

National Economic Trends

THE
FEDERAL
RESERVE
BANK of
ST. LOUIS

Inflation and Labor Cost

In discussing inflation trends in the U.S. economy, many analysts study growth in compensation paid to workers. The usual thinking is that a faster rate of increase in wages (plus benefits) might be a harbinger of higher inflation in the not-too-distant future. Thus, markets often interpret reports of faster wage growth as bearish inflation news. Is such an interpretation reasonable? What does wage growth tell us about inflation prospects?

The chart shows an employee compensation measure—the employment cost index for private industry workers—measured as a percentage change from one year earlier. The consumer price index inflation rate is also shown in the chart. These two series do tend to move together over long periods of time, and this probably helps explain why analysts watch wages closely when thinking about inflation prospects. However, there does not appear to be any clear indication that changes in the pace of growth of the employment cost index precede or help predict subsequent changes in the rate of inflation. Thus, the typical market interpretation of employee compensation news should be viewed with caution. This impression from the chart—that wage data do little to help predict future inflation—is borne out in some recent econometric analysis.¹

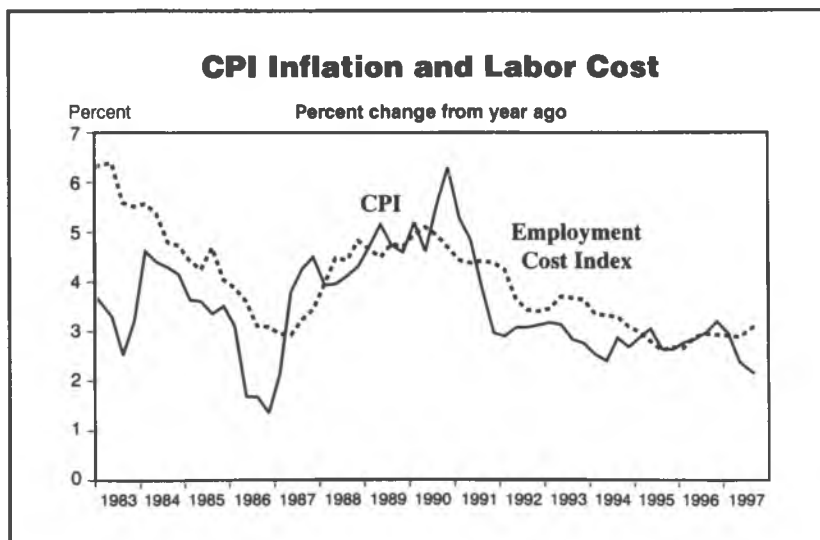
It may strike the reader as a compelling idea that increases in wages should signal changes in future inflation. But there are at least two reasons to doubt this story. One is productivity growth. Standard economic theories suggest that real wages are determined largely by productivity, so that increases in productivity alone should lead to increases in compensation for employees. Even if we lived in a zero inflation world, we would still expect

compensation to increase in line with productivity growth over long periods of time. In addition, the pace of productivity growth is uneven, sometimes increasing more rapidly and other times slowly. In the chart, the rate of increase in the employment cost index is therefore mixing variable productivity increases with increases due solely to inflation.

A second reason for doubt is the question of causality. Is wage growth driving inflation, or is inflation driving the nonproductivity portion of wage gains? One might suspect the latter. Compensation is often set with a view to future inflation prospects, so that wages reflect an expected inflation component, or with cost-of-living allowances, which ties changes to past inflation rates. We might then expect compensation to increase more rapidly because of a recent or expected future increase in inflation. Thus, inflation or expected inflation would be the cause of wage growth—not the other way around.

—James Bullard

¹ For more details see K. Emery and C-P Chang, "Do Wages Help Predict Inflation?" Federal Reserve Bank of Dallas *Economic Review*, First Quarter 1996.



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

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Conventions used in this publication:

1. Charts and tables contain data that was current on December 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:

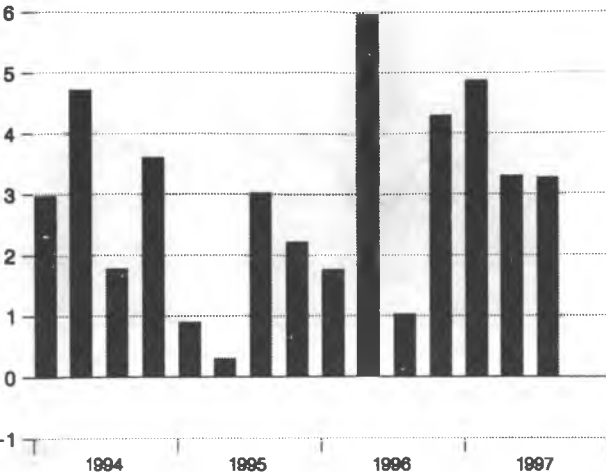
$$100 \times \left[\left(\frac{X_t}{X_{t-1}} \right)^4 - 1 \right]$$

For monthly data replace 4 with 12.

