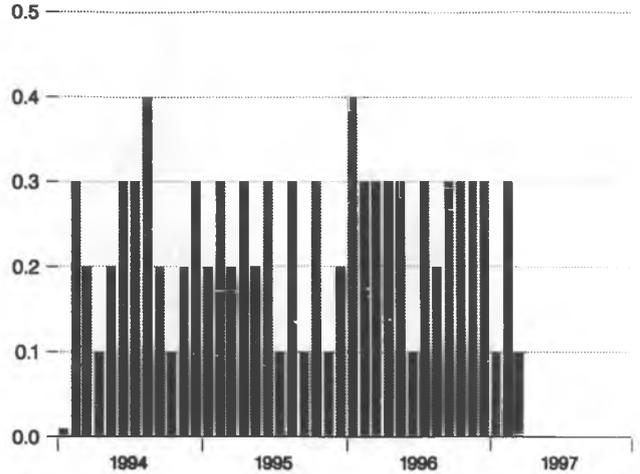
Real GDP Growth

Percent change at annual rate



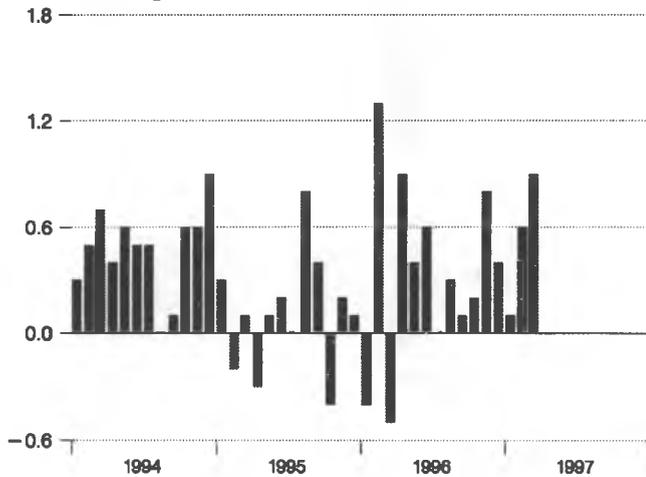
Consumer Price Index

Percent change



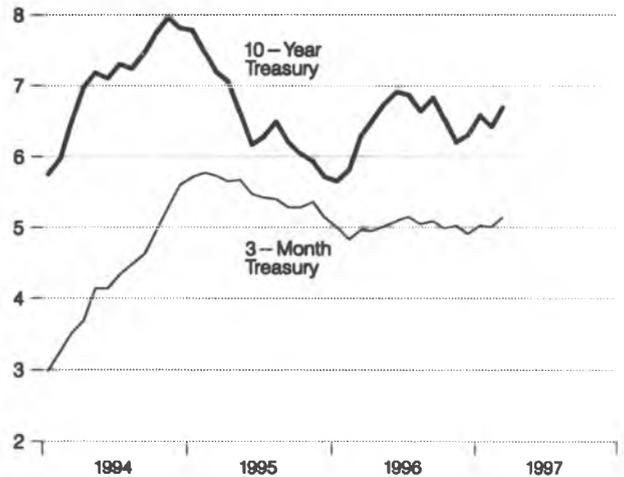
Industrial Production

Percent change



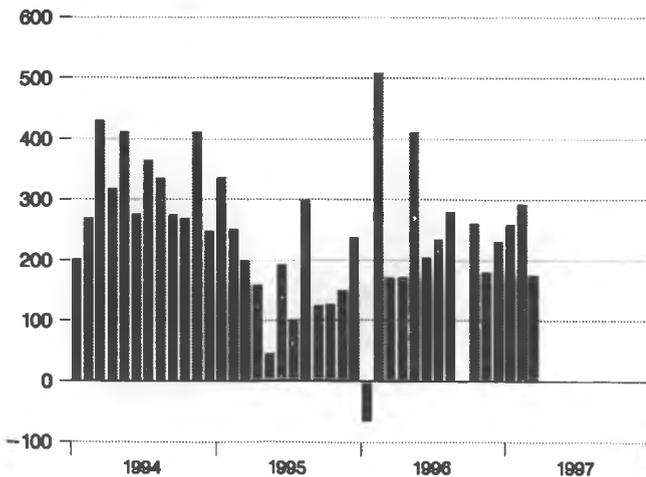
Interest Rates

Percent



Change in Nonfarm Payrolls

Thousands



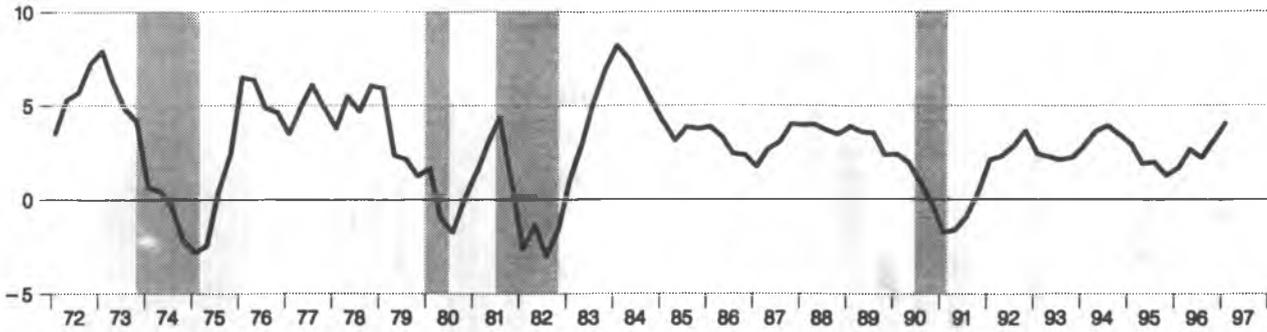
Unemployment Rate

Percent of labor force



Real Gross Domestic Product

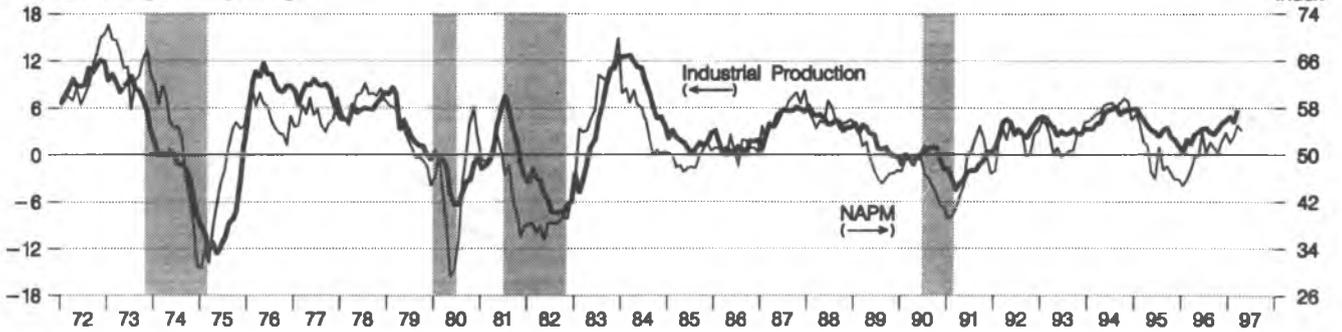
Percent change from year ago



Industrial Production and Purchasing Managers' (NAPM) Indexes

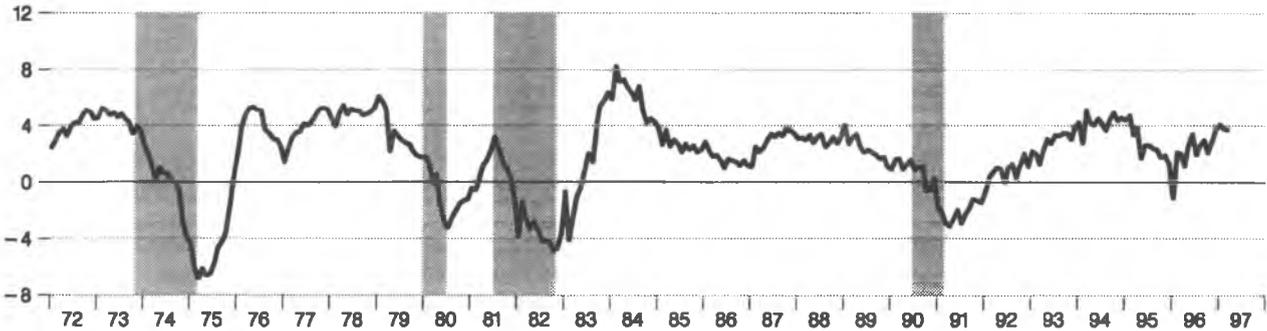
Percent change from year ago

Index



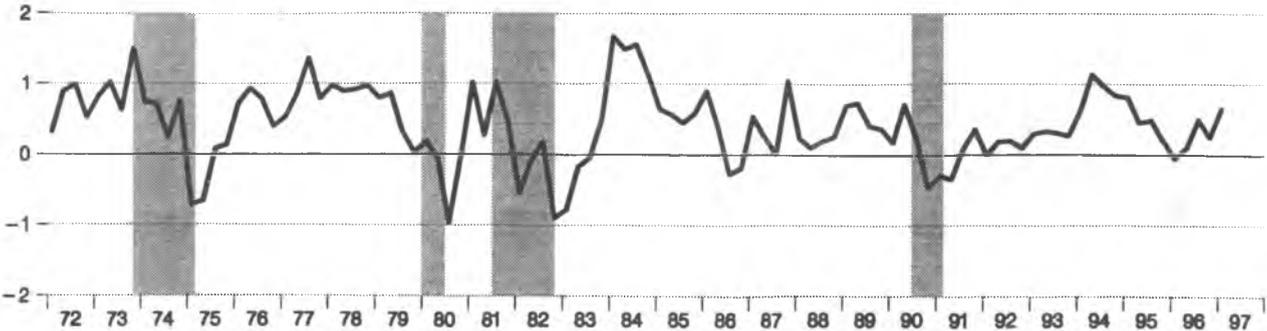
Aggregate Private Nonfarm Hours

Percent change from year ago

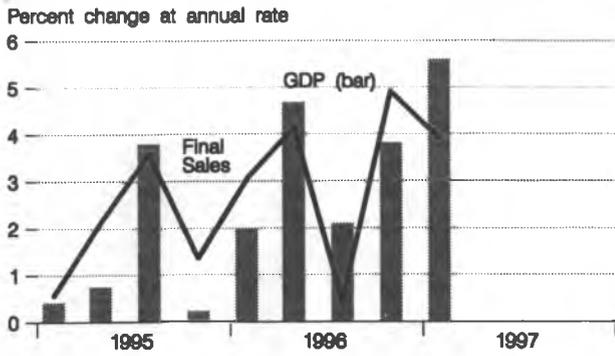


Real Change in Business Inventories

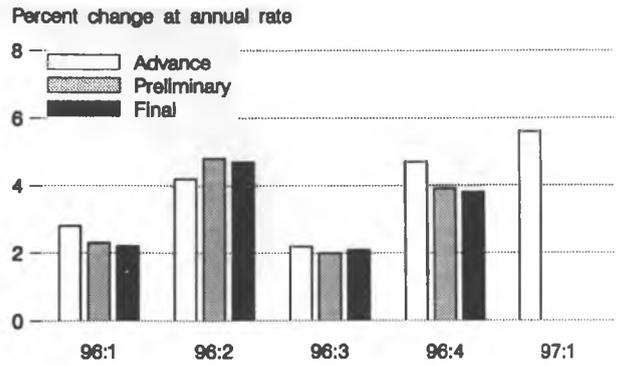
Percent of GDP



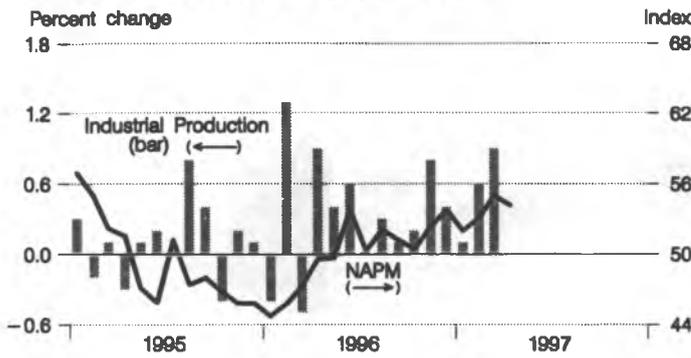
Real Final Sales and GDP



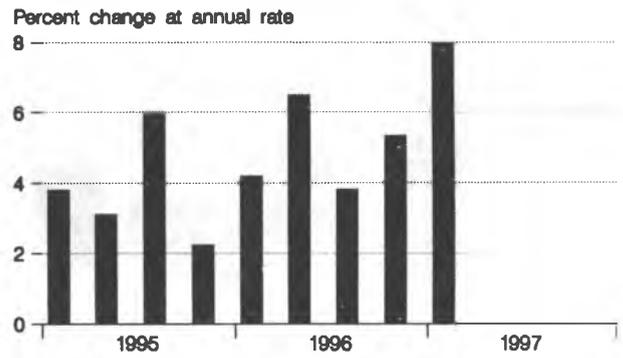
Real GDP Revisions



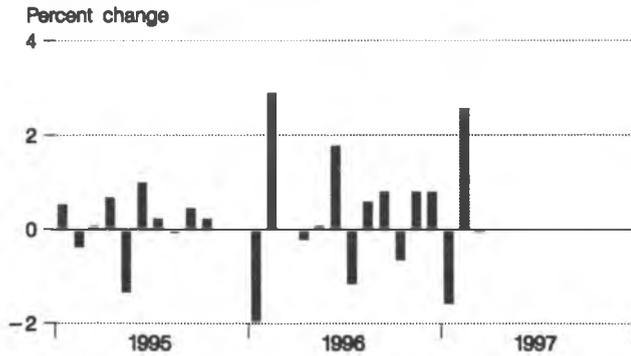
Industrial Production and NAPM Index



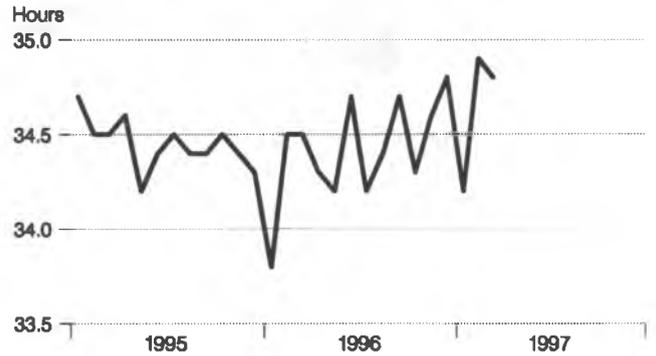
Nominal Gross Domestic Product



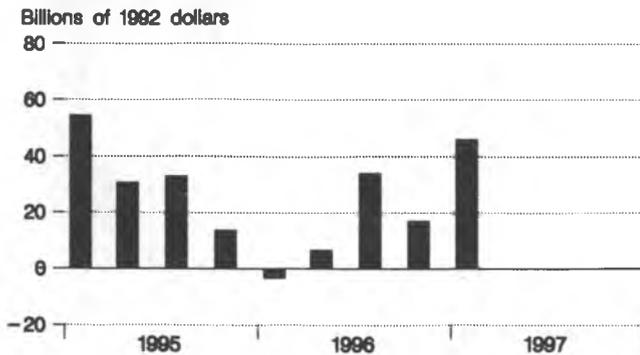
Aggregate Private Nonfarm Hours



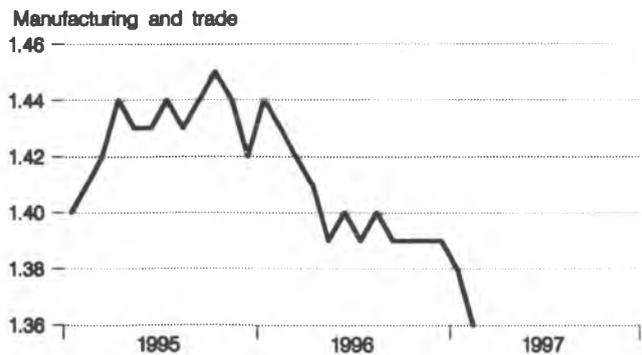
Average Weekly Private Nonfarm Hours



Real Change in Business Inventories

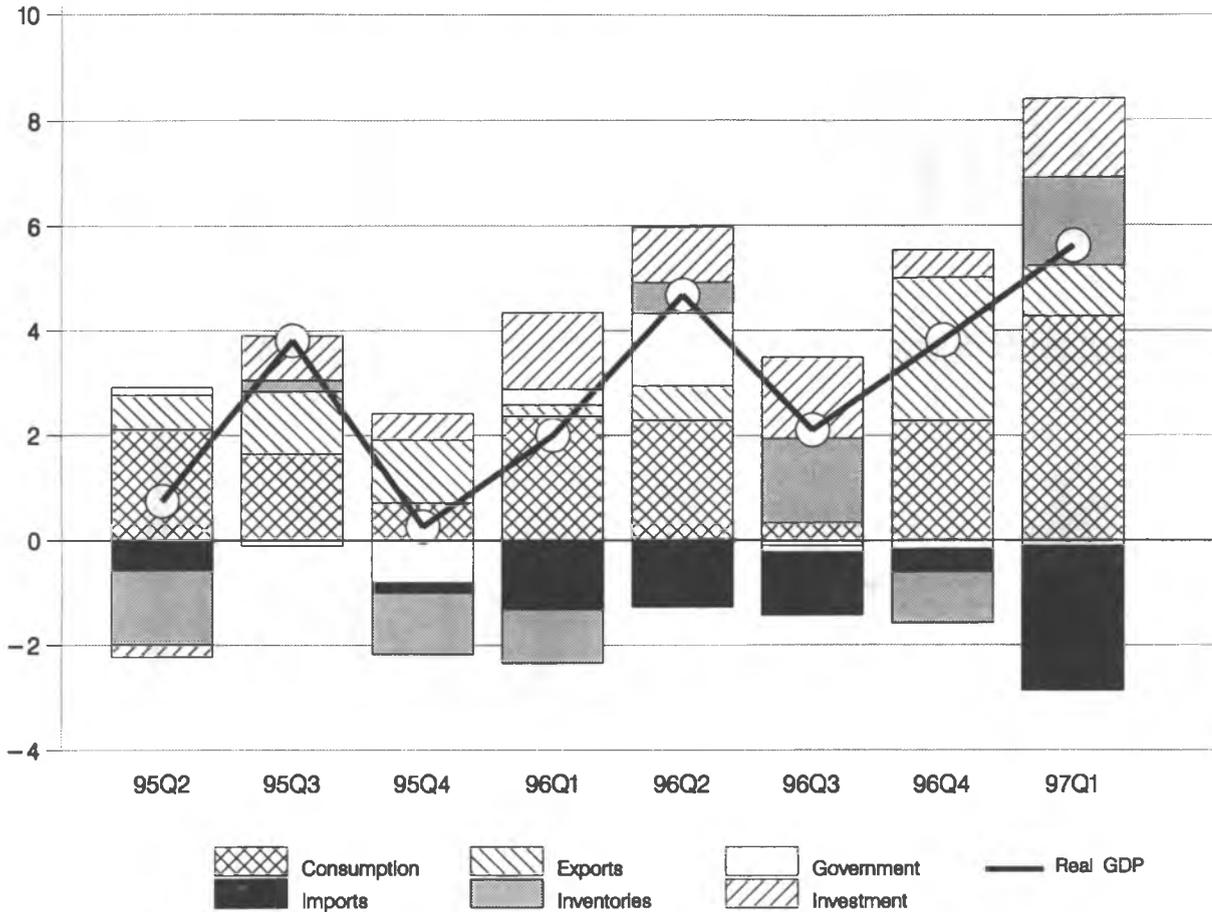


Inventory-Sales Ratio



Contribution of Components to Real GDP Growth