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

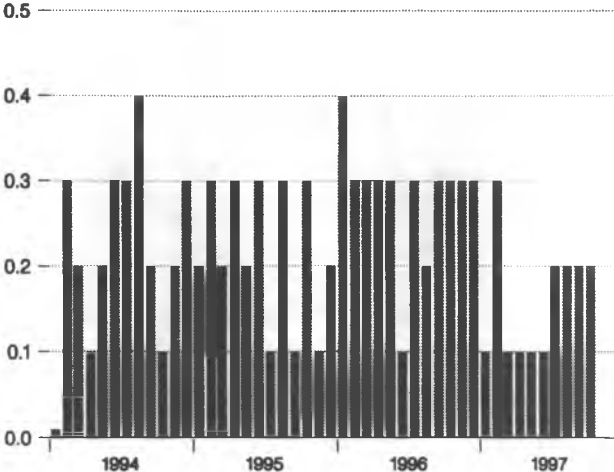
Real GDP Growth

Percent change at annual rate



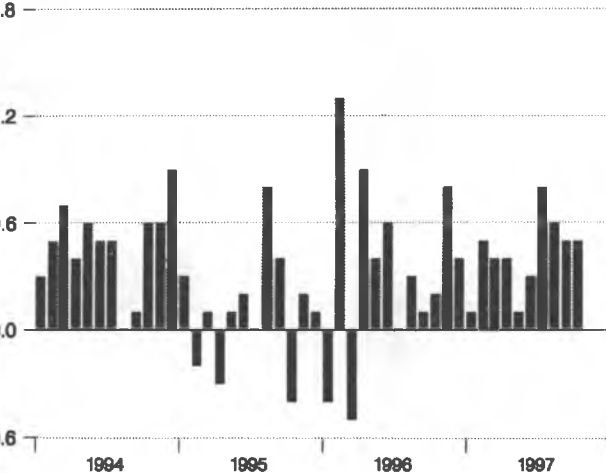
Consumer Price Index

Percent change



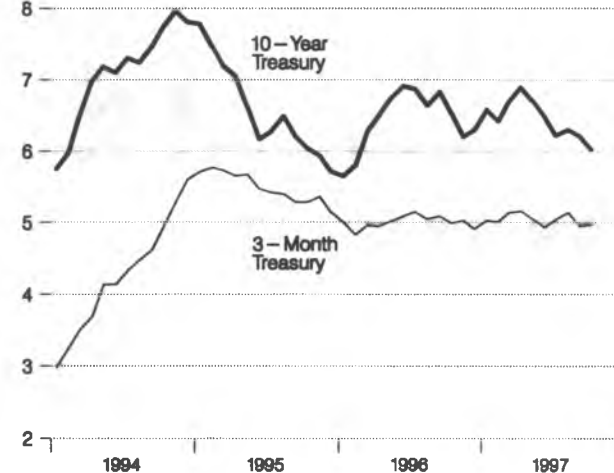
Industrial Production

Percent change



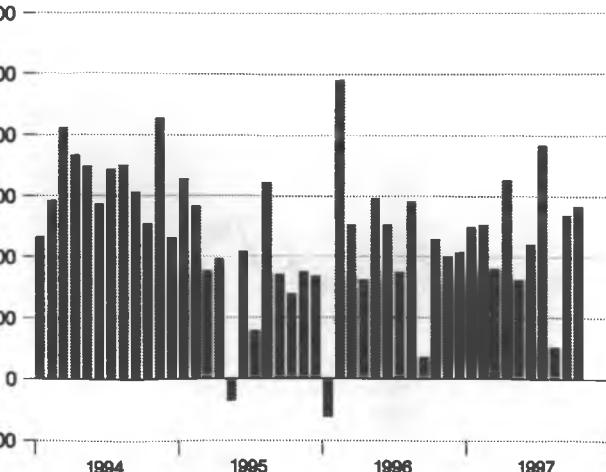
Interest Rates

Percent



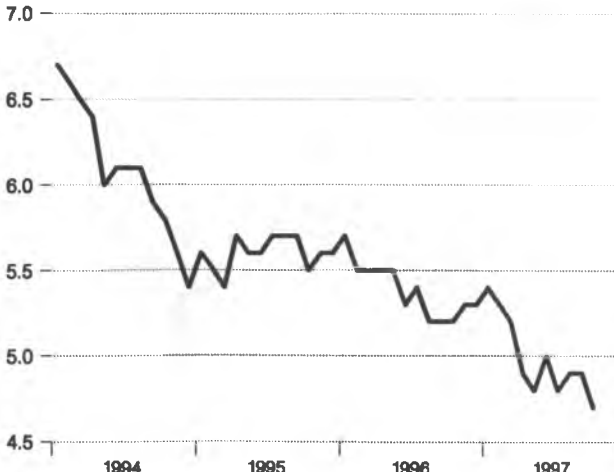
Change in Nonfarm Payrolls

Thousands



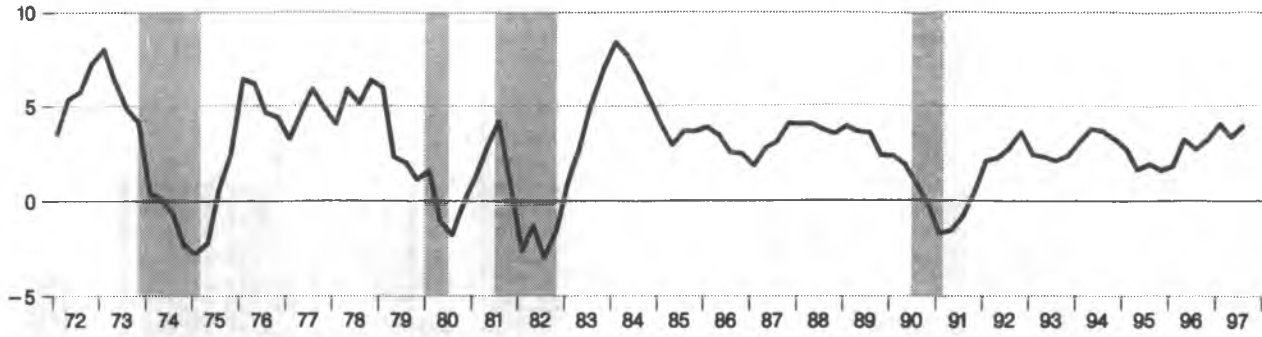
Unemployment Rate

Percent of labor force



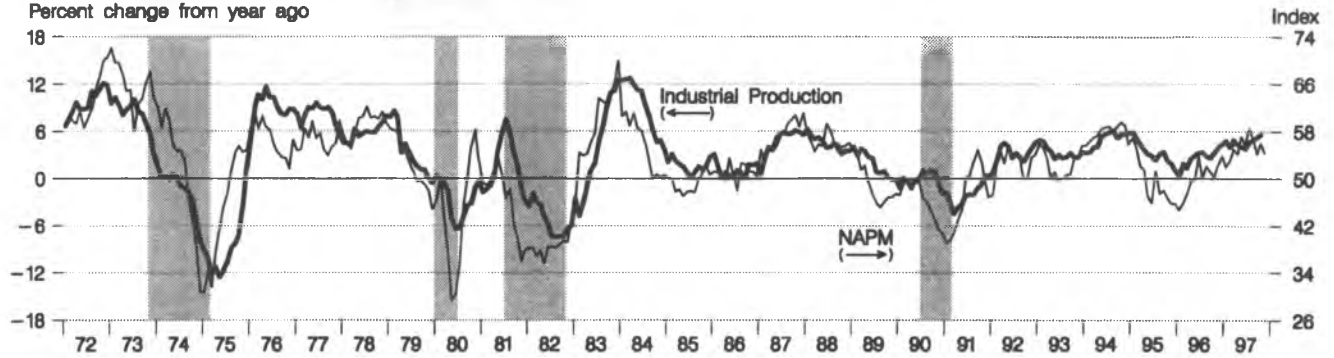
Real Gross Domestic Product

Percent change from year ago



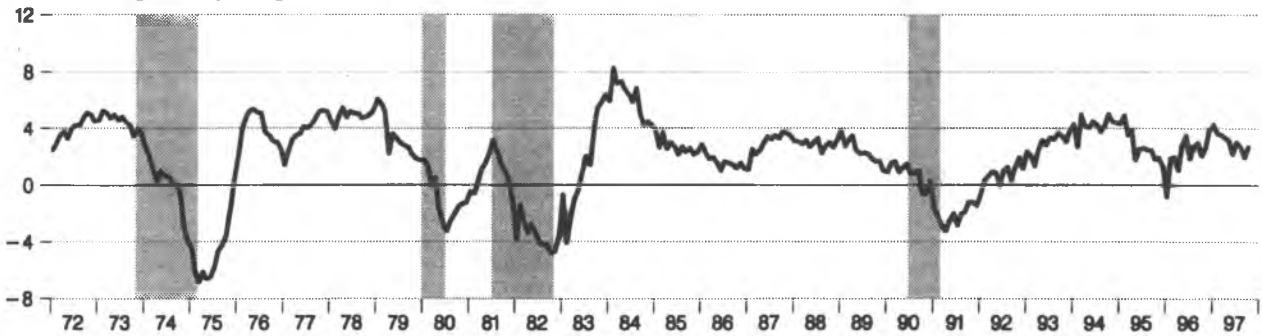
Industrial Production and Purchasing Managers' (NAPM) Indexes