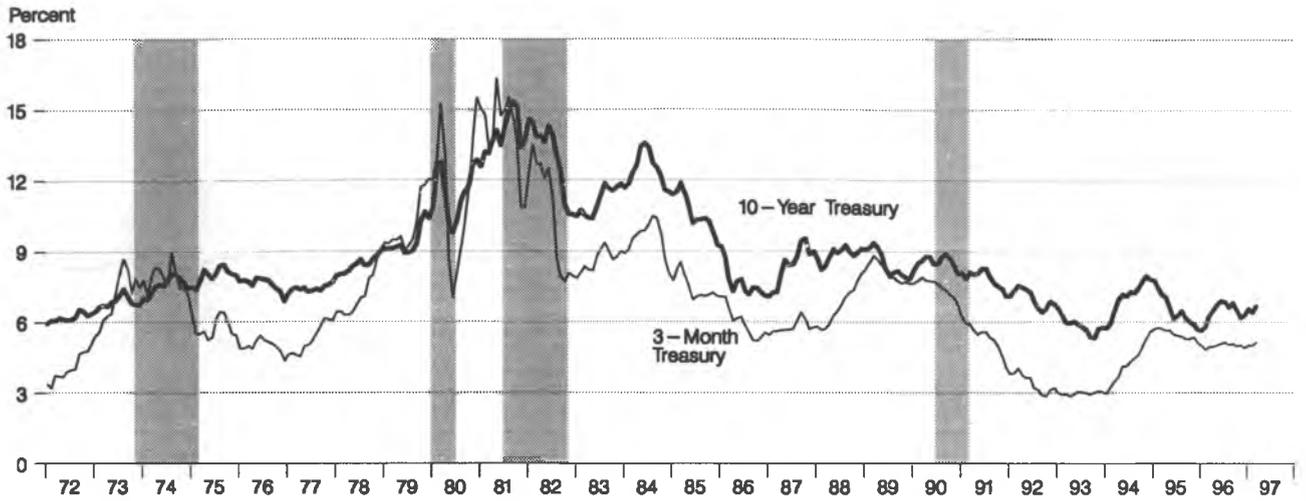
Percent change at annual rate



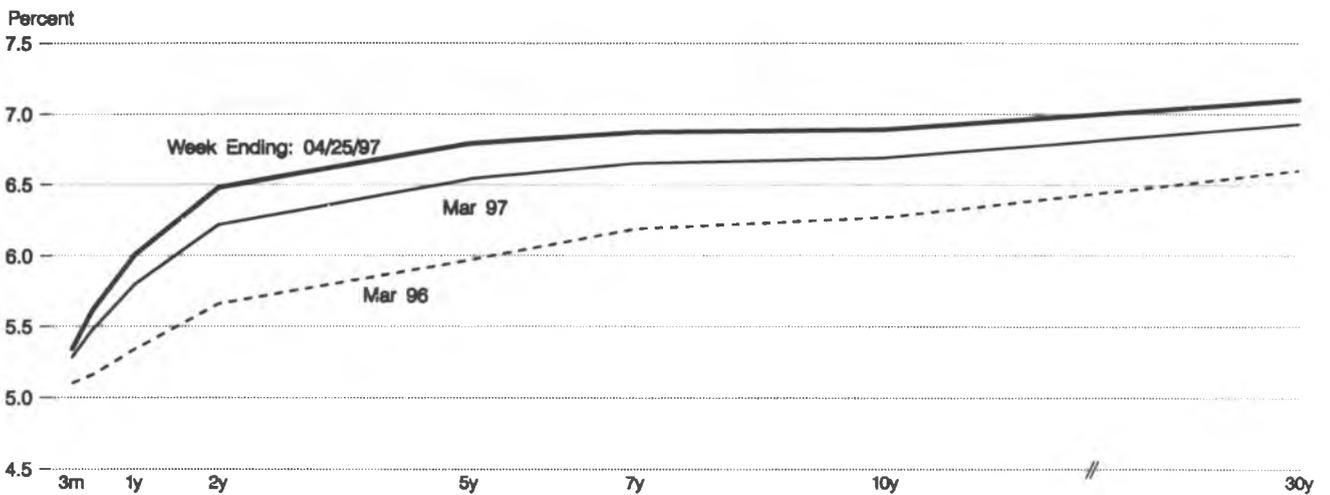
Contributions to Real GDP Growth Rate

	1995			1996				1997
	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Real GDP	0.75	3.81	0.26	2.00	4.68	2.10	3.82	5.61
Final Sales	2.11	3.56	1.35	3.04	4.15	0.47	4.89	3.91
Change in Inventory	-1.42	0.22	-1.16	-1.01	0.60	1.60	-0.98	1.67
Consumption	2.11	1.65	0.71	2.36	2.28	0.34	2.28	4.27
Fixed Investment	-0.23	0.85	0.51	1.47	1.05	1.54	0.53	1.50
Nonresidential	0.36	0.51	0.26	1.19	0.41	1.80	0.61	1.30
Residential	-0.56	0.34	0.24	0.28	0.61	-0.22	-0.07	0.21
Government	0.15	-0.11	-0.81	0.30	1.39	-0.12	-0.16	-0.10
Federal	-0.10	-0.41	-0.96	0.40	0.62	-0.24	-0.37	-0.24
State and Local	0.25	0.31	0.17	-0.11	0.76	0.13	0.22	0.14
Net Exports	0.07	1.19	0.99	-1.12	-0.63	-1.31	2.27	-1.81
Exports	0.65	1.18	1.19	0.21	0.66	-0.10	2.73	0.97
Imports	-0.58	0.00	-0.21	-1.33	-1.28	-1.21	-0.45	-2.76
Residual	0.06	-0.02	0.03	0.02	-0.03	0.01	-0.15	0.05

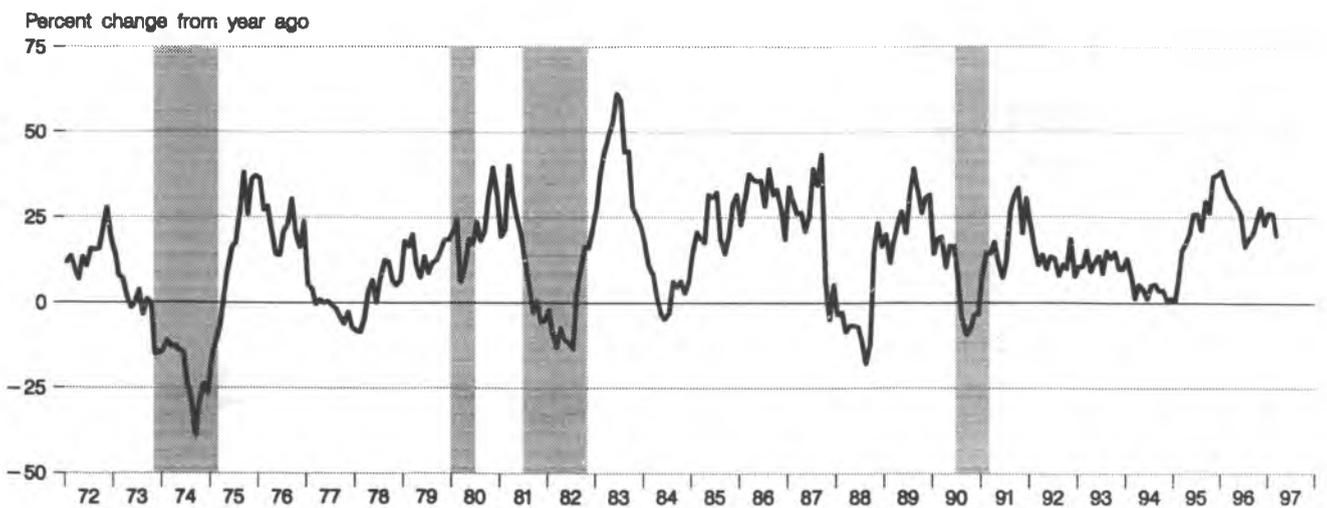
Interest Rates



Treasury Yield Curve

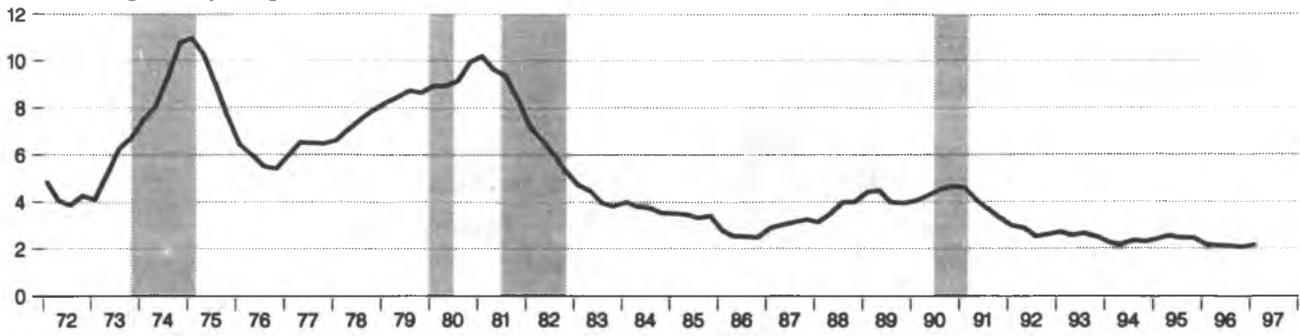


Total Return on Standard and Poor's 500



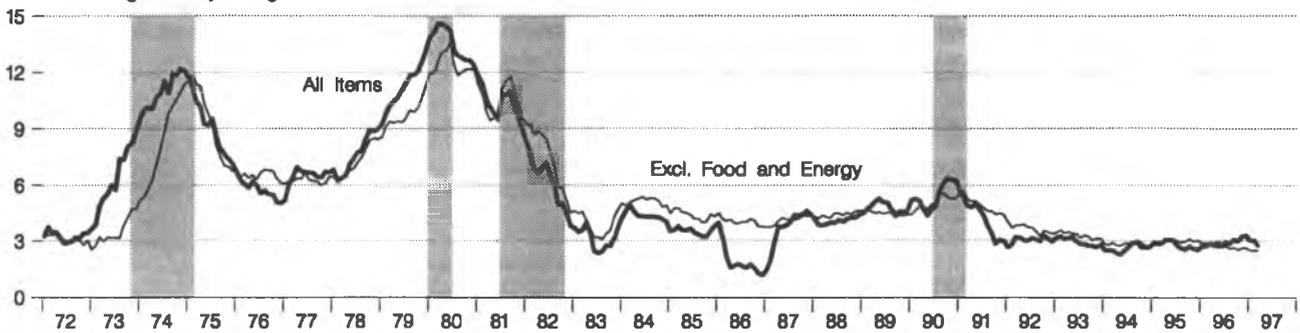
GDP Chain Price Index

Percent change from year ago



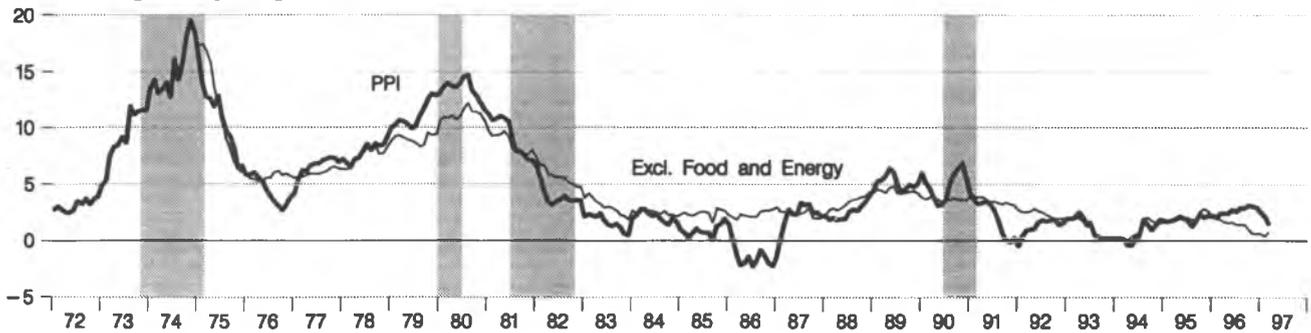
Consumer Price Index

Percent change from year ago



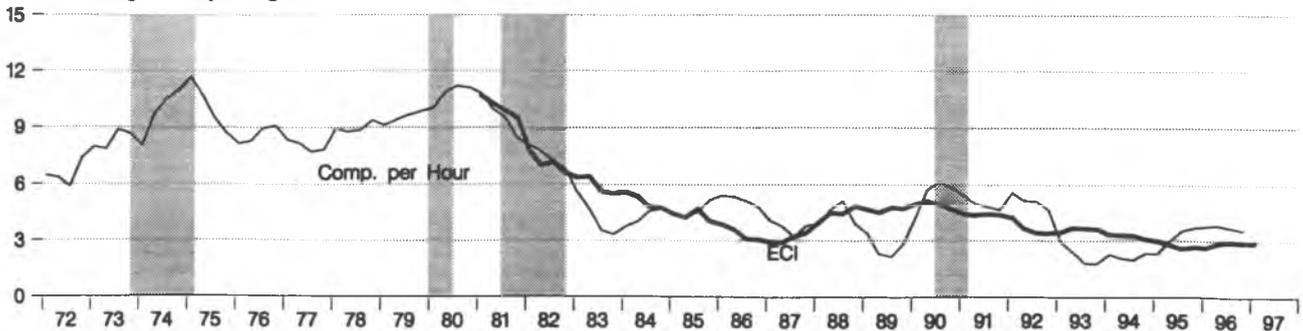
Producer Price Index, Finished Goods

Percent change from year ago



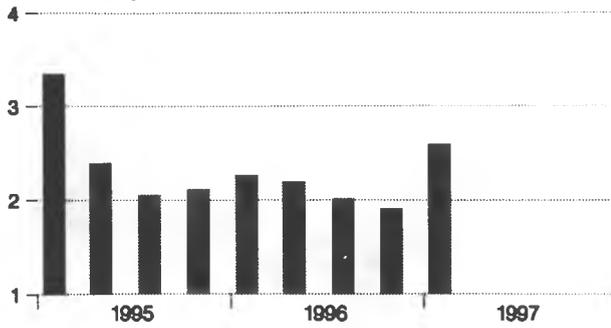
Employment Cost Index and Compensation per Hour