Percent change from year ago



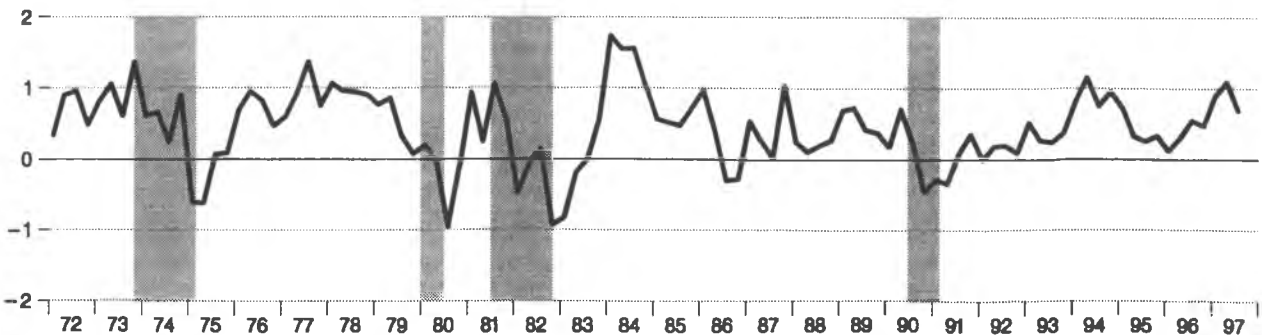
Aggregate Private Nonfarm Hours

Percent change from year ago



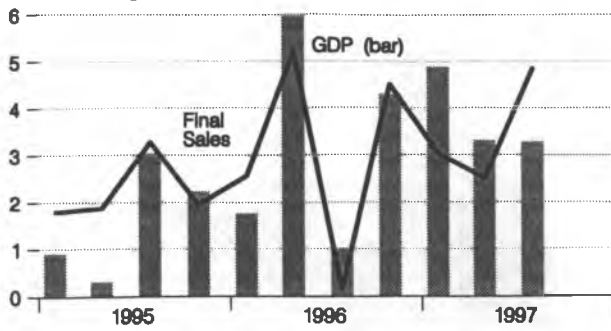
Real Change in Business Inventories

Percent of GDP



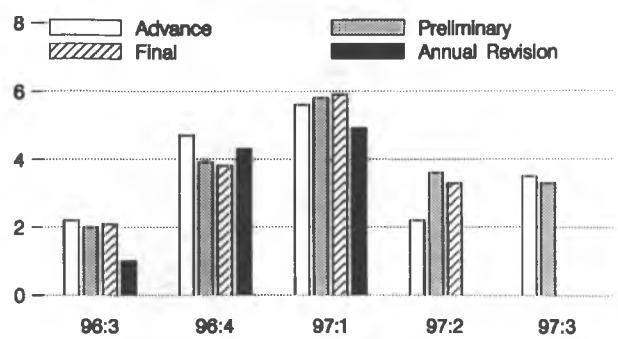
Real Final Sales and GDP

Percent change at annual rate



Real GDP Revisions

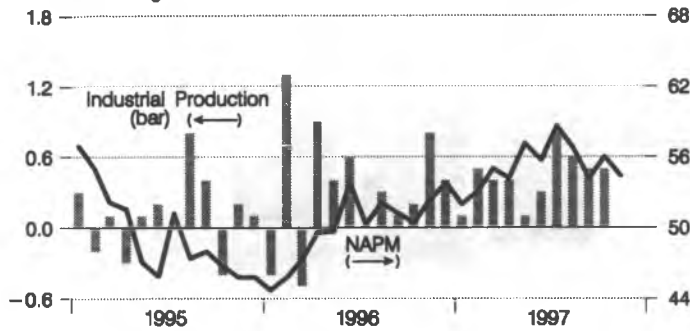
Percent change at annual rate



Industrial Production and NAPM Index

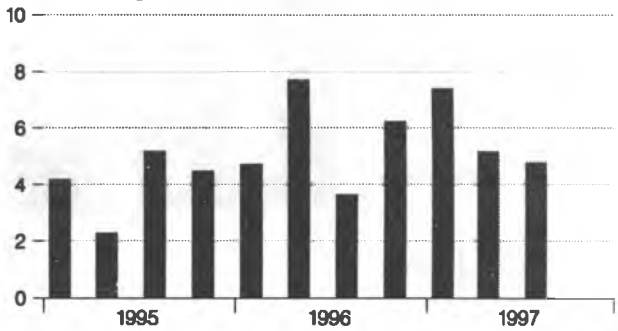
Percent change

Index



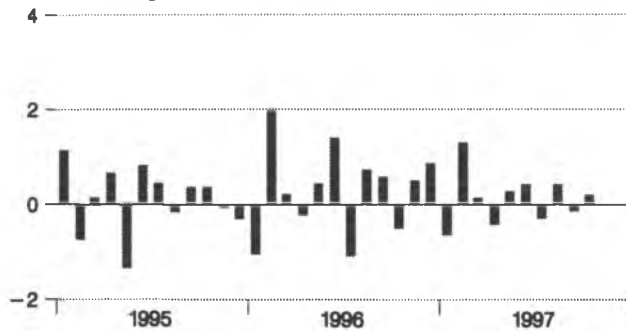
Nominal Gross Domestic Product

Percent change at annual rate



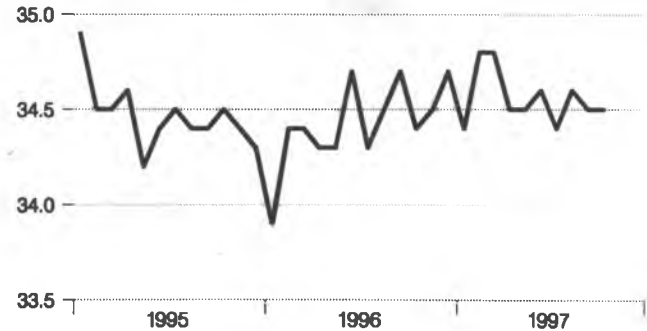
Aggregate Private Nonfarm Hours

Percent change



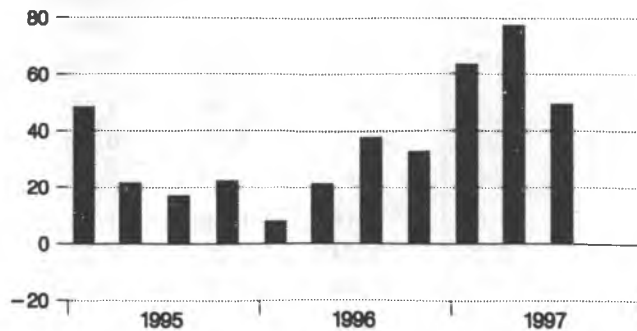
Average Weekly Private Nonfarm Hours

Hours



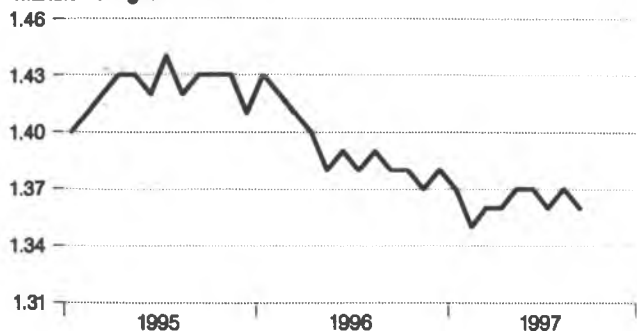
Real Change in Business Inventories

Billions of 1992 dollars



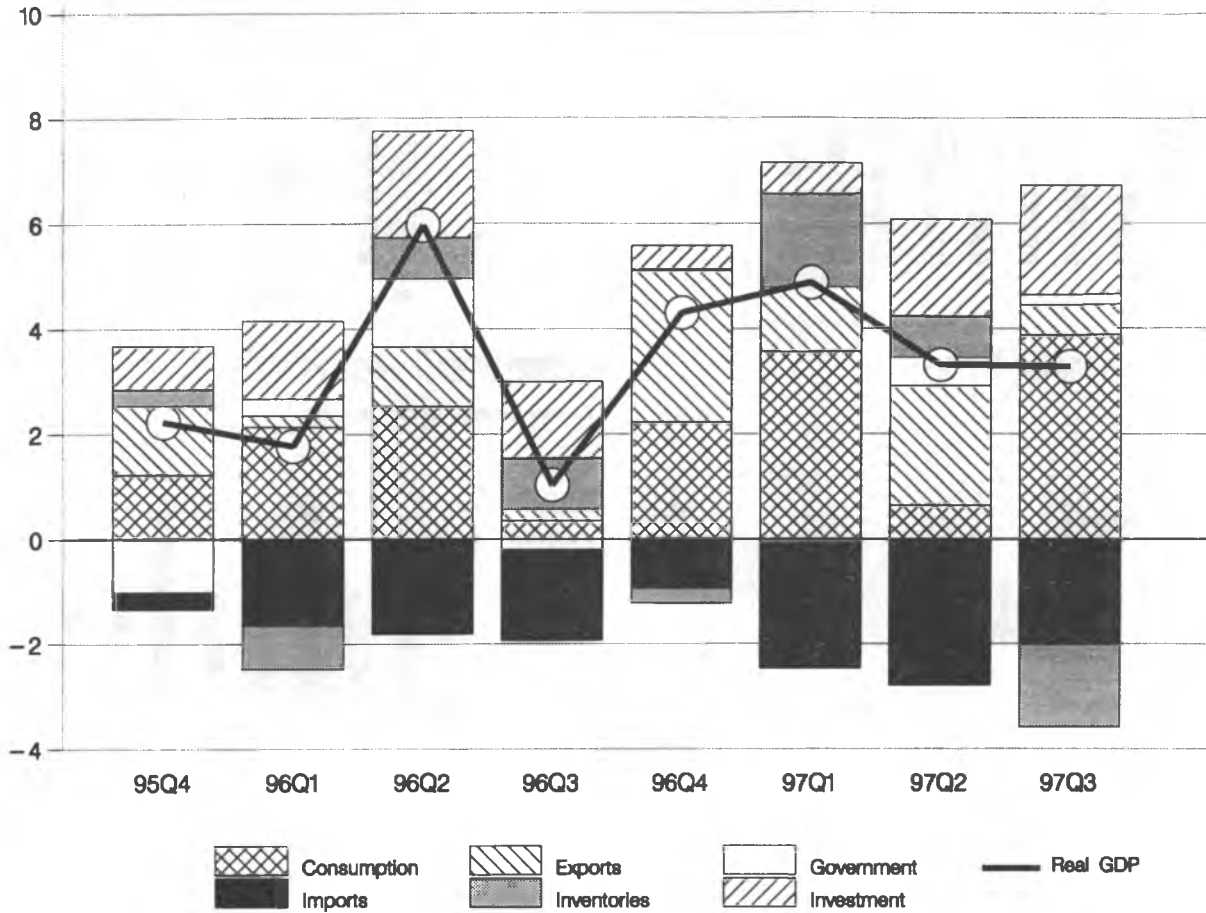
Inventory-Sales Ratio

Manufacturing and trade