Percent change from year ago



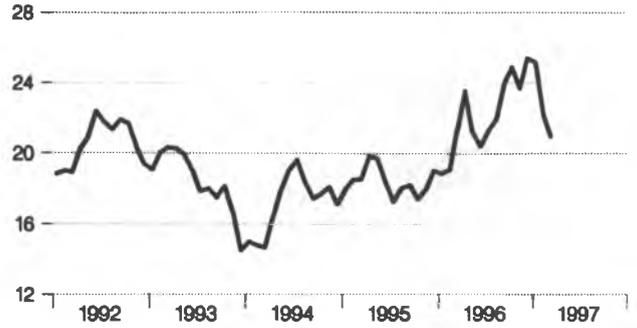
GDP Chain Price Index

Percent change at annual rate



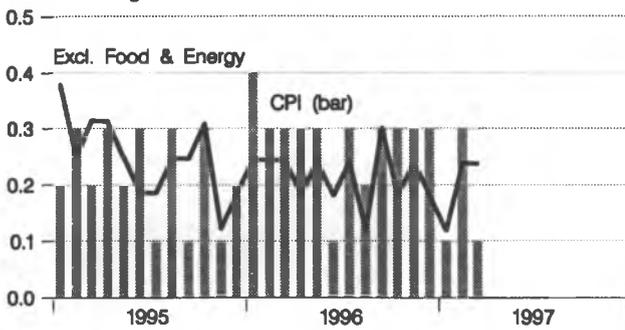
Crude Oil Price

Dollars per barrel



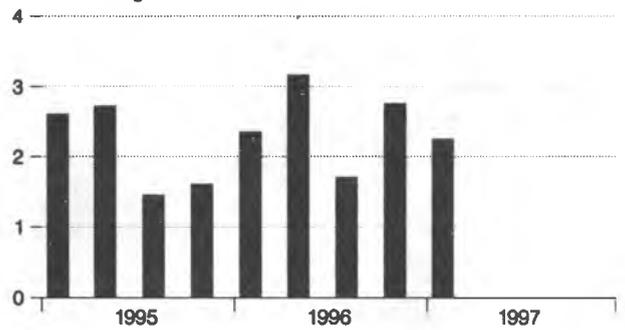
Consumer Price Index

Percent change



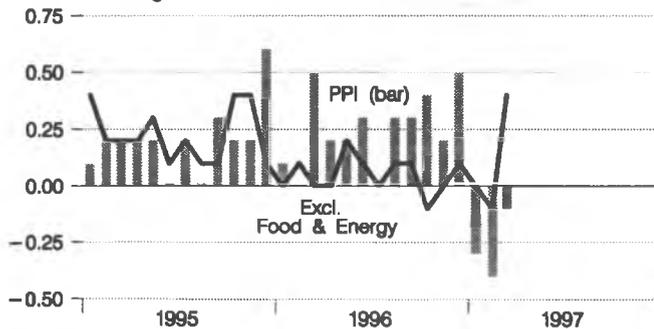
Consumption Chain Price Index

Percent change at annual rate



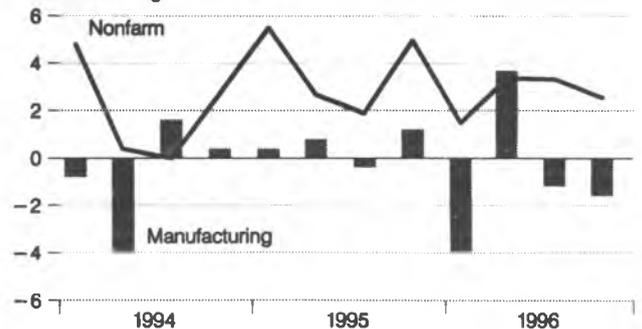
Producer Price Index, Finished Goods

Percent change



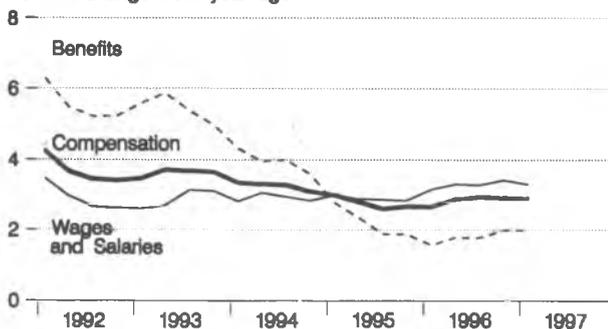
Unit Labor Cost

Percent change at annual rate



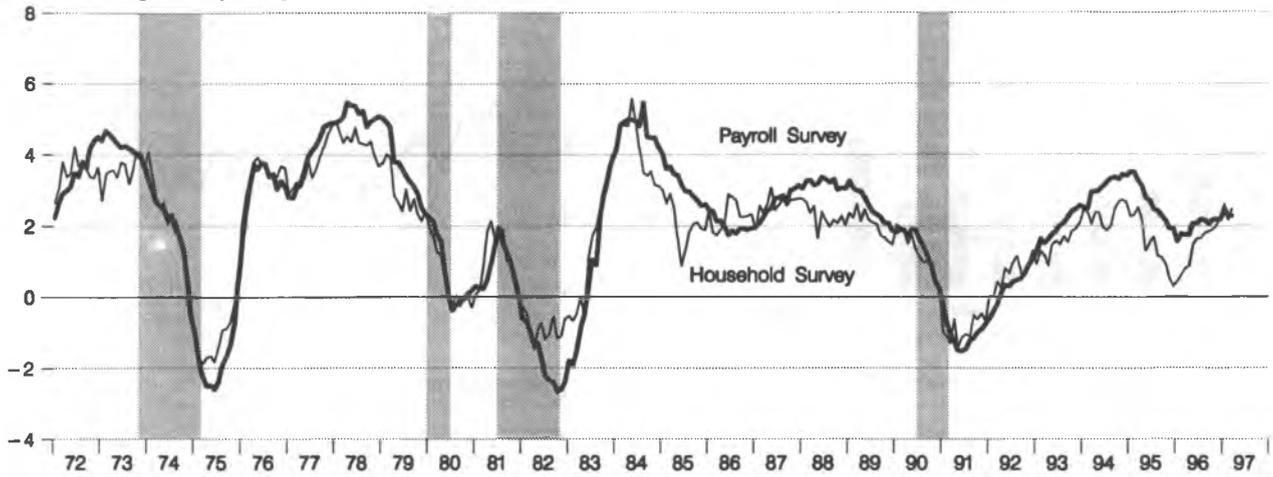
Employment Cost Index

Percent change from year ago



Employment

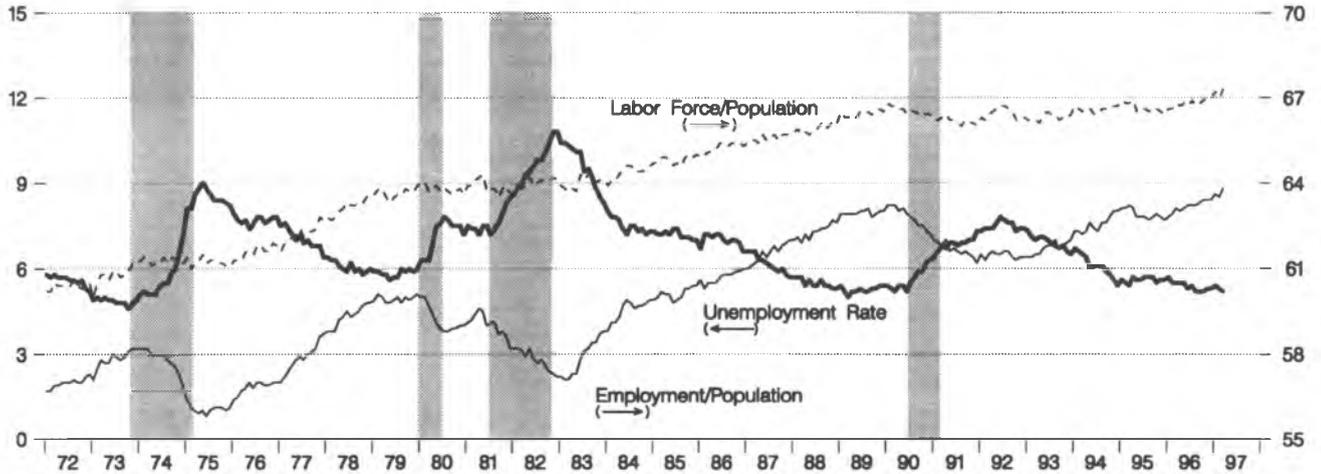
Percent change from year ago



Unemployment, Labor Force Participation and Employment Rates

Percent of labor force

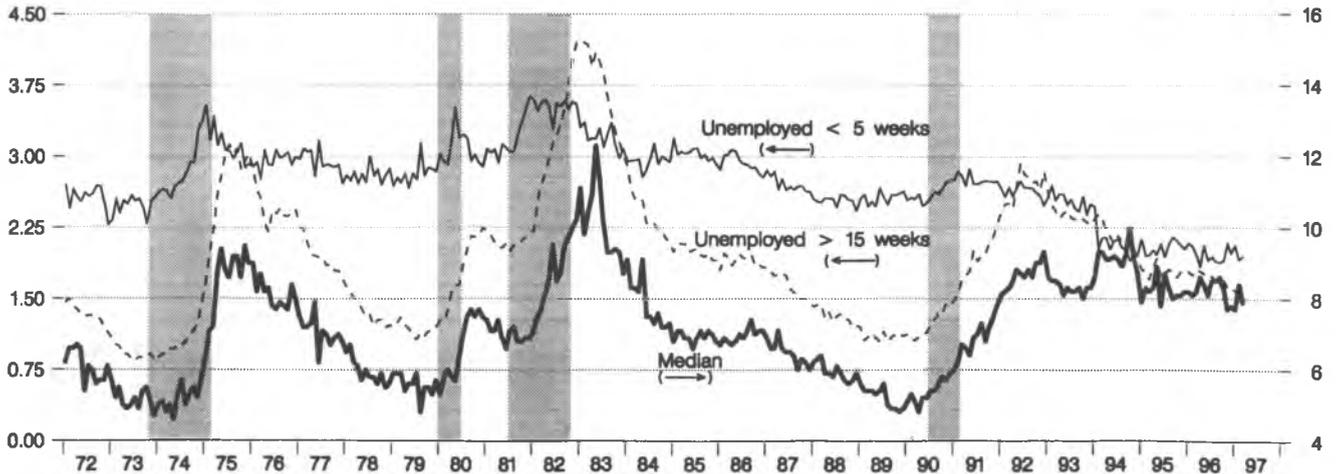
Percent of population



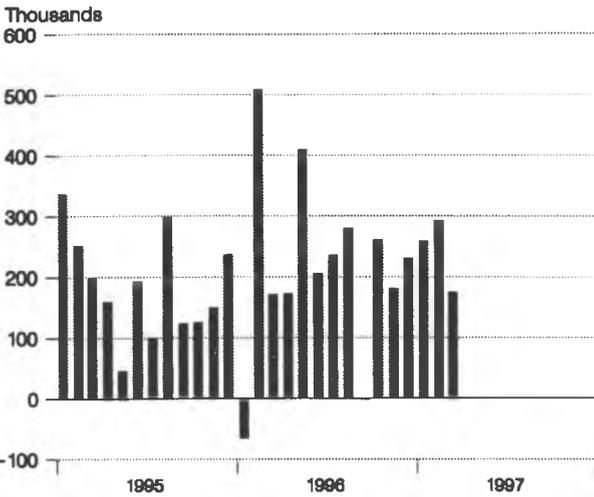
Duration of Unemployment

Percent of labor force

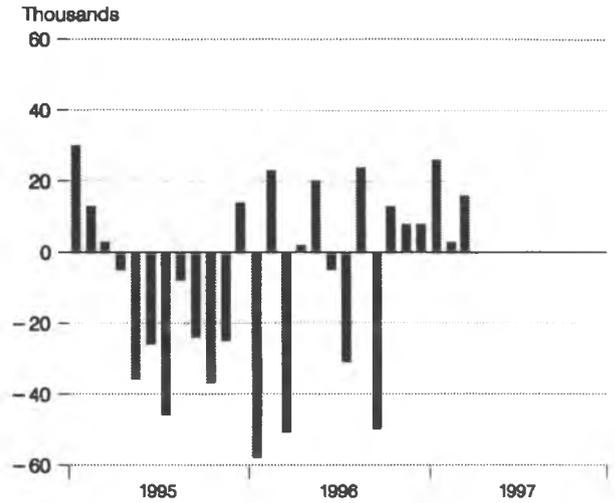
Weeks



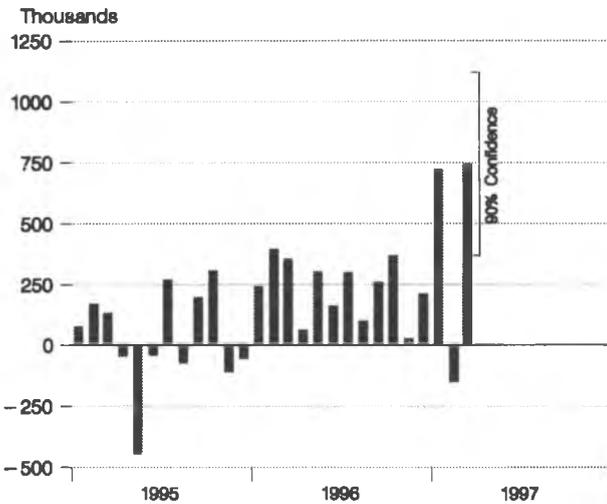
Change in Nonfarm Payrolls



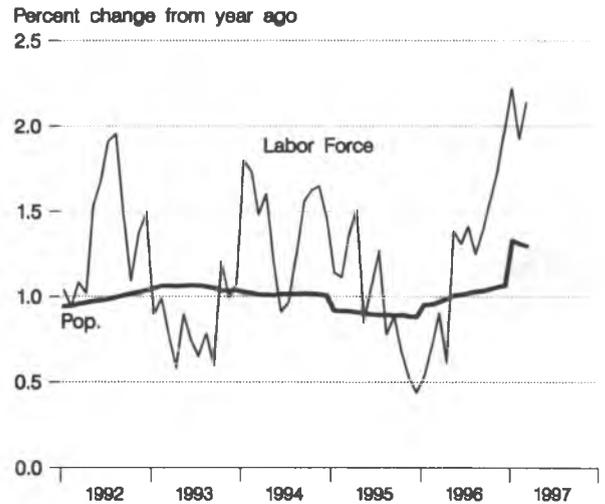
Change in Manufacturing Payrolls



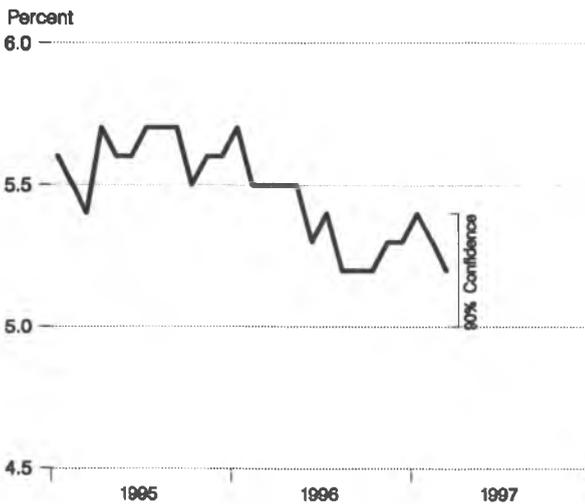
Change in Household Employment



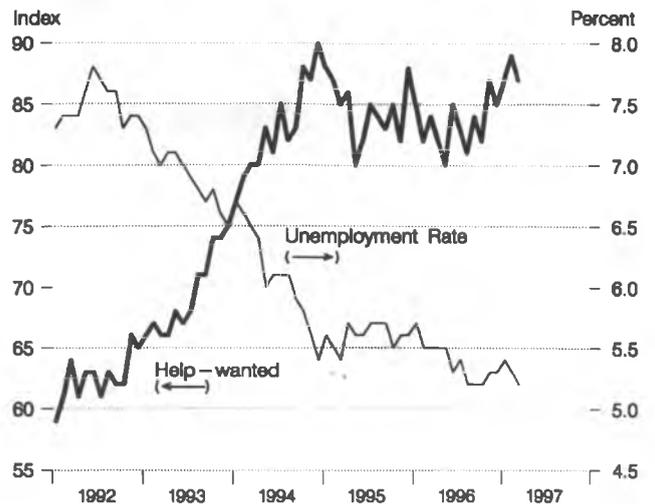
Labor Force and Population



Unemployment Rate



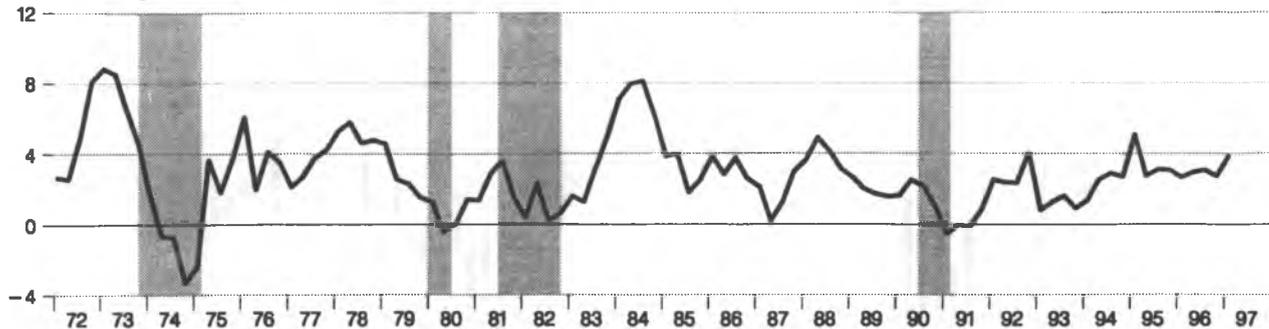
Help-Wanted Advertising



National Economic Trends

Real Disposable Income

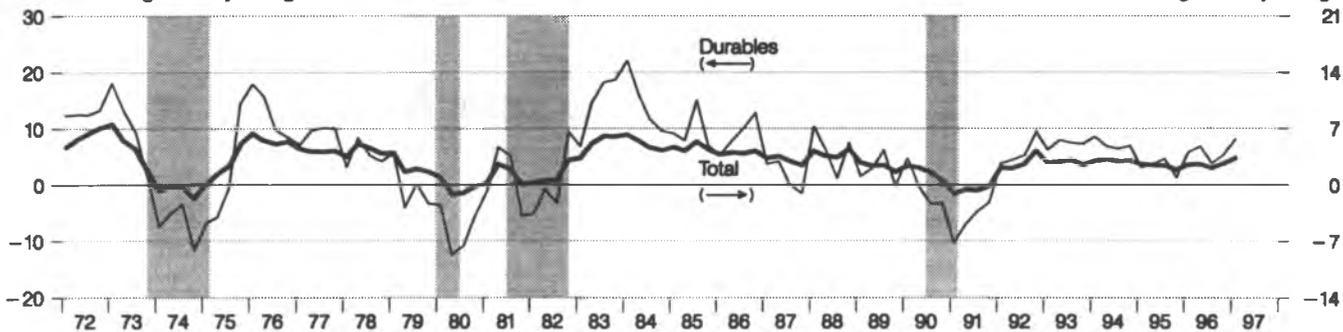
Percent change from year ago, quarterly data



Real Consumption

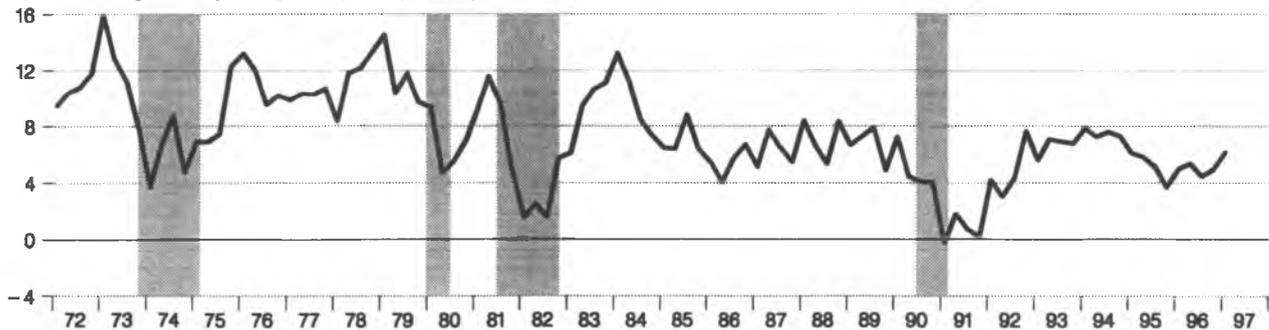
Percent change from year ago

Percent change from year ago



Retail Sales

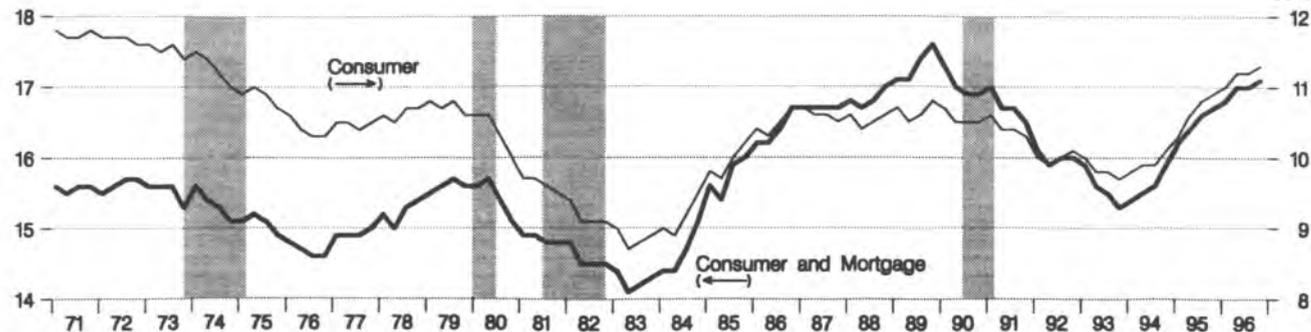
Percent change from year ago of quarterly average



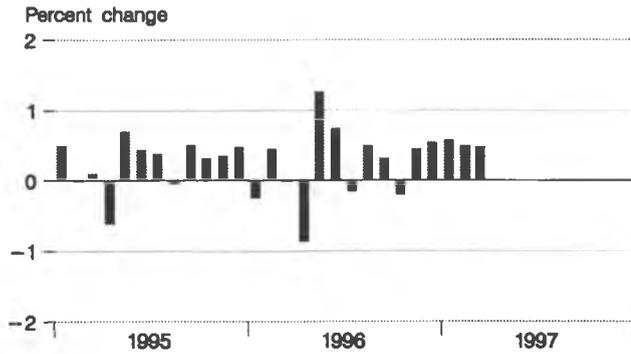
Debt Service as Percent of Disposable Income

Percent

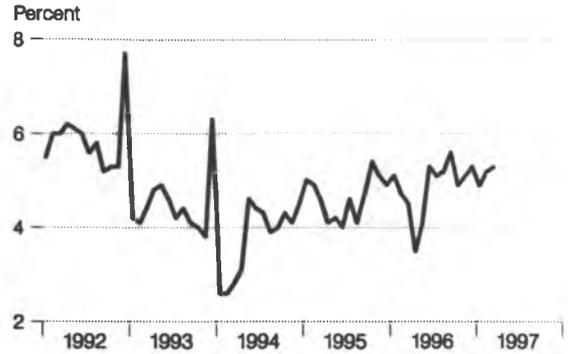
Percent



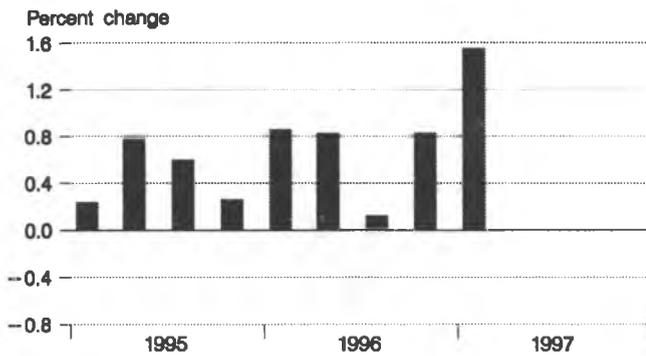
Real Disposable Income



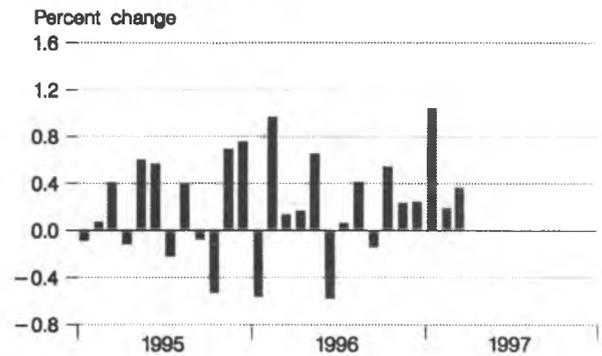
Personal Saving Rate



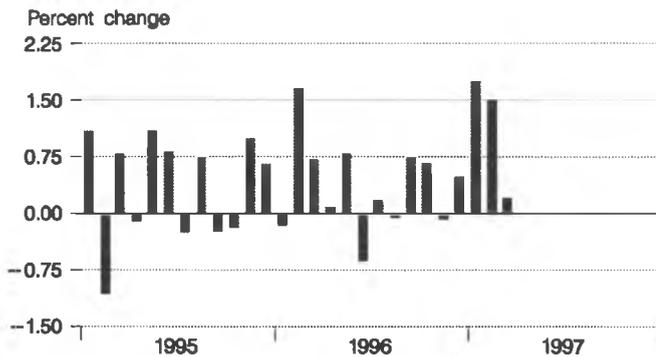
Real Consumption



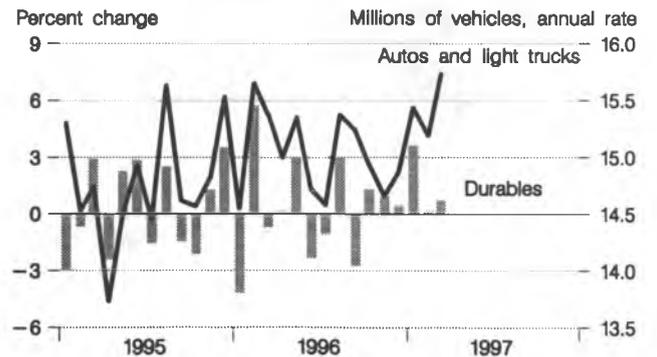
Real Consumption



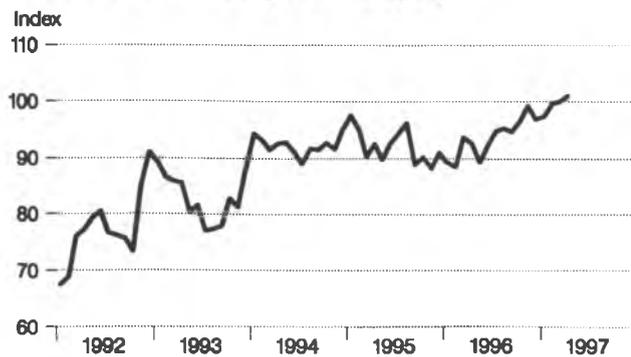
Retail Sales



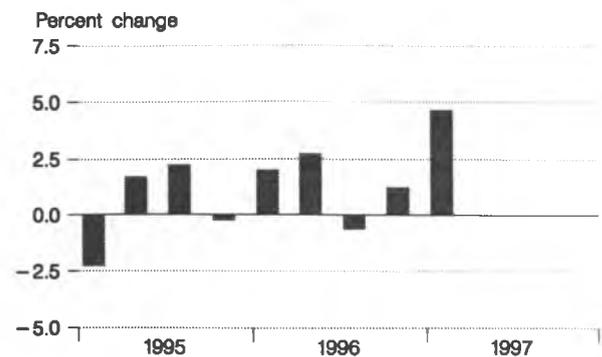
Real Durables Consumption and Vehicle Sales



Consumer Sentiment (U. of Michigan)

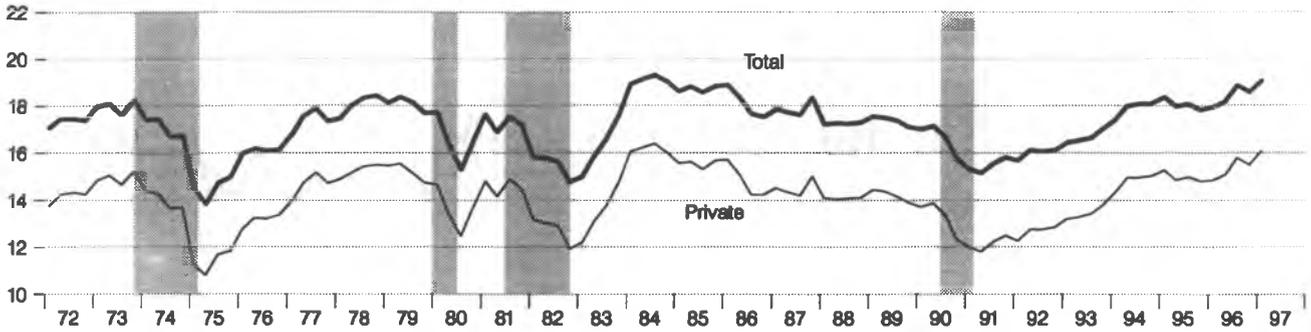


Real Durables Consumption



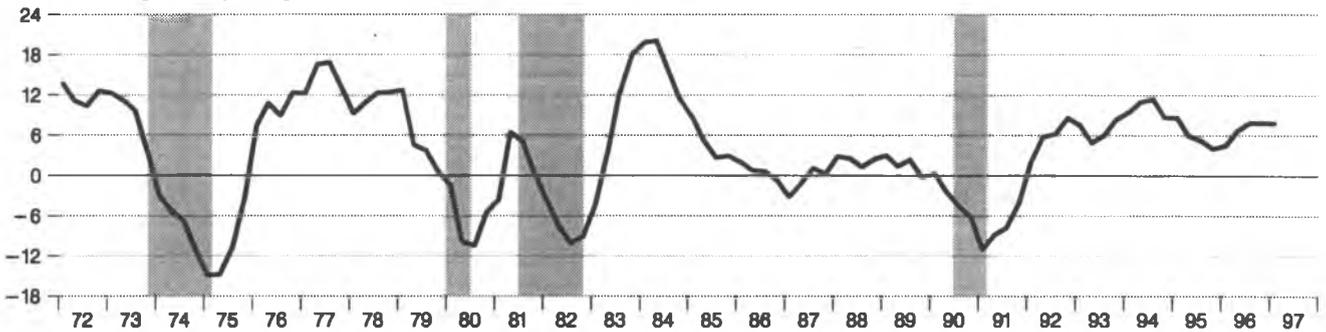
Real Investment

Percent of GDP



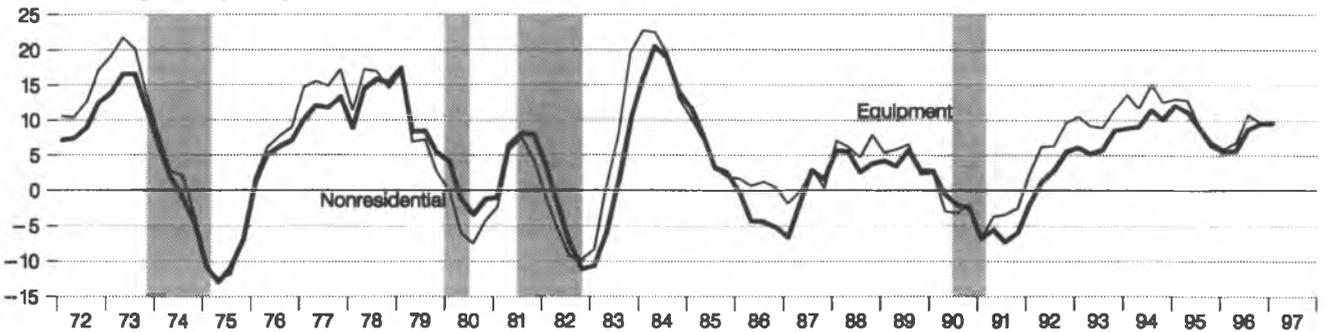
Real Private Fixed Investment

Percent change from year ago



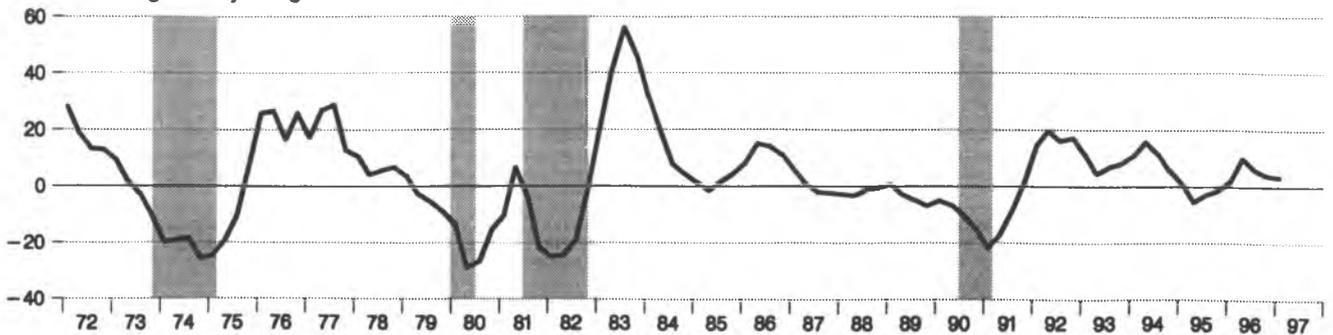
Real Nonresidential and Producers Durable Equipment Investment