Contribution of Components to Real GDP Growth

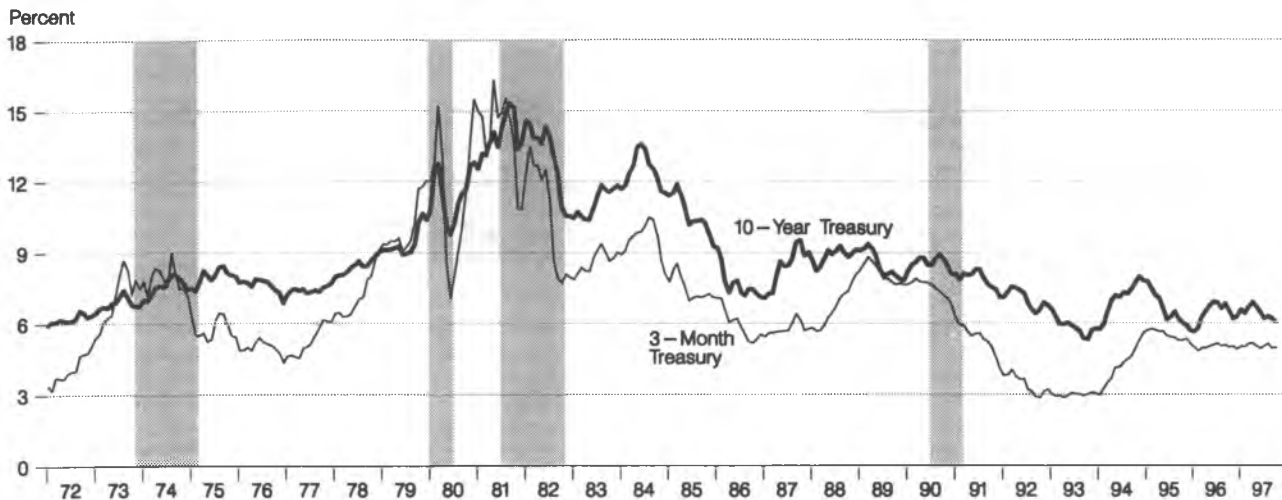
Percent change at annual rate



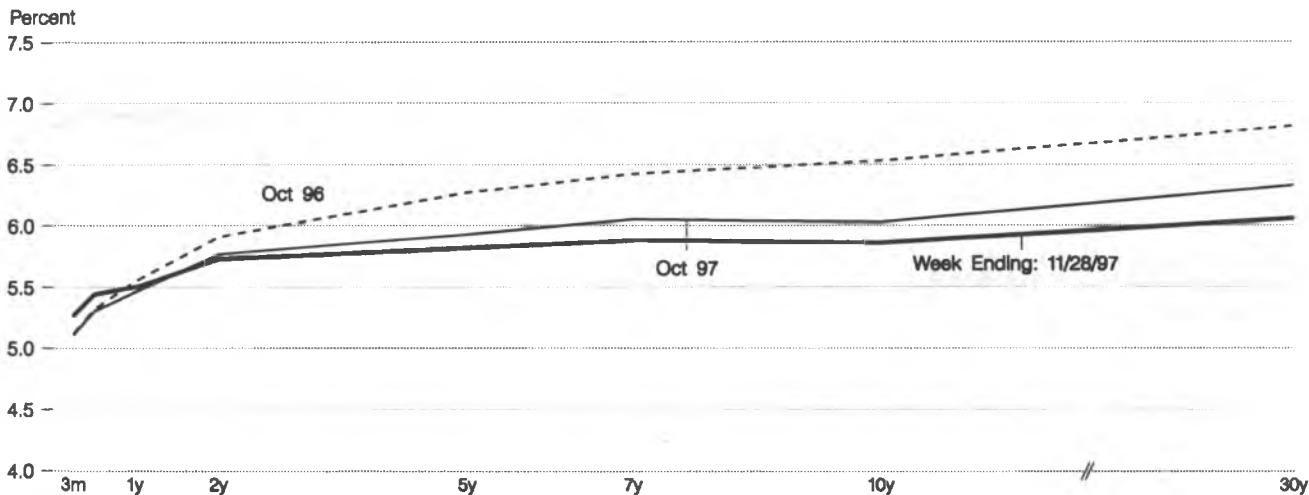
Contributions to Real GDP Growth Rate

	1995	1996				1997		
	4th	1st	2nd	3rd	4th	1st	2nd	3rd
Real GDP	2.22	1.77	5.97	1.03	4.31	4.89	3.31	3.28
Final Sales	1.94	2.56	5.22	0.16	4.49	3.02	2.48	4.80
Change in Inventory	0.31	-0.83	0.78	0.96	-0.29	1.76	0.79	-1.56
Consumption	1.22	2.13	2.53	0.35	2.22	3.56	0.64	3.88
Fixed Investment	0.83	1.49	2.02	1.46	0.45	0.59	1.84	2.07
Nonresidential	0.51	1.19	1.34	1.72	0.66	0.47	1.59	2.00
Residential	0.31	0.31	0.66	-0.18	-0.17	0.13	0.28	0.14
Government	-1.02	0.32	1.29	-0.20	0.02	-0.08	0.54	0.20
Federal	-1.23	0.49	0.58	-0.29	-0.35	-0.38	0.41	-0.06
State and Local	0.21	-0.16	0.71	0.08	0.37	0.31	0.13	0.26
Net Exports	1.00	-1.44	-0.69	-1.51	1.93	-1.18	-0.58	-1.46
Exports	1.32	0.21	1.13	0.23	2.89	1.24	2.26	0.57
Imports	-0.32	-1.65	-1.81	-1.73	-0.94	-2.39	-2.80	-2.03
Residual	-0.11	0.11	-0.03	-0.08	-0.10	0.20	0.02	0.13

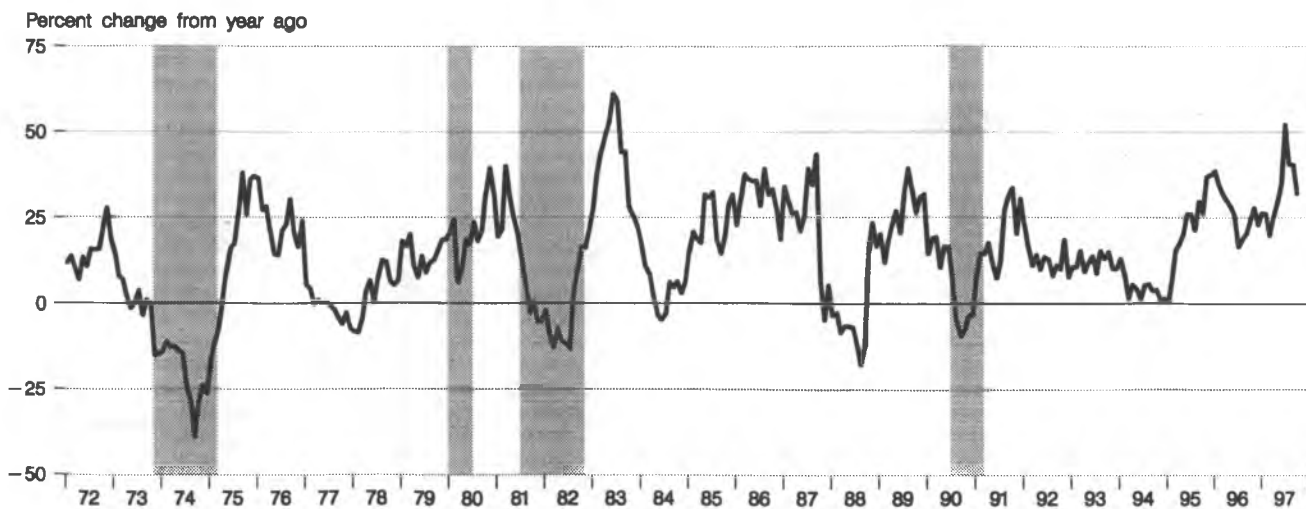
Interest Rates



Treasury Yield Curve

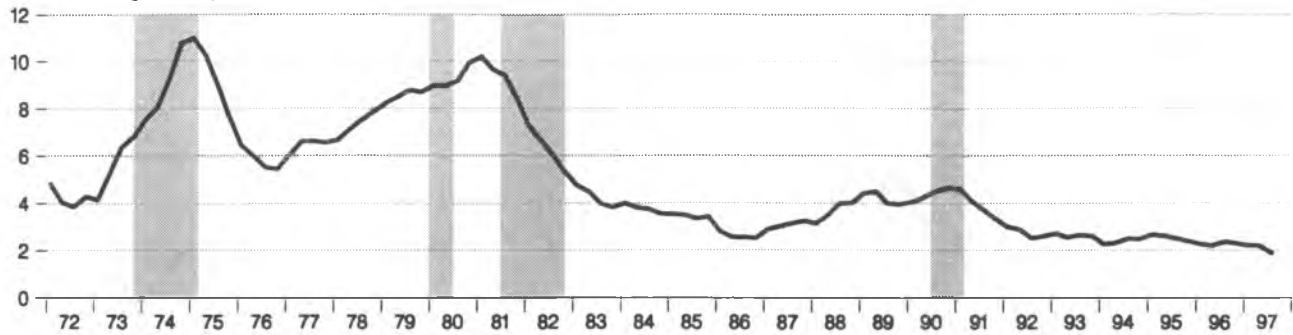


Total Return on Standard and Poor's 500



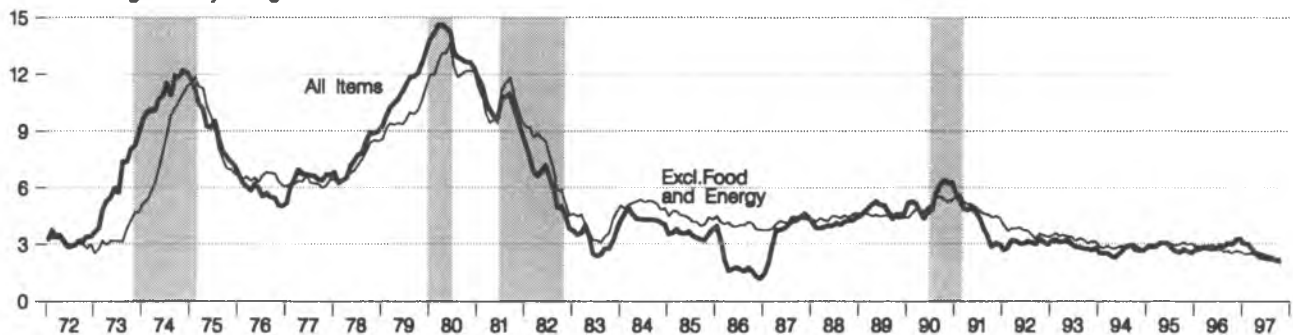
GDP Chain Price Index

Percent change from year ago



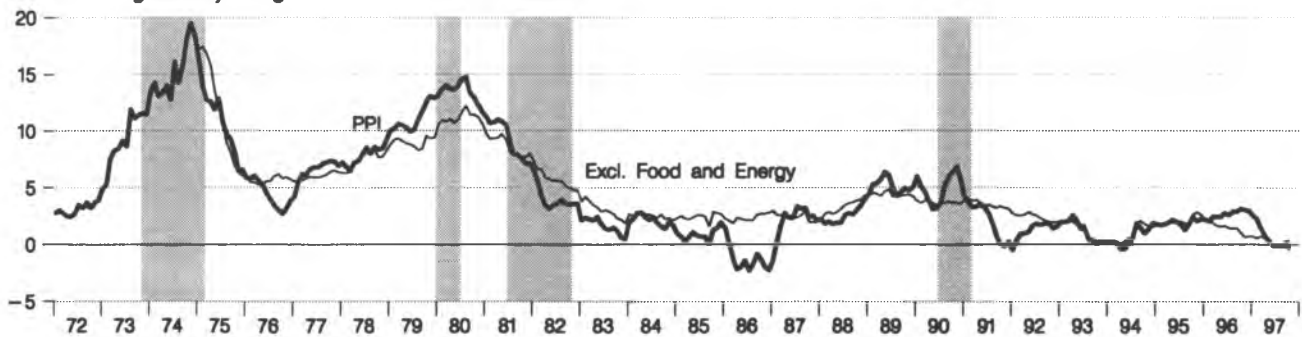
Consumer Price Index

Percent change from year ago



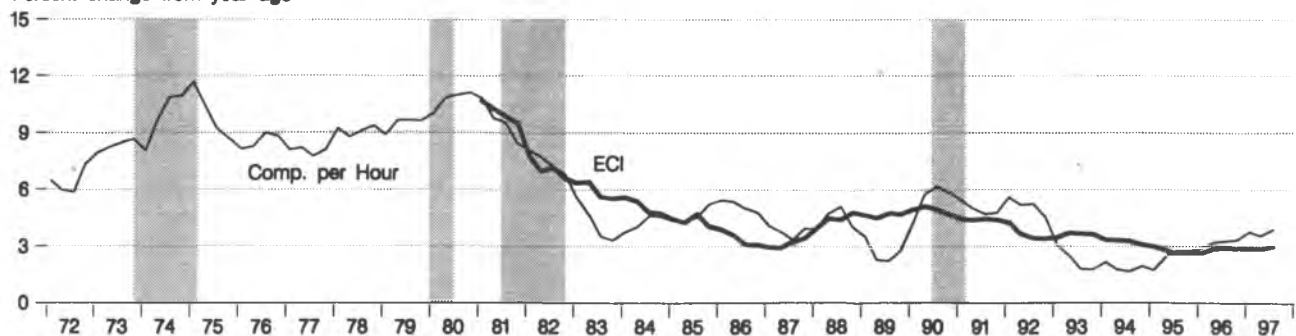
Producer Price Index, Finished Goods

Percent change from year ago



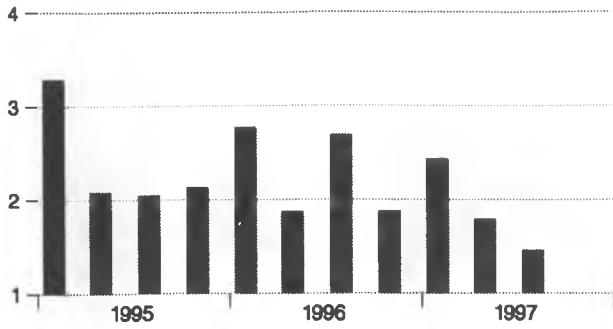
Employment Cost Index and Compensation per Hour