Percent change from year ago

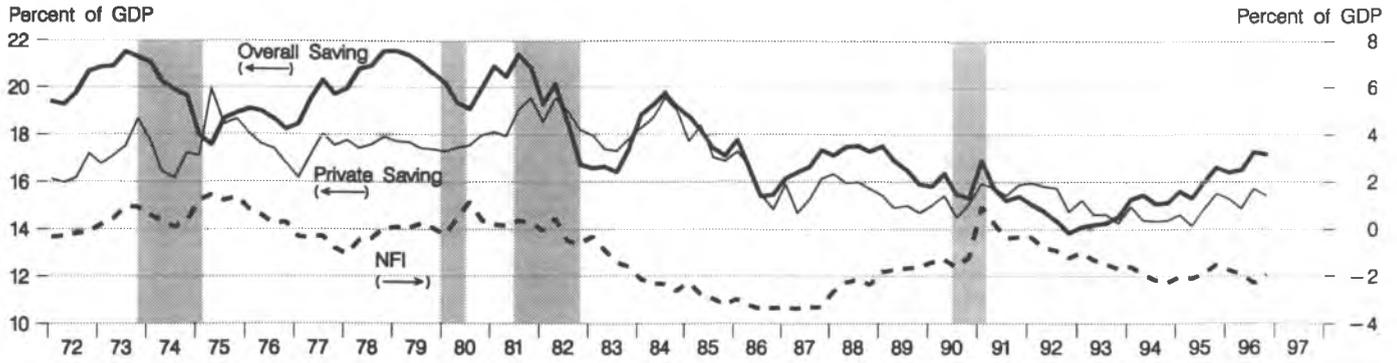


Real Residential Investment

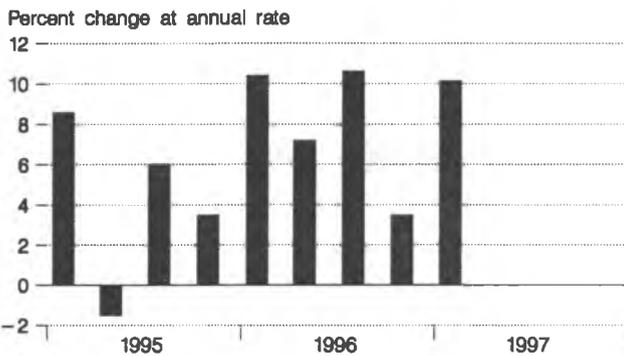
Percent change from year ago



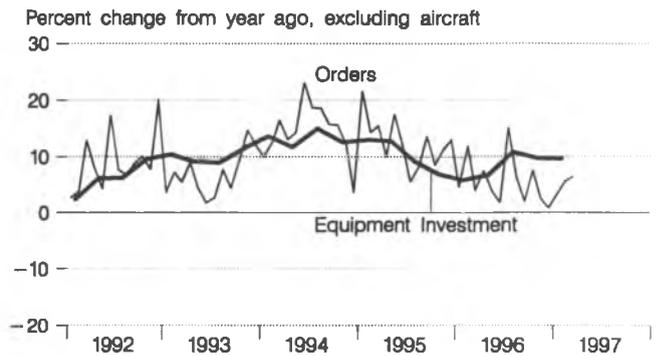
Gross Saving Rates and Net Foreign Investment