Percent change from year ago



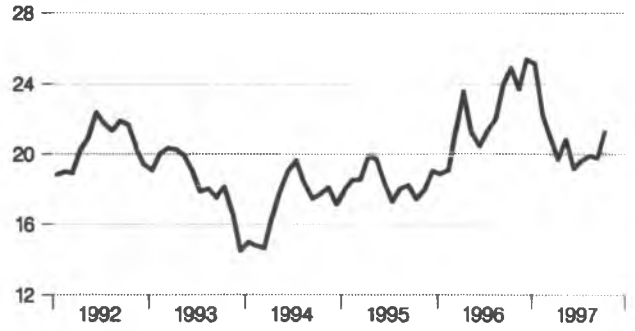
GDP Chain Price Index

Percent change at annual rate



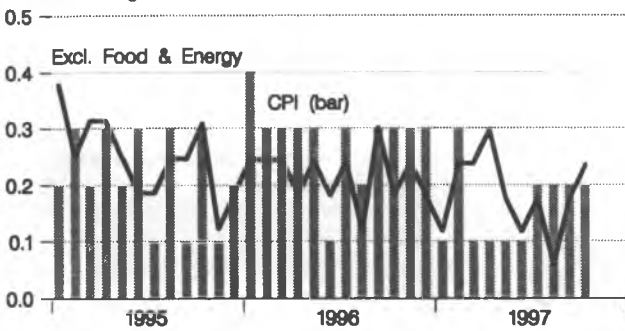
Crude Oil Price

Dollars per barrel



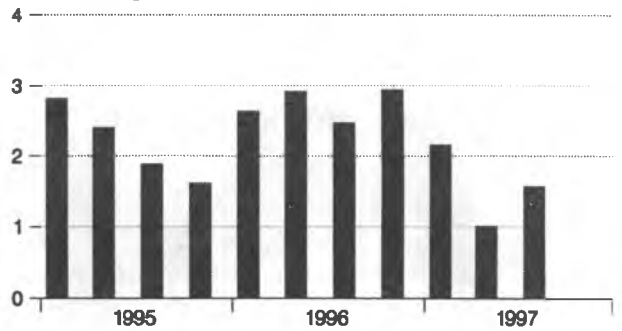
Consumer Price Index

Percent change



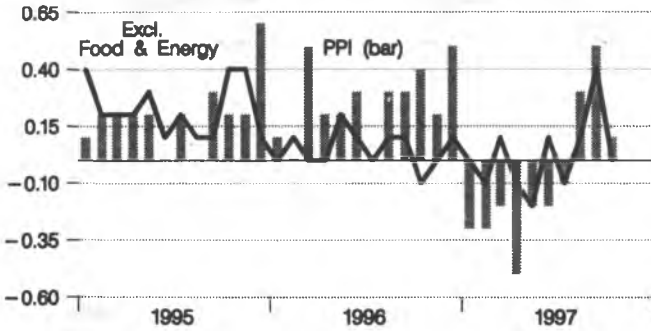
Consumption Chain Price Index

Percent change at annual rate



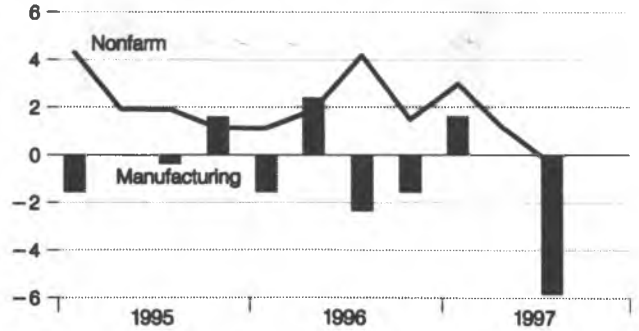
Producer Price Index, Finished Goods

Percent change



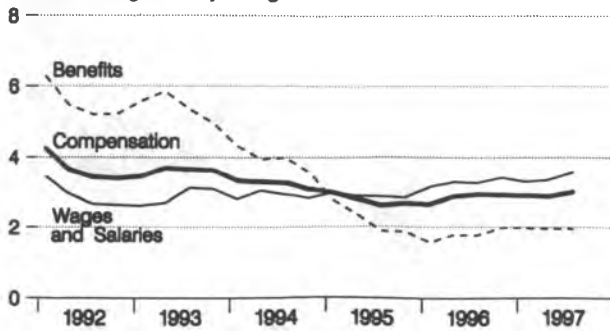
Unit Labor Cost

Percent change at annual rate



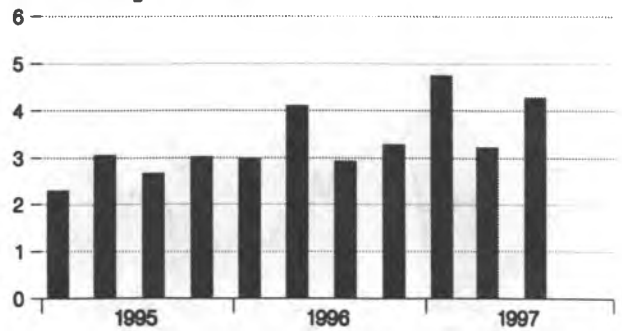
Employment Cost Index

Percent change from year ago



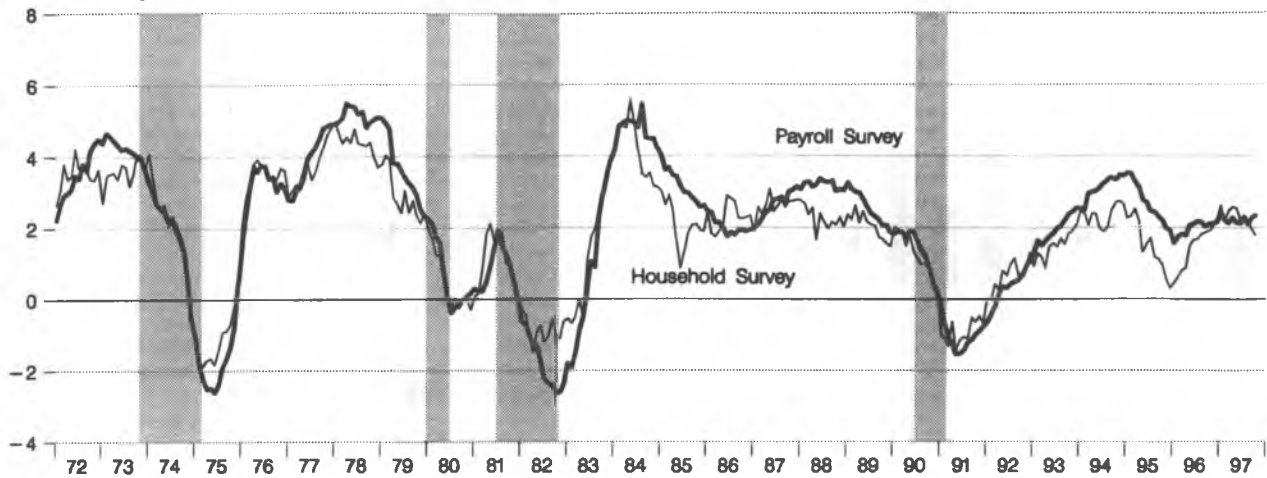
Compensation per Hour

Percent change at annual rate



Employment

Percent change from year ago



Unemployment, Labor Force Participation and Employment Rates

Percent of labor force