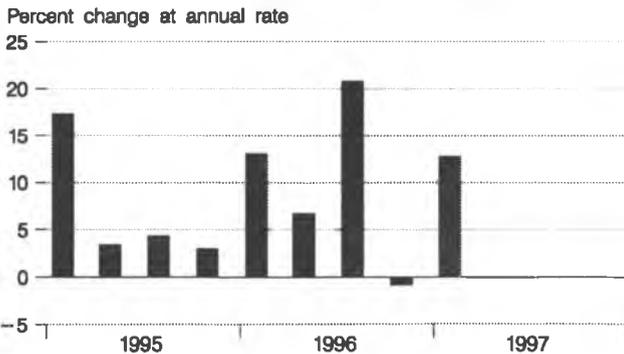
Real Private Fixed Investment



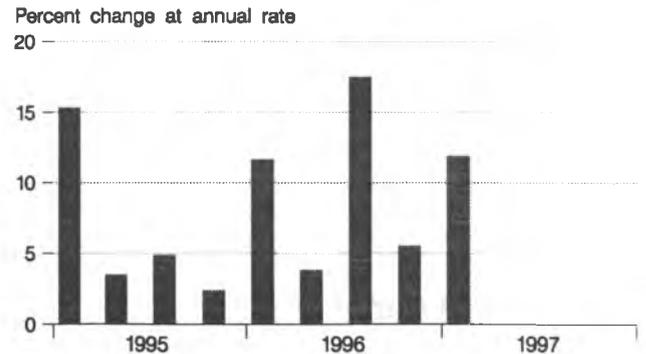
Nondefense Capital Goods Orders



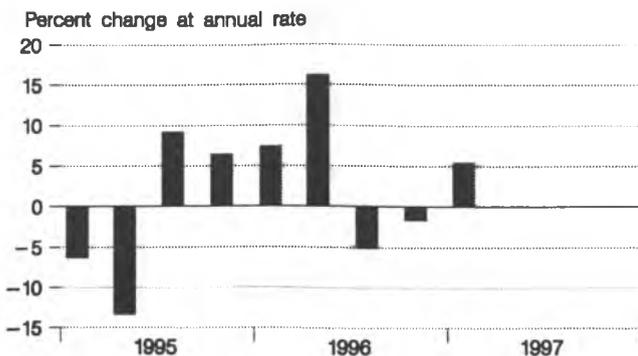
Real Equipment Investment



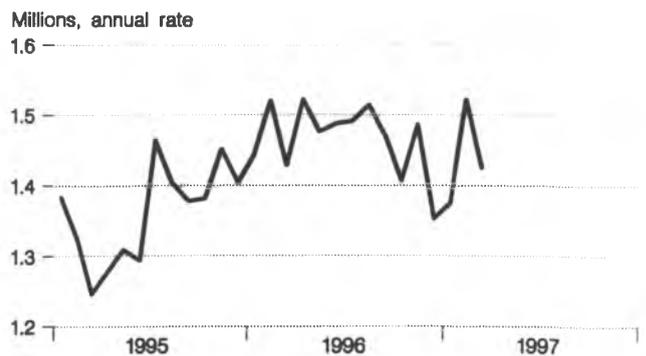
Real Nonresidential Investment



Real Residential Investment

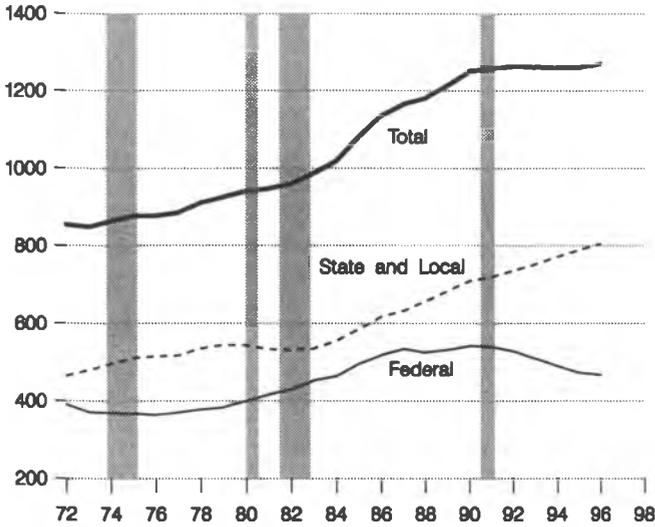


Housing Starts



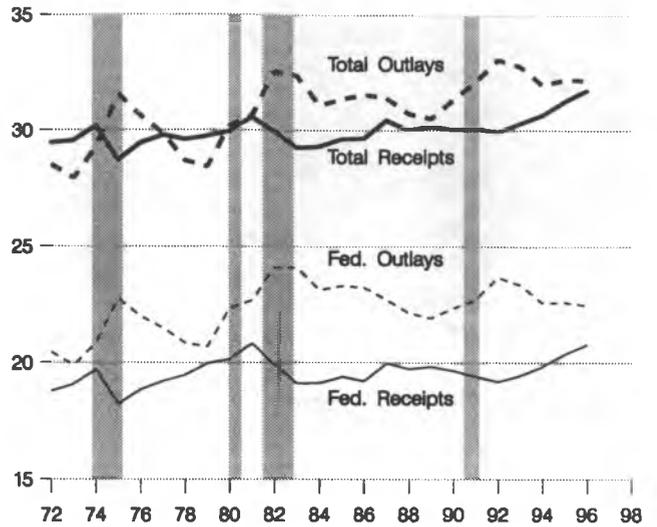
Govt. Consumption and Investment

Billions of 1992 dollars

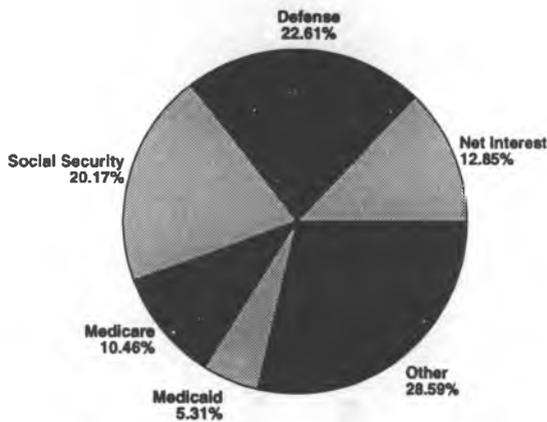


Government Receipts and Outlays

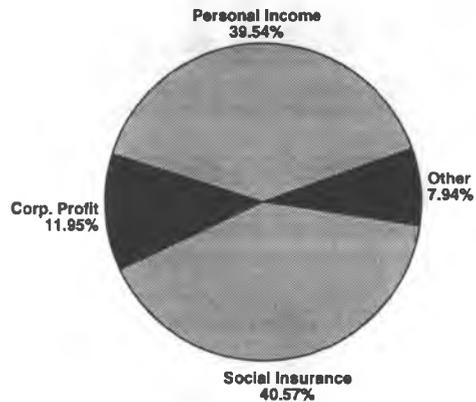
Percent of GDP



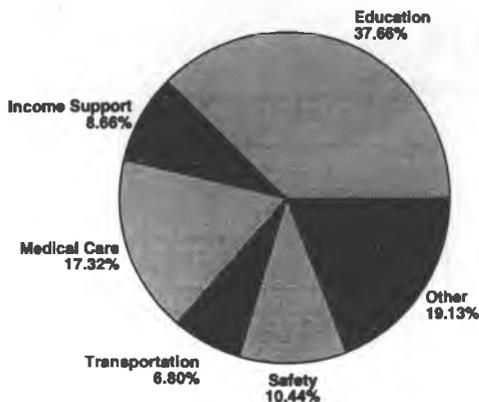
Federal Outlays, 1994



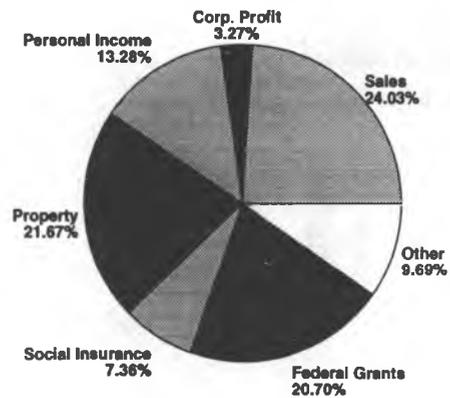
Federal Receipts, 1994



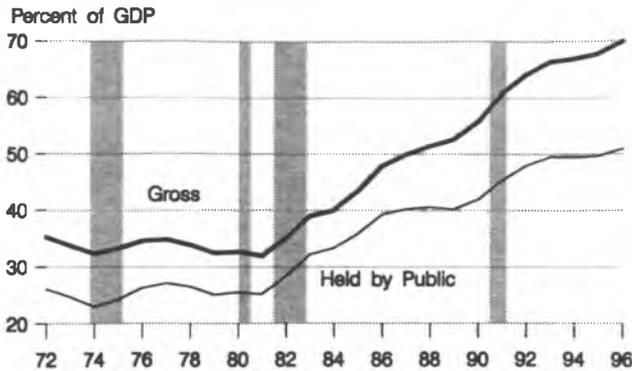
State and Local Outlays, 1994



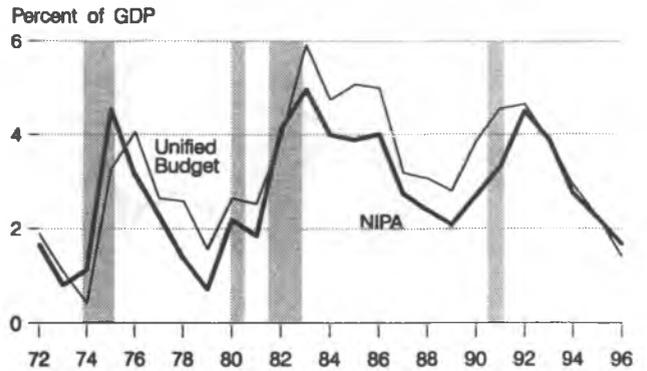
State and Local Receipts, 1994



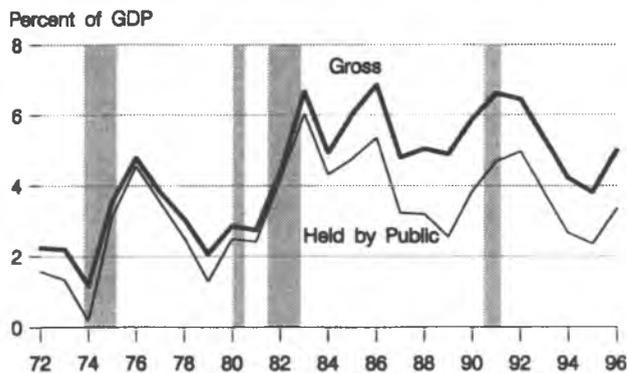
Gross Federal Debt



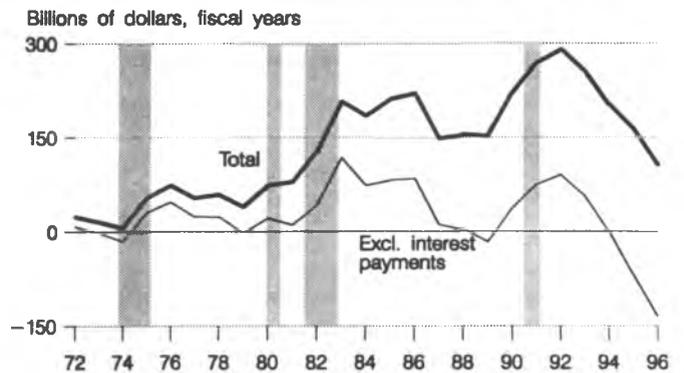
Federal Deficit



Change in Gross Federal Debt



Federal Deficit, Unified Basis



Government Budgets

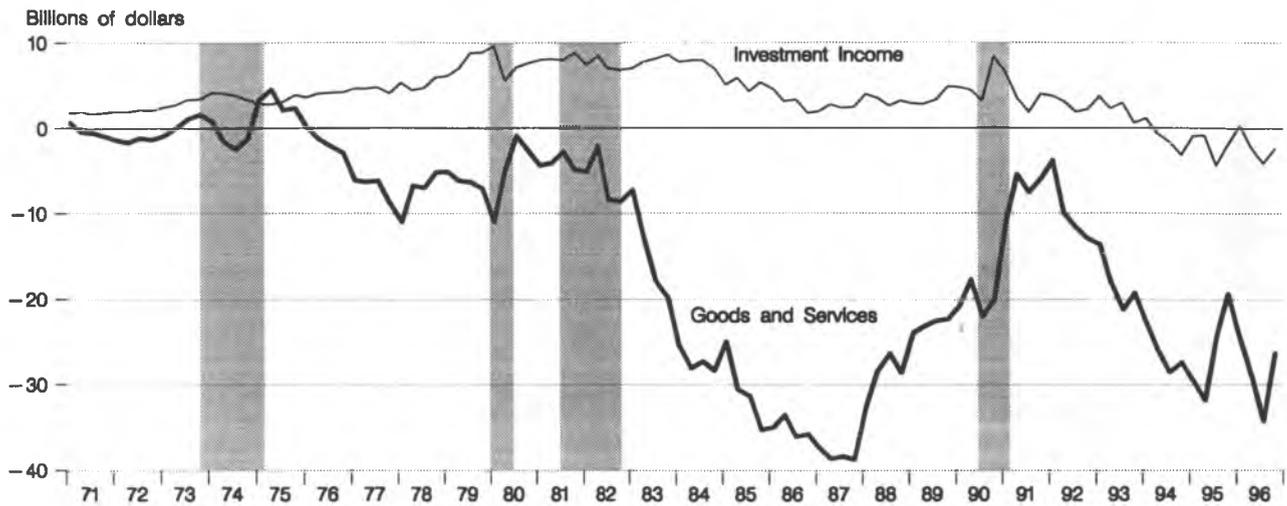
Billions of dollars

National Income Accounts Calendar Years

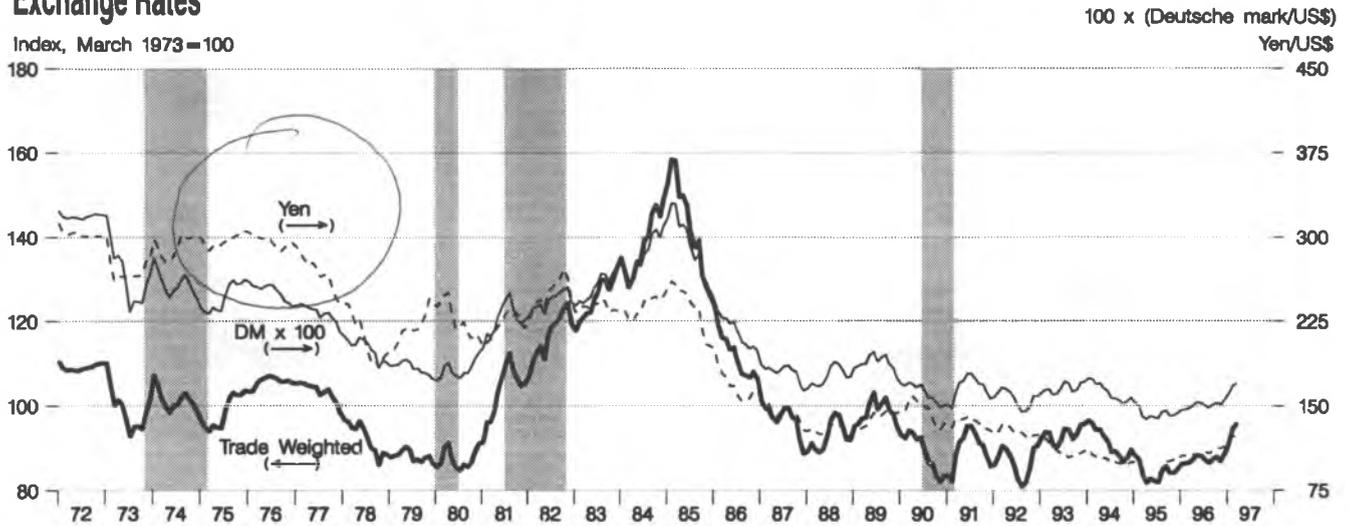
Unified Budget Fiscal Years

	State and Local			Federal			Federal		
	Receipts	Expenditures	Surplus or Deficit(-)	Receipts	Expenditures	Surplus or Deficit(-)	Receipts	Outlays	Surplus or Deficit(-)
1980	361.4	307.0	54.4	561.5	622.5	-61.0	517.1	590.9	-73.8
1981	390.8	335.4	55.4	649.3	707.1	-57.8	599.3	678.2	-79.0
1982	409.0	357.7	51.3	646.4	781.0	-134.6	617.8	745.8	-128.0
1983	443.6	378.8	64.8	671.9	846.3	-174.4	600.6	808.4	-207.8
1984	492.0	405.1	86.9	746.9	902.9	-156.0	666.5	851.8	-185.4
1985	528.7	437.8	90.9	811.3	974.2	-162.9	734.1	946.4	-212.3
1986	570.6	475.7	94.9	850.1	1027.6	-177.5	769.1	990.3	-221.2
1987	594.9	511.1	83.8	937.4	1066.3	-128.9	854.1	1003.9	-149.8
1988	631.4	545.5	85.9	997.2	1118.5	-121.3	909.0	1064.1	-155.2
1989	681.0	585.9	95.1	1079.3	1192.7	-113.4	990.7	1143.2	-152.5
1990	728.9	648.8	80.1	1129.8	1284.5	-154.7	1031.3	1252.5	-221.2
1991	784.2	708.4	75.8	1149.0	1345.0	-196.0	1054.3	1323.6	-269.4
1992	844.3	758.0	86.3	1198.5	1479.4	-280.9	1090.5	1380.9	-290.4
1993	897.1	802.2	94.9	1275.3	1530.9	-255.6	1153.5	1408.7	-255.1
1994	946.4	846.6	99.8	1377.0	1567.3	-190.3	1257.7	1460.8	-203.1
1995	996.1	901.1	95.0	1478.4	1640.1	-161.7	1351.5	1515.4	-163.9
1996	1044.0	951.0	93.0	1575.0	1702.1	-127.1	1452.8	1560.1	-107.3

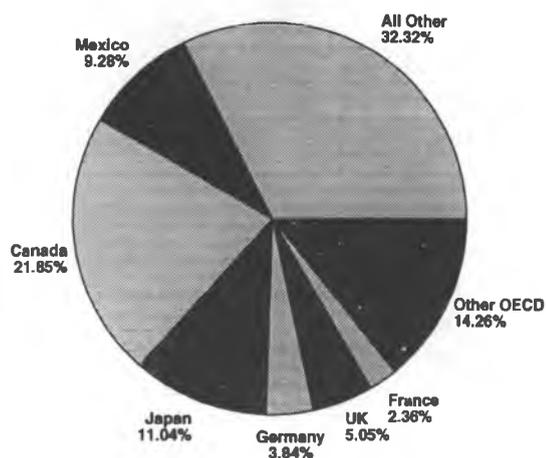
Trade and Investment Income Balances



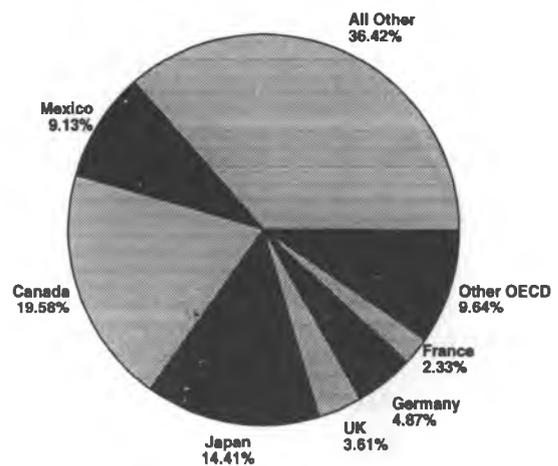
Exchange Rates



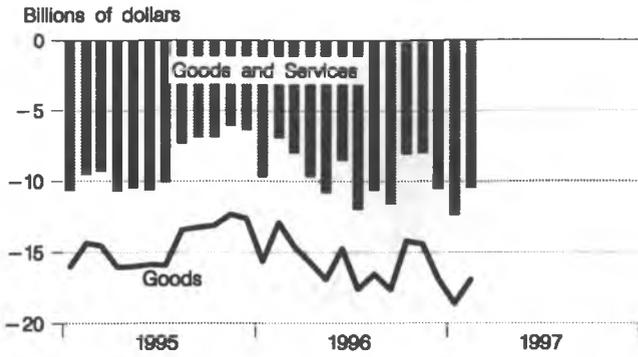
Goods Export Shares, 1996



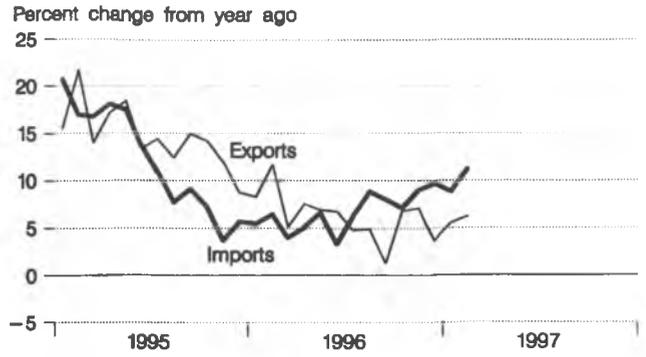
Goods Import Shares, 1996



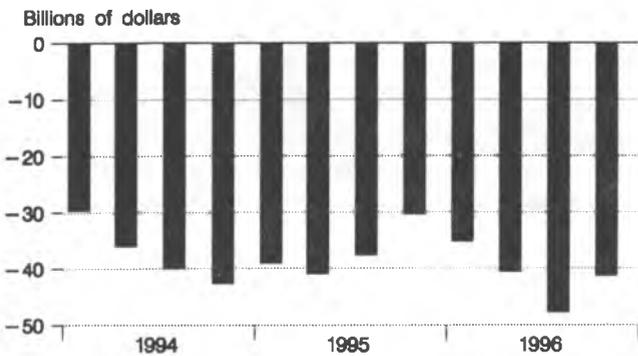
Trade Balance



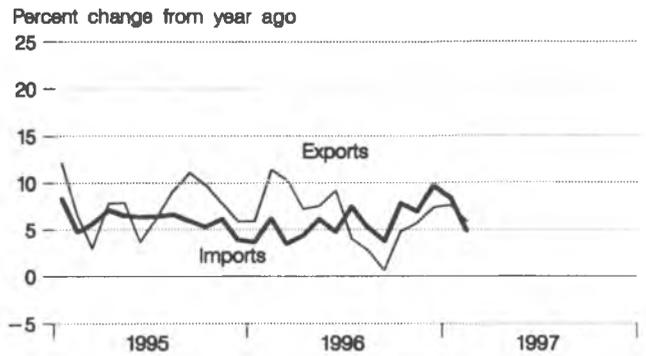
Goods Trade



Current Account Balance



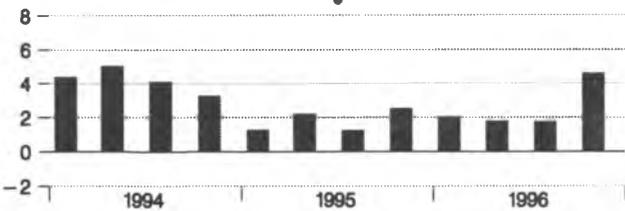
Services Trade



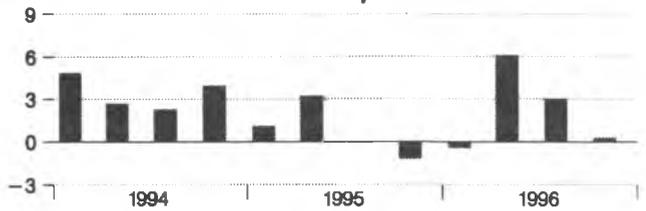
Real GDP Growth of Major Trading Partners

Percent change at annual rate

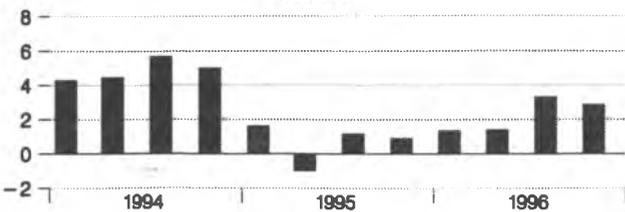
United Kingdom



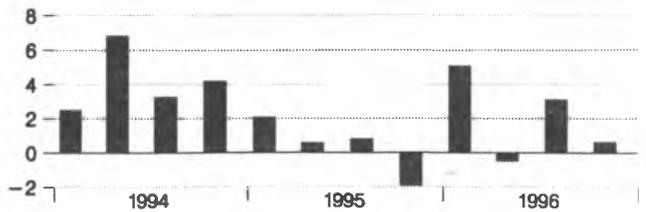
Germany



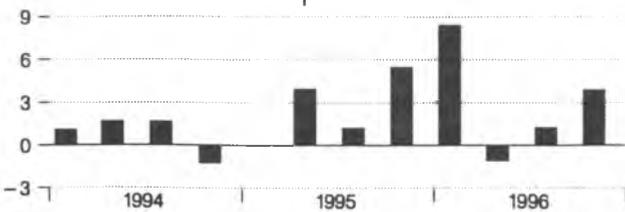
Canada



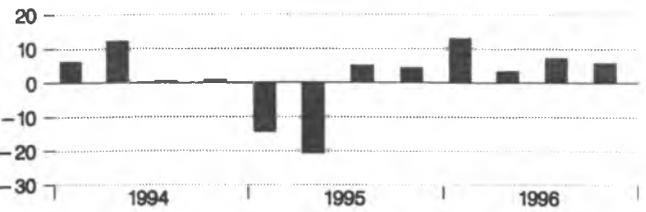
France



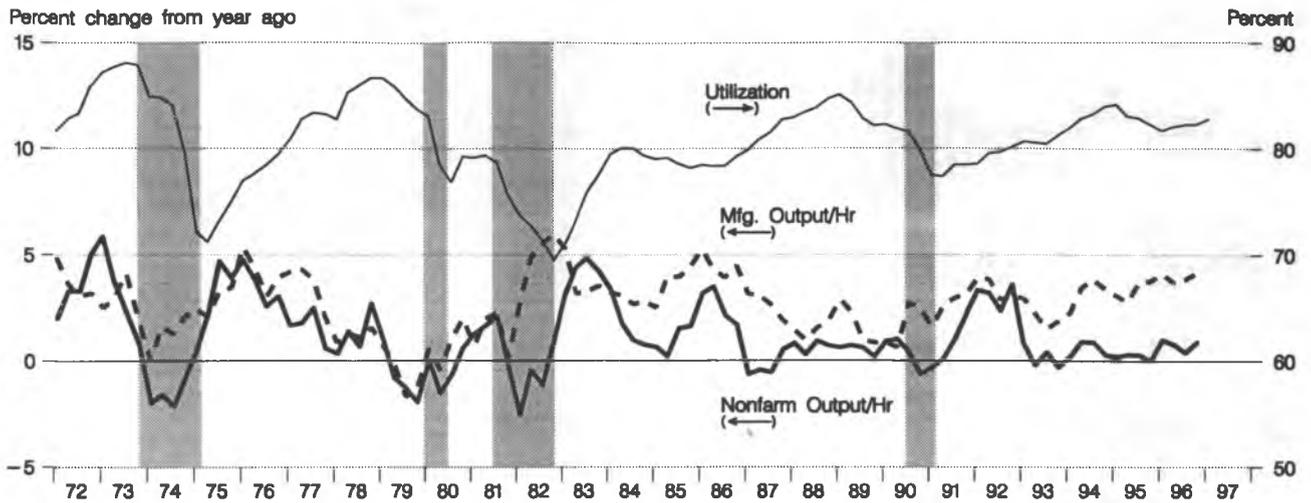
Japan



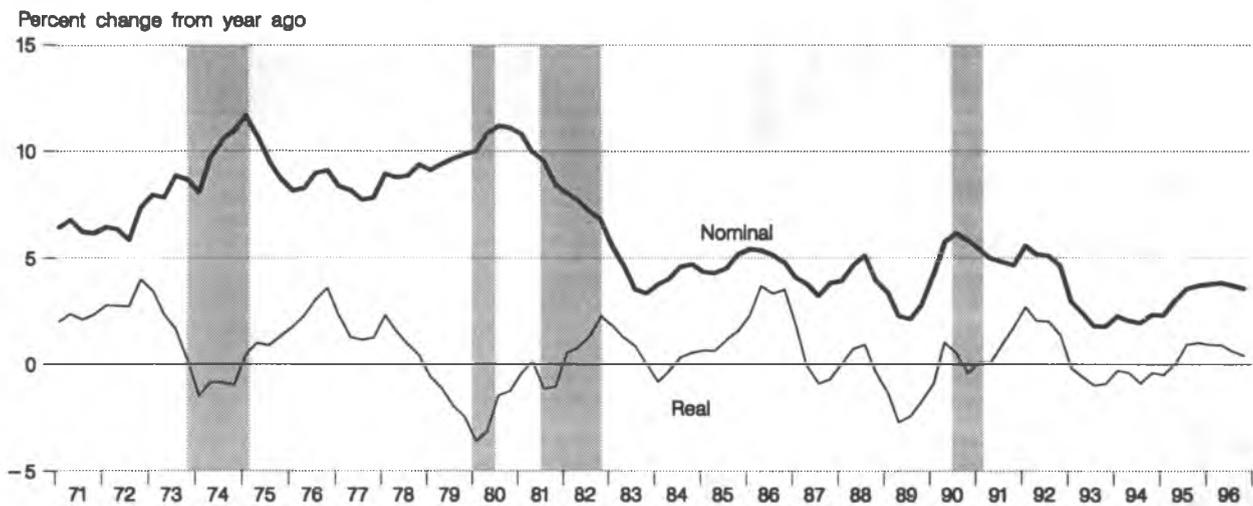
Mexico



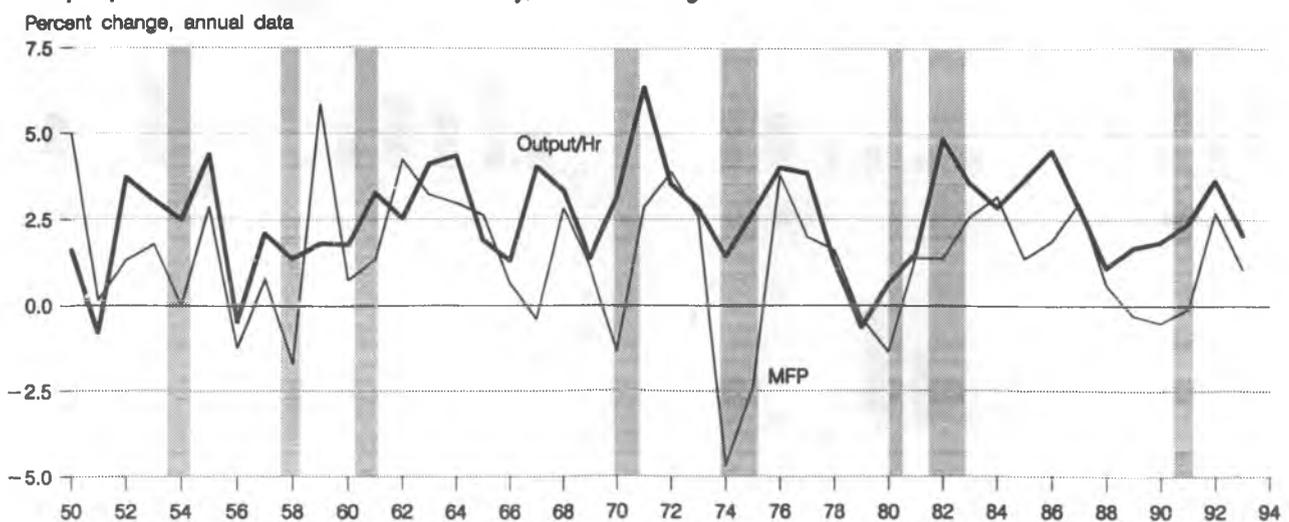
Output per Hour and Manufacturing Capacity Utilization



Nonfarm Compensation per Hour

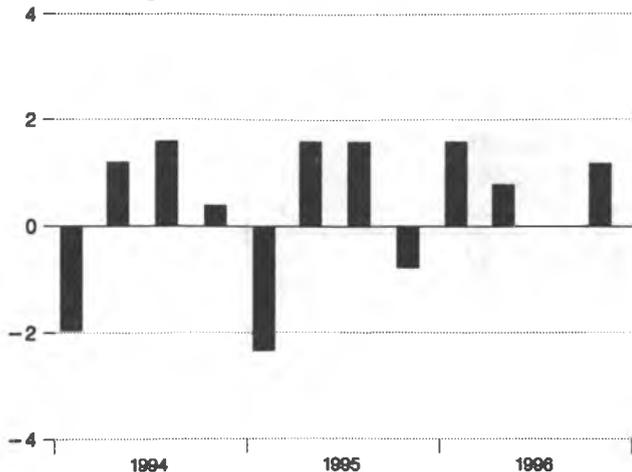


Output per Hour and Multifactor Productivity, Manufacturing



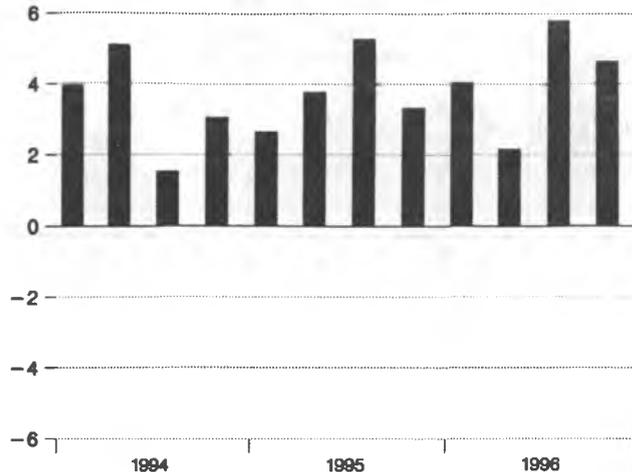
Nonfarm Output per Hour

Percent change at annual rate



Manufacturing Output per Hour

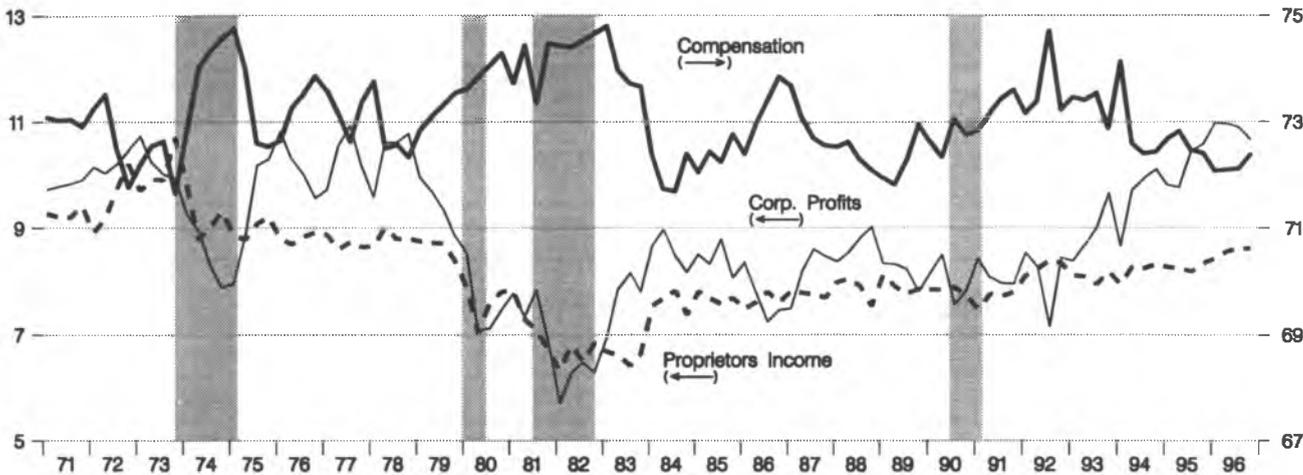
Percent change at annual rate



Selected Component Shares of National Income

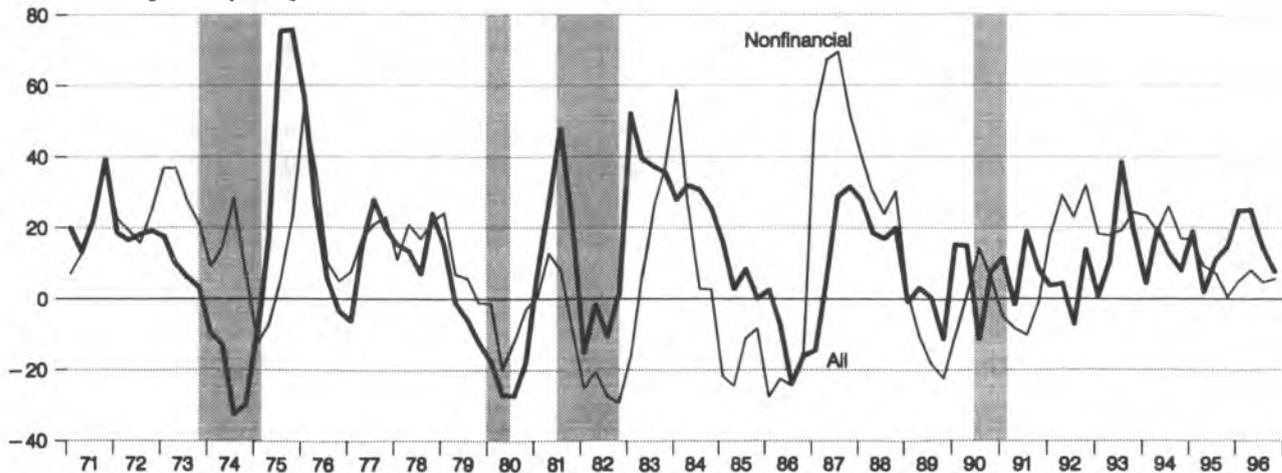
Percent

Percent



Corporate Profits after Tax (with IVA and CCAj)

Percent change from year ago



National Economic Trends

	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
1992	100.000		2.8	114.3		3.7	111.9		2.9	120.5		5.5
1993	102.616		2.6	118.4		3.6	115.2		2.9	127.0		5.4
1994	104.958		2.3	122.3		3.3	118.5		2.9	132.0		4.0
1995	107.565		2.5	125.6		2.8	121.9		2.9	135.0		2.2
1996	109.875		2.1	129.2		2.8	125.9		3.3	137.4		1.8
1994 1	104.149	2.9	2.3	120.8	3.0	3.3	117.1	2.1	2.8	130.3	4.4	4.3
2	104.632	1.9	2.2	121.8	3.4	3.3	118.1	3.5	3.1	131.5	3.7	4.0
3	105.248	2.4	2.3	122.8	3.3	3.3	119.0	3.1	2.9	132.8	4.0	4.0
4	105.802	2.1	2.3	123.6	2.6	3.1	119.8	2.7	2.8	133.5	2.1	3.6
1995 1	106.676	3.3	2.4	124.4	2.6	3.0	120.6	2.7	3.0	133.9	1.2	2.8
2	107.309	2.4	2.6	125.2	2.6	2.8	121.5	3.0	2.9	134.6	2.1	2.4
3	107.856	2.1	2.5	126.0	2.6	2.6	122.4	3.0	2.9	135.3	2.1	1.9
4	108.419	2.1	2.5	126.9	2.9	2.7	123.2	2.6	2.8	136.0	2.1	1.9
1996 1	109.027	2.3	2.2	127.7	2.5	2.7	124.4	4.0	3.2	136.0	0.0	1.6
2	109.619	2.2	2.2	128.8	3.5	2.9	125.5	3.6	3.3	137.0	3.0	1.8
3	110.166	2.0	2.1	129.7	2.8	2.9	126.4	2.9	3.3	137.7	2.1	1.8
4	110.689	1.9	2.1	130.6	2.8	2.9	127.4	3.2	3.4	138.7	2.9	2.0
1997 1	111.440	2.7	2.2	131.4	2.5	2.9	128.5	3.5	3.3	138.7	0.0	2.0
	Exports			Imports			Nonfarm Output per Hour			Nonfarm Compensation/Hr		
	Billions of 1992 \$	Percent change		Billions of 1992 \$	Percent change		Index	Percent change		Index	Percent change	
		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago		Annual rate	Year ago
1992	639.416		6.6	668.959		7.5	100.0		3.2	100.0		5.2
1993	658.215		2.9	730.249		9.2	100.2		0.2	102.3		2.3
1994	711.971		8.2	817.635		12.0	100.7		0.5	104.3		2.0
1995	775.401		8.9	882.999		8.0	100.9		0.2	107.7		3.3
1996	825.898		6.5	939.530		6.4	101.6		0.7	111.6		3.6
1994 1	677.647	-1.5	4.7	776.962	8.2	10.5	100.3	-2.0	0.2	103.8	3.1	2.3
2	703.108	15.9	6.5	810.404	18.4	11.9	100.6	1.2	0.9	104.1	1.2	2.1
3	719.560	9.7	11.5	831.262	10.7	13.6	101.0	1.6	0.9	104.5	1.5	2.0
4	747.573	16.5	9.9	851.919	10.3	11.8	101.1	0.4	0.3	105.4	3.5	2.3
1995 1	752.330	2.6	11.0	874.851	11.2	12.6	100.5	-2.4	0.2	106.2	3.1	2.3
2	763.226	5.9	8.6	884.605	4.5	9.2	100.9	1.6	0.3	107.2	3.8	3.0
3	782.952	10.7	8.8	884.524	-0.0	6.4	101.3	1.6	0.3	108.2	3.8	3.5
4	803.087	10.7	7.4	888.023	1.6	4.2	101.1	-0.8	0.0	109.3	4.1	3.7
1996 1	806.713	1.8	7.2	910.707	10.6	4.1	101.5	1.6	1.0	110.2	3.3	3.8
2	817.864	5.6	7.2	932.556	9.9	5.4	101.7	0.8	0.8	111.3	4.1	3.8
3	816.106	-0.9	4.2	953.541	9.3	7.8	101.7	0.0	0.4	112.2	3.3	3.7
4	862.911	25.0	7.4	961.314	3.3	8.3	102.0	1.2	0.9	113.2	3.6	3.6
1997 1	879.868	8.1	9.1	1010.128	21.9	10.9						