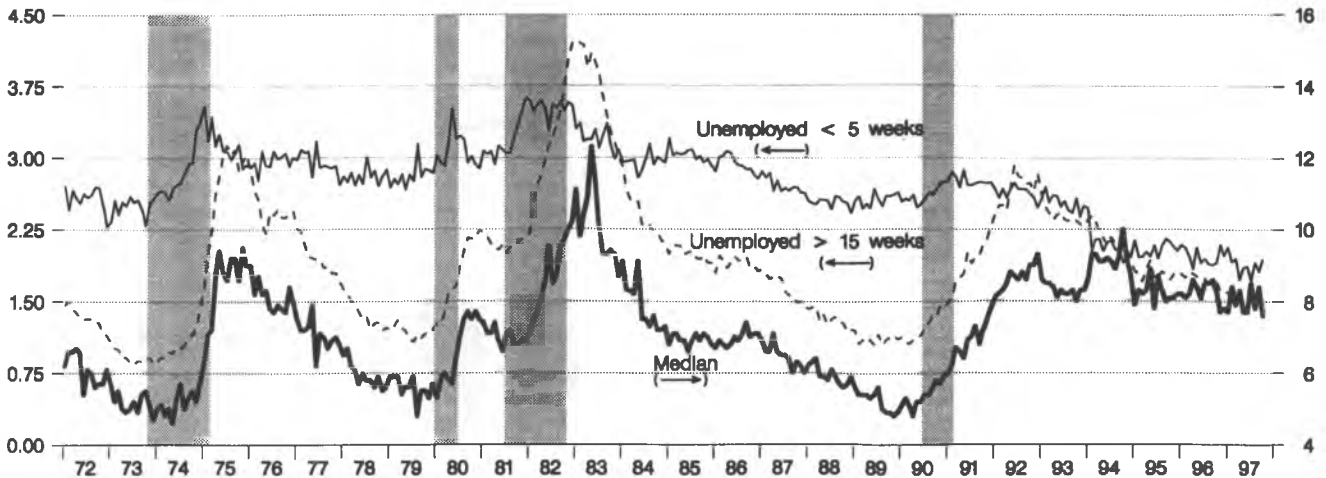
Percent of population



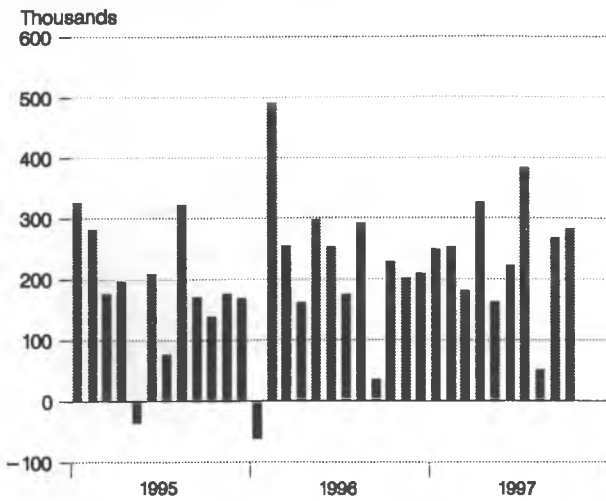
Duration of Unemployment

Percent of labor force

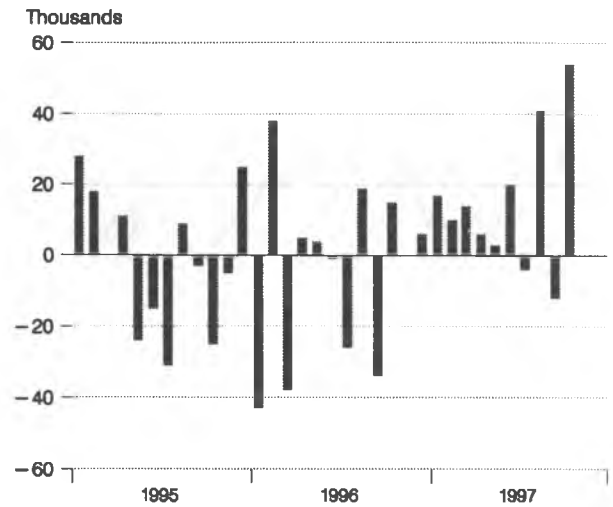
Weeks



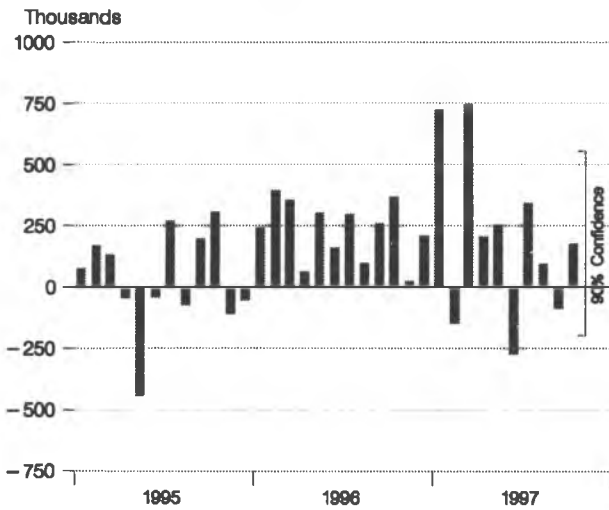
Change in Nonfarm Payrolls



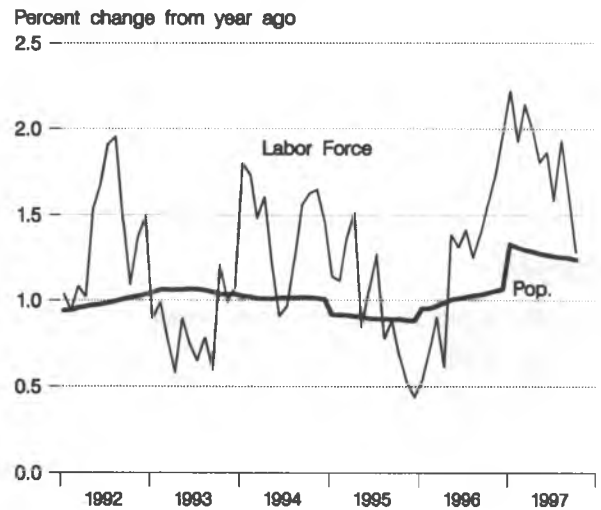
Change in Manufacturing Payrolls



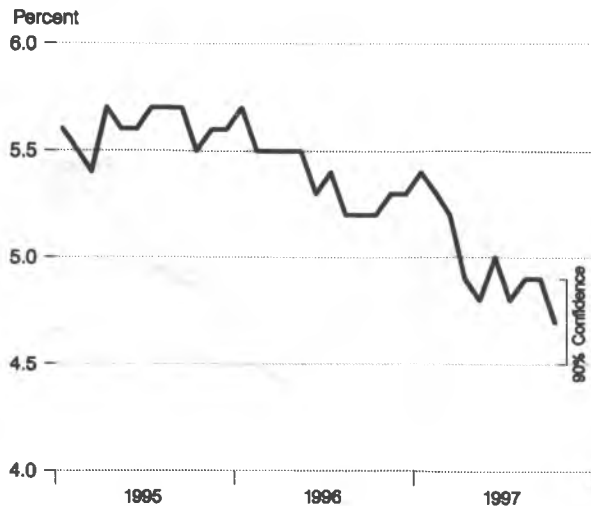
Change in Household Employment



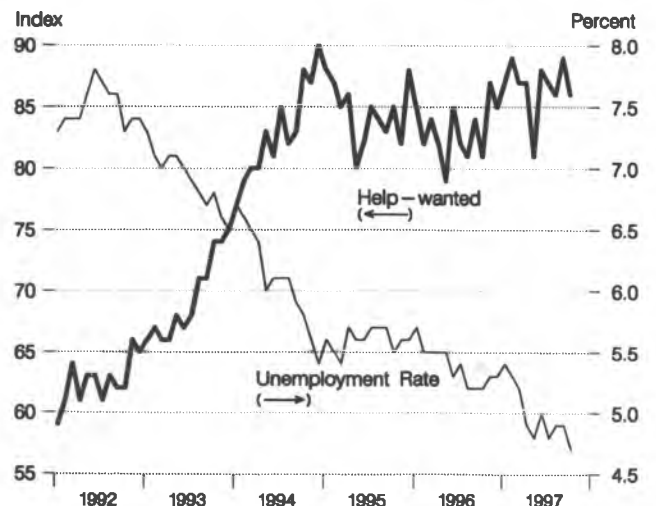
Labor Force and Population



Unemployment Rate

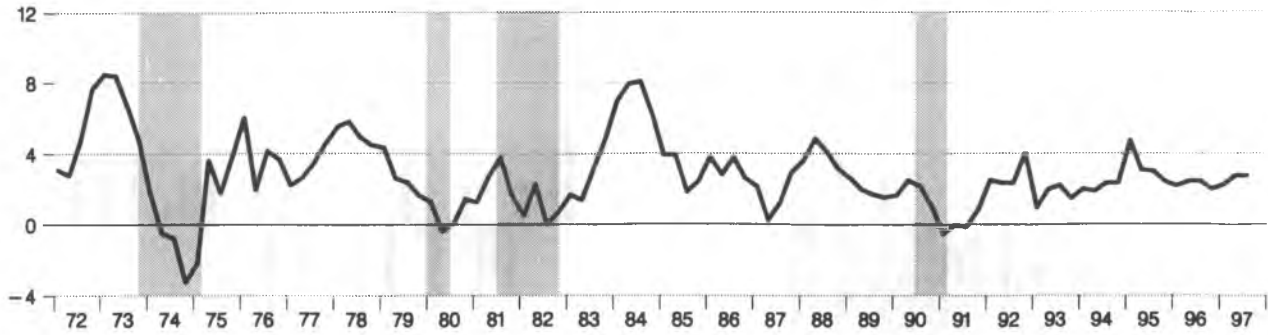


Help-Wanted Advertising



Real Disposable Income

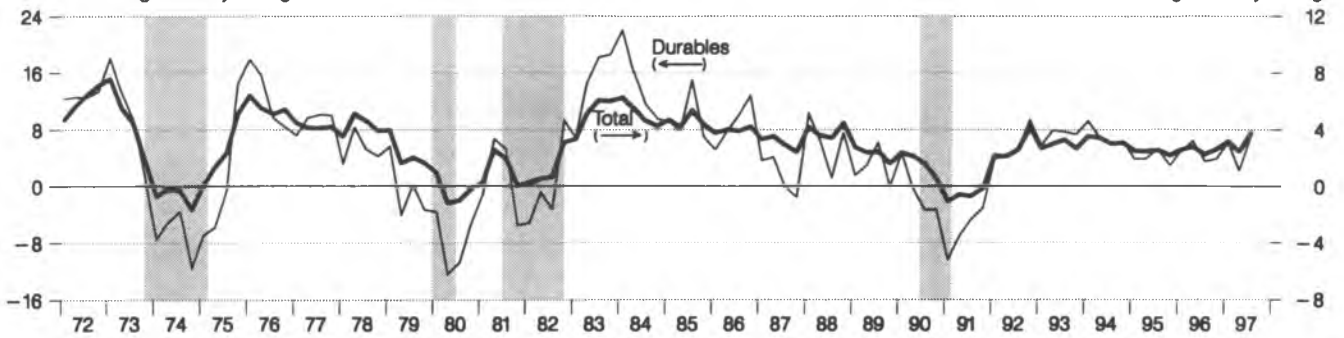
Percent change from year ago, quarterly data



Real Consumption

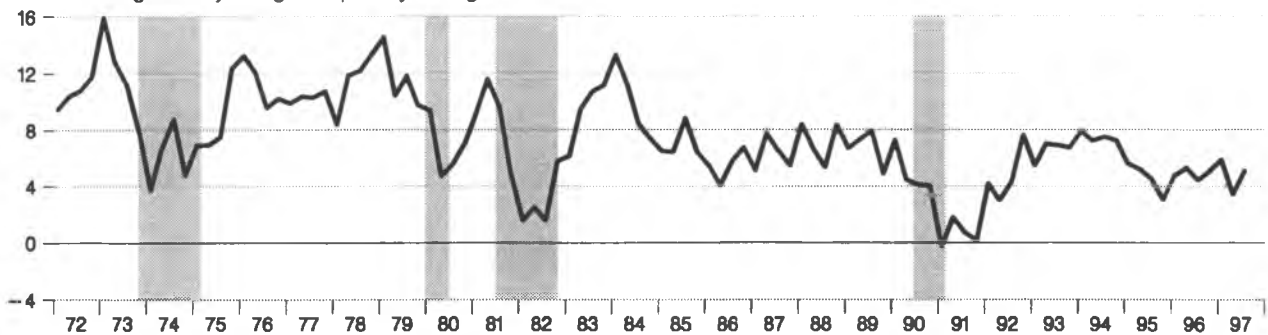
Percent change from year ago

Percent change from year ago



Retail Sales

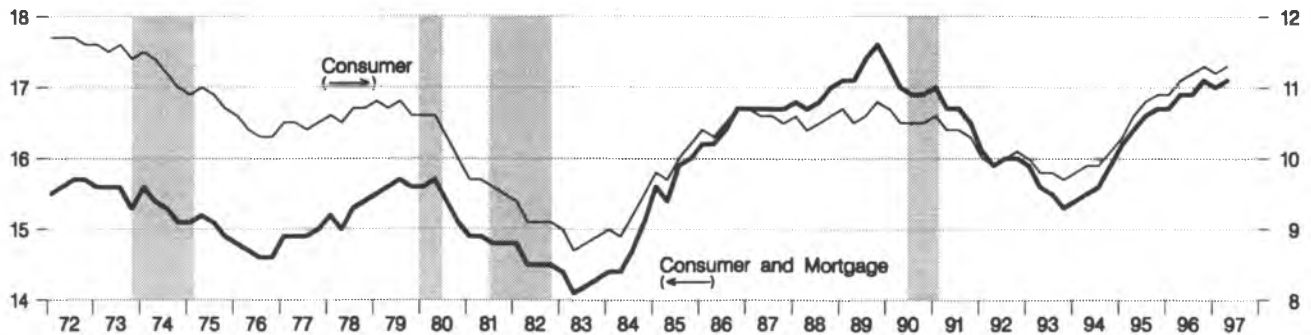
Percent change from year ago of quarterly average