National Economic Trends

	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	
1992	118488	775		0.7	108592	331		0.3	121.2			0.7	
1993	120259	1771		1.5	110726	2134		2.0	124.6			2.8	
1994	123067	2808		2.3	114153	3427		3.1	129.9			4.2	
1995	124899	1833		1.5	117202	3050		2.7	133.4			2.7	
1996	126705	1806		1.4	119549	2347		2.0	136.4			2.2	
1995	1	124924	519	1.7	2.4	116484	874	3.1	3.4	132.9	0.6	2.4	4.2
	2	124711	-213	-0.7	1.7	116956	472	1.6	2.9	132.9	0.0	0.1	2.7
	3	124820	109	0.4	1.3	117441	485	1.7	2.4	133.6	0.5	2.1	2.4
	4	125142	322	1.0	0.6	117928	487	1.7	2.0	134.3	0.5	2.0	1.7
1996	1	125693	551	1.8	0.6	118466	538	1.8	1.7	134.2	-0.0	-0.2	1.0
	2	126381	688	2.2	1.3	119264	797	2.7	2.0	136.1	1.4	5.6	2.4
	3	127042	661	2.1	1.8	119958	694	2.3	2.1	137.0	0.7	2.8	2.5
	4	127705	664	2.1	2.0	120509	551	1.8	2.2	138.2	0.9	3.5	2.9
1997	1	128728	1023	3.2	2.4	121236	727	2.4	2.3	139.4	0.9	3.5	3.8
1995	Mar	125070	133	1.3	2.5	116701	199	2.1	3.3	132.8	0.1	0.9	3.3
	Apr	125023	-47	-0.5	2.2	116861	160	1.7	3.1	133.7	0.7	8.4	3.8
	May	124577	-446	-4.2	1.3	116907	46	0.5	2.8	131.9	-1.3	-15.0	1.7
	Jun	124533	-44	-0.4	1.5	117100	193	2.0	2.7	133.2	1.0	12.5	2.6
	Jul	124804	271	2.6	1.7	117201	101	1.0	2.5	133.5	0.2	2.7	2.6
	Aug	124729	-75	-0.7	1.2	117499	298	3.1	2.4	133.4	-0.1	-0.9	2.4
	Sep	124927	198	1.9	1.1	117623	124	1.3	2.3	134.0	0.4	5.5	2.3
	Oct	125235	308	3.0	1.0	117749	126	1.3	2.2	134.3	0.2	2.7	1.7
	Nov	125124	-111	-1.1	0.5	117899	150	1.5	1.9	134.3	0.0	0.0	1.9
	Dec	125068	-56	-0.5	0.3	118136	237	2.4	1.9	134.3	0.0	0.0	1.4
1996	Jan	125311	243	2.4	0.4	118070	-66	-0.7	1.6	131.7	-1.9	-20.9	-1.1
	Feb	125706	395	3.8	0.6	118579	509	5.3	1.8	135.5	2.9	40.7	2.1
	Mar	126062	356	3.5	0.8	118750	171	1.7	1.8	135.5	0.0	0.0	2.0
	Apr	126125	63	0.6	0.9	118922	172	1.8	1.8	135.2	-0.2	-2.6	1.1
	May	126428	303	2.9	1.5	119332	410	4.2	2.1	135.3	0.1	0.9	2.6
	Jun	126590	162	1.5	1.7	119537	205	2.1	2.1	137.7	1.8	23.5	3.4
	Jul	126889	299	2.9	1.7	119772	235	2.4	2.2	136.1	-1.2	-13.1	1.9
	Aug	126988	99	0.9	1.8	120052	280	2.8	2.2	136.9	0.6	7.3	2.6
	Sep	127248	260	2.5	1.9	120050	-2	-0.0	2.1	138.0	0.8	10.1	3.0
	Oct	127617	369	3.5	1.9	120311	261	2.6	2.2	137.1	-0.7	-7.6	2.1
	Nov	127644	27	0.3	2.0	120492	181	1.8	2.2	138.2	0.8	10.1	2.9
	Dec	127855	211	2.0	2.2	120723	231	2.3	2.2	139.3	0.8	10.0	3.7
1997	Jan	128580	725	7.0	2.6	120982	259	2.6	2.5	137.1	-1.6	-17.4	4.1
	Feb	128430	-150	-1.4	2.2	121275	293	2.9	2.3	140.6	2.6	35.3	3.8
	Mar	129175	745	7.2	2.5	121450	175	1.7	2.3	140.5	-0.1	-0.9	3.7

	Unempl. Rate	Retail Sales				Industrial Production				Treasury Yields	
		Billions of dollars	Percent change			Index	Percent change			3-mo	10-yr
			Monthly rate	Annual rate	Year ago		Monthly rate	Annual rate	Year ago		
1992	7.5	1944.605			4.8	100.000			3.2	3.43	7.01
1993	6.9	2072.550			6.6	103.366			3.4	3.00	5.86
1994	6.1	2227.763			7.5	108.558			5.0	4.25	7.08
1995	5.6	2342.801			5.2	112.109			3.3	5.49	6.58
1996	5.4	2458.067			4.9	115.198			2.8	5.01	6.44
1995	1	576.706	0.7	2.7	6.1	111.764	1.0	3.9	5.1	5.74	7.48
	2	582.972	1.1	4.4	5.8	111.561	-0.2	-0.7	3.3	5.60	6.62
	3	589.293	1.1	4.4	5.1	112.441	0.8	3.2	3.0	5.37	6.32
	4	593.830	0.8	3.1	3.7	112.671	0.2	0.8	1.8	5.26	5.89
1996	1	605.426	2.0	8.0	5.0	113.128	0.4	1.6	1.2	4.93	5.91
	2	614.066	1.4	5.8	5.3	114.844	1.5	6.2	2.9	5.02	6.72
	3	615.445	0.2	0.9	4.4	115.774	0.8	3.3	3.0	5.10	6.78
	4	623.130	1.2	5.1	4.9	117.048	1.1	4.5	3.9	4.98	6.34
1997	1	642.662	3.1	13.1	6.2	118.652	1.4	5.6	4.9	5.06	6.56
1995	Mar	192.574	0.8	10.1	4.6	111.720	0.1	0.8	4.4	5.73	7.20
	Apr	192.372	-0.1	-1.3	4.9	111.421	-0.3	-3.2	3.7	5.65	7.06
	May	194.493	1.1	14.1	6.3	111.523	0.1	1.1	3.2	5.67	6.63
	Jun	196.107	0.8	10.4	6.2	111.739	0.2	2.3	2.9	5.47	6.17
	Jul	195.615	-0.3	-3.0	5.9	111.716	-0.0	-0.2	2.4	5.42	6.28
	Aug	197.081	0.7	9.4	5.2	112.603	0.8	10.0	3.1	5.40	6.49
	Sep	196.597	-0.2	-2.9	4.4	113.003	0.4	4.3	3.4	5.28	6.20
	Oct	196.225	-0.2	-2.2	2.8	112.522	-0.4	-5.0	2.3	5.28	6.04
	Nov	198.159	1.0	12.5	3.8	112.704	0.2	2.0	1.9	5.36	5.93
	Dec	199.446	0.6	8.1	4.4	112.788	0.1	0.9	1.1	5.14	5.71
1996	Jan	199.132	-0.2	-1.9	3.1	112.361	-0.4	-4.4	0.4	5.00	5.65
	Feb	202.425	1.7	21.8	6.0	113.782	1.3	16.3	1.9	4.83	5.81
	Mar	203.869	0.7	8.9	5.9	113.241	-0.5	-5.6	1.4	4.96	6.27
	Apr	204.031	0.1	1.0	6.1	114.284	0.9	11.6	2.6	4.95	6.51
	May	205.669	0.8	10.1	5.7	114.782	0.4	5.4	2.9	5.02	6.74
	Jun	204.366	-0.6	-7.3	4.2	115.466	0.6	7.4	3.3	5.09	6.91
	Jul	204.719	0.2	2.1	4.7	115.495	0.0	0.3	3.4	5.15	6.87
	Aug	204.599	-0.1	-0.7	3.8	115.848	0.3	3.7	2.9	5.05	6.64
	Sep	206.127	0.7	9.3	4.8	115.978	0.1	1.4	2.6	5.09	6.83
	Oct	207.487	0.7	8.2	5.7	116.231	0.2	2.6	3.3	4.99	6.53
	Nov	207.324	-0.1	-0.9	4.6	117.216	0.8	10.7	4.0	5.03	6.20
	Dec	208.319	0.5	5.9	4.4	117.697	0.4	5.0	4.4	4.91	6.30
1997	Jan	211.957	1.7	23.1	6.4	117.824	0.1	1.3	4.9	5.03	6.58
	Feb	215.136	1.5	19.6	6.3	118.543	0.6	7.6	4.2	5.01	6.42
	Mar	215.569	0.2	2.4	5.7	119.590	0.9	11.1	5.6	5.14	6.69

National Economic Trends

	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 rate	Annual rate	Year ago	Year to date		Monthly rate	Annual rate	Year ago	Year to date		Monthly rate	Annual rate	Year ago	
1992	140.4			3.0		147.5			3.7		123.2			1.2	
1993	144.6			3.0		152.4			3.3		124.7			1.2	
1994	148.3			2.6		156.7			2.8		125.6			0.7	
1995	152.5			2.8		161.4			3.0		127.9			1.9	
1996	157.0			2.9		165.8			2.7		131.3			2.6	
1995	1	151.0	0.7	2.8	2.9	2.8	159.6	0.8	3.3	3.0	3.3	127.1	0.7	3.0	1.7
	2	152.1	0.8	3.1	3.0	3.0	161.0	0.8	3.4	3.0	3.4	127.6	0.4	1.7	2.0
	3	152.9	0.5	2.1	2.6	2.7	162.0	0.6	2.6	3.0	3.1	128.0	0.3	1.3	1.6
	4	153.9	0.6	2.5	2.6	2.6	163.1	0.7	2.8	3.0	3.0	129.0	0.7	2.9	2.2
1996	1	155.1	0.8	3.3	2.8	3.3	164.2	0.7	2.6	2.9	2.6	129.9	0.7	3.0	2.2
	2	156.4	0.8	3.4	2.8	3.4	165.3	0.6	2.6	2.7	2.6	130.9	0.7	2.9	2.5
	3	157.5	0.7	2.7	3.0	3.1	166.3	0.6	2.5	2.7	2.6	131.6	0.6	2.3	2.8
	4	158.8	0.8	3.3	3.2	3.2	167.4	0.6	2.6	2.6	2.6	132.9	1.0	3.9	3.0
1997	1	159.7	0.6	2.4	2.9	2.4	168.3	0.6	2.2	2.5	2.2	132.6	-0.2	-0.7	2.1
1995	Mar	151.3	0.2	2.4	2.9	2.7	160.1	0.3	3.8	3.0	3.8	127.3	0.2	1.9	1.8
	Apr	151.8	0.3	4.0	3.1	3.0	160.6	0.3	3.8	3.1	3.8	127.5	0.2	1.9	1.9
	May	152.1	0.2	2.4	3.0	2.9	161.0	0.2	3.0	3.1	3.7	127.7	0.2	1.9	2.2
	Jun	152.5	0.3	3.2	3.0	2.9	161.3	0.2	2.3	2.9	3.4	127.7	0.0	0.0	2.0
	Jul	152.6	0.1	0.8	2.8	2.6	161.6	0.2	2.3	3.0	3.3	127.9	0.2	1.9	1.8
	Aug	153.0	0.3	3.2	2.6	2.7	162.0	0.2	3.0	2.9	3.2	127.9	0.0	0.0	1.3
	Sep	153.2	0.1	1.6	2.5	2.6	162.4	0.2	3.0	3.0	3.2	128.3	0.3	3.8	1.8
	Oct	153.7	0.3	4.0	2.7	2.7	162.9	0.3	3.8	3.1	3.3	128.5	0.2	1.9	2.4
	Nov	153.8	0.1	0.8	2.6	2.5	163.1	0.1	1.5	3.0	3.1	128.8	0.2	2.8	2.1
	Dec	154.1	0.2	2.4	2.5	2.5	163.4	0.2	2.2	3.0	3.0	129.6	0.6	7.7	2.2
1996	Jan	154.7	0.4	4.8	2.7	4.8	163.8	0.2	3.0	2.9	3.0	129.7	0.1	0.9	2.2
	Feb	155.1	0.3	3.1	2.7	4.0	164.2	0.2	3.0	2.9	3.0	129.7	0.0	0.0	2.0
	Mar	155.6	0.3	3.9	2.8	4.0	164.6	0.2	3.0	2.8	3.0	130.4	0.5	6.7	2.4
	Apr	156.1	0.3	3.9	2.8	3.9	164.9	0.2	2.2	2.7	2.8	130.6	0.2	1.9	2.4
	May	156.5	0.3	3.1	2.9	3.8	165.3	0.2	3.0	2.7	2.8	130.8	0.2	1.9	2.4
	Jun	156.7	0.1	1.5	2.8	3.4	165.6	0.2	2.2	2.7	2.7	131.2	0.3	3.7	2.7
	Jul	157.1	0.3	3.1	2.9	3.4	166.0	0.2	2.9	2.7	2.7	131.2	0.0	0.0	2.6
	Aug	157.4	0.2	2.3	2.9	3.2	166.2	0.1	1.5	2.6	2.6	131.6	0.3	3.7	2.9
	Sep	157.9	0.3	3.9	3.1	3.3	166.7	0.3	3.7	2.6	2.7	132.0	0.3	3.7	2.9
	Oct	158.3	0.3	3.1	3.0	3.3	167.0	0.2	2.2	2.5	2.6	132.5	0.4	4.6	3.1
	Nov	158.8	0.3	3.9	3.3	3.3	167.4	0.2	2.9	2.6	2.7	132.7	0.2	1.8	3.0
	Dec	159.2	0.3	3.1	3.3	3.3	167.7	0.2	2.2	2.6	2.6	133.4	0.5	6.5	2.9
1997	Jan	159.4	0.1	1.5	3.0	1.5	167.9	0.1	1.4	2.5	1.4	133.0	-0.3	-3.5	2.5
	Feb	159.8	0.3	3.1	3.0	2.3	168.3	0.2	2.9	2.5	2.2	132.5	-0.4	-4.4	2.2
	Mar	159.9	0.1	0.8	2.8	1.8	168.7	0.2	2.9	2.5	2.4	132.4	-0.1	-0.9	1.5

Notes

Pages 4, 5: **Final sales** is gross domestic product (GDP) minus change in business 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. The **Purchasing Managers' Index** is a weighted average of diffusion indexes for new orders, production, supplier deliveries, inventories, and employment. The National Association of Purchasing Management (NAPM) surveys over 300 firms in 20 manufacturing industries, weighting responses by industry share of GDP. **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: The contribution of a component X_t to the overall GDP growth rate in quarter t is $100 \times [(1 + (X_t - X_{t-1})/GDP_{t-1})^4 - 1]$. The sign is changed for **imports**. This calculation forces components to add up to the GDP growth rate before compounding and does not exactly match *Survey of Current Business*, Table 8.2. The **residual line** is calculated using the finest level of detail in the table.

Page 7: Ten-year **Treasury yields** are adjusted to constant maturity. Three-month yields are secondary market averages, but all rates used in the yield curves are adjusted to constant maturity. The **total return on the Standard and Poor's 500** is dividends as a percent of the value of the index plus the percent change in the index.

Pages 8,9: **Oil prices** are monthly averages of daily spot prices for West Texas intermediate crude (*Wall Street Journal*). **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: **Nonfarm payroll employment** is counted in a survey of about 390,000 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 50,000 households provides estimates of civilian employment, unemployment rate, labor force participation rate, and employment-population ratio. **Population** is civilian, noninstitutional, 16 years and over. New population controls introduced in January 1997 affect levels and growth rates of household survey employment, labor force and population. The unemployment rate and other ratios are minimally affected. 90 percent confidence intervals for the unemployment rate (± 0.2 percentage points) and change in household survey employment ($\pm 376,000$) measure uncertainty due to sample size. The household survey was changed in January 1994, so care should be exercised in making short-term comparisons around this date, particularly with the duration data shown on page 10. Other changes in the survey are detailed in Bureau of Labor Statistics, *Employment and Earnings*, Appendix A.

Pages 12, 13: **Debt service** is an estimate of scheduled interest and principal payments on outstanding debt. 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.

Pages 14, 15: Overall **gross saving** includes government saving, which is the sum of the government surplus and capital consumption (see notes for pages 16 and 17). **Net foreign investment (NFI)** is U.S. investment abroad minus foreign investment in the U.S. Aside from a statistical discrepancy, NFI also equals the difference between gross domestic investment and saving.

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 National Income and Product Accounts (NIPA). The **unified federal budget 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** on these pages are from the NIPAs, except as noted. Since 1977, the federal fiscal year starts on October 1. **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. **Multifactor productivity** estimates changes in output that do not correspond to changes in quantities of labor, capital, or intermediate inputs. **Inventory valuation adjustments (IVA)** remove the effect of changes in the value of existing inventories from corporate profits and proprietors' income. (This change in value does not correspond to current production and therefore is not part of GDP). **Capital consumption adjustments (CCAdj)** increase profits and proprietors' income by the difference between estimates of economic depreciation and depreciation allowed by the tax code. Components of national income not shown are rental income of persons and net interest.

Sources

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

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

Census Bureau, U.S. Dept. of Commerce

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

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

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

United States Department of Treasury

Unified budget receipts, outlays, deficit

Federal Reserve Board

Index of industrial production, treasury yields, exchange rates, capacity utilization, consumer debt service

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)

Federal Reserve Bank of St. Louis
Post Office Box 442
St. Louis, Missouri 63166

Subscriber:

Please include address label with
subscription inquiries or address changes.