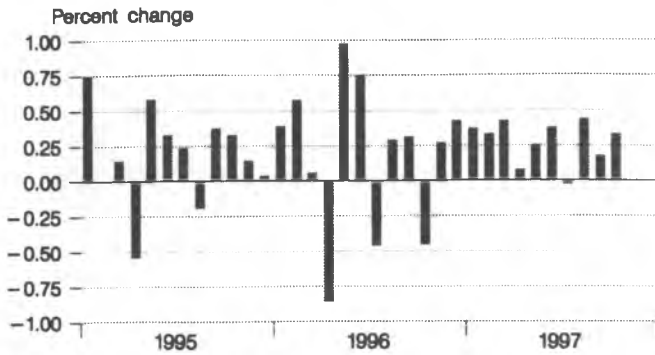
Debt Service as Percent of Disposable Income

Percent

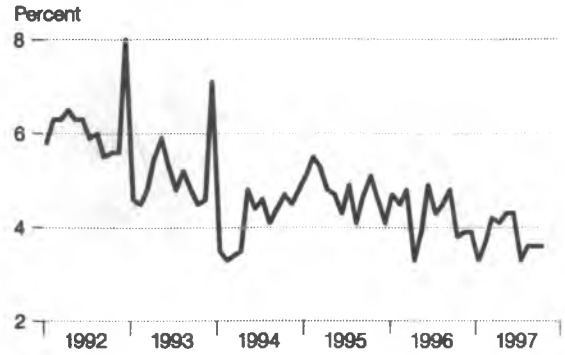
Percent



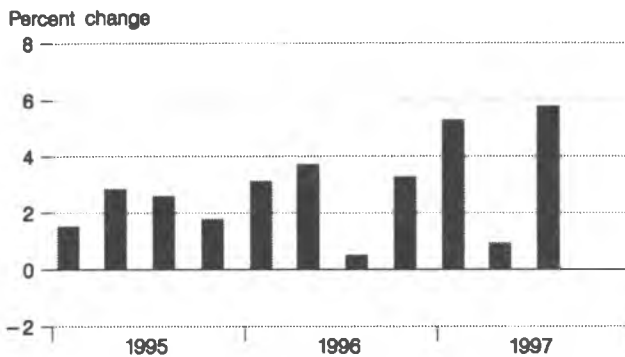
Real Disposable Income



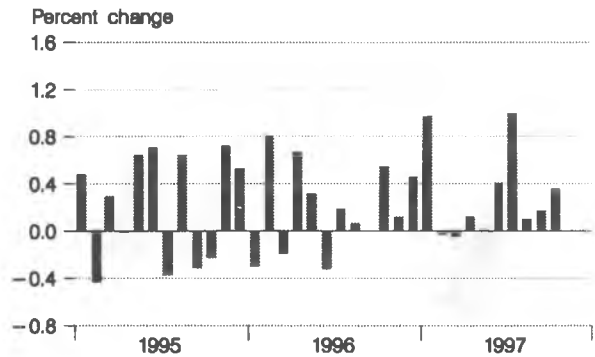
Personal Saving Rate



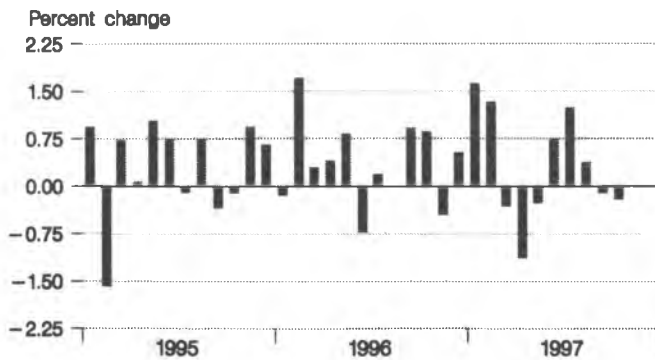
Real Consumption



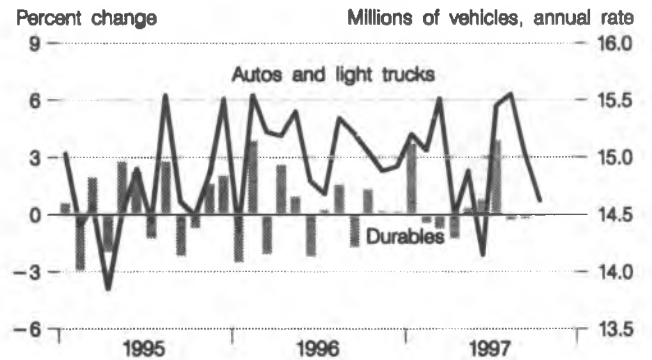
Real Consumption



Retail Sales

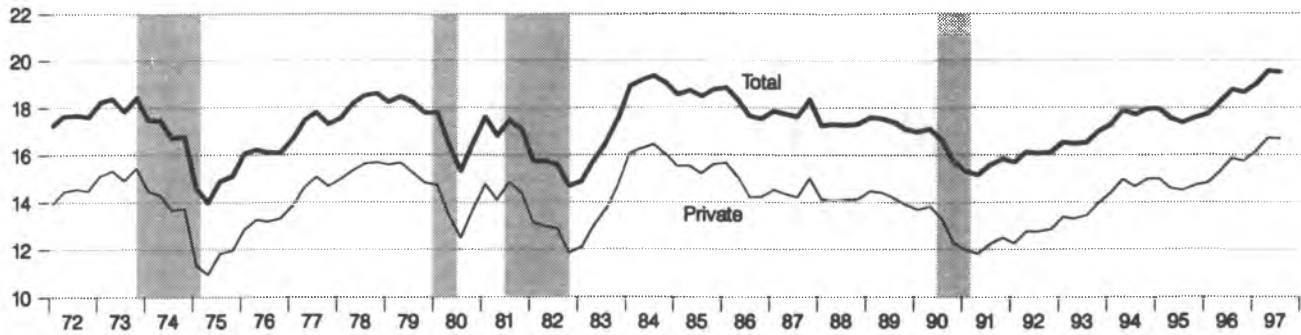


Real Durables Consumption and Vehicle Sales



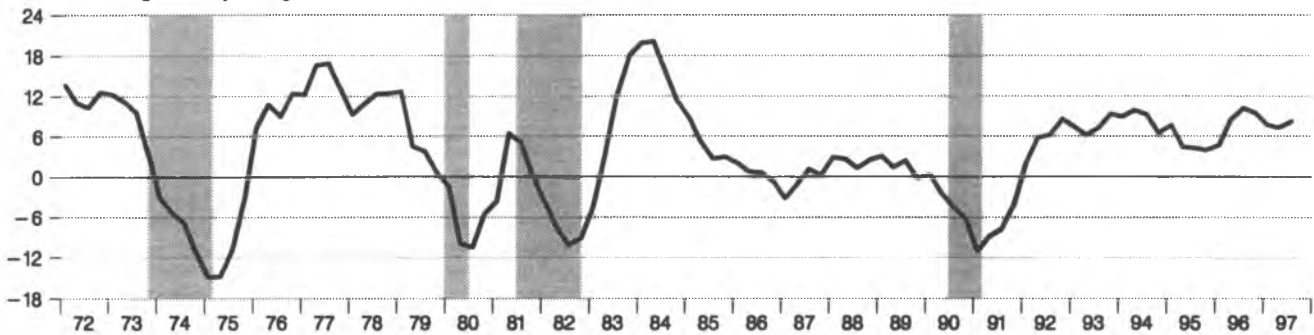
Real Investment

Percent of GDP



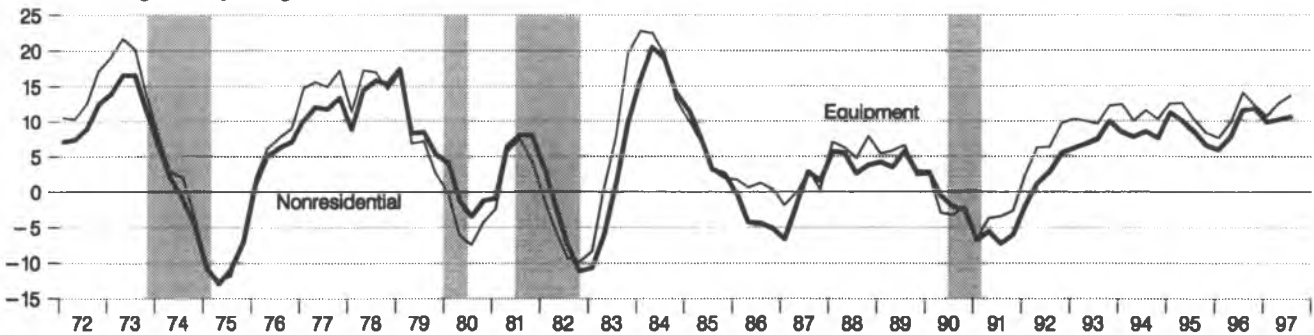
Real Private Fixed Investment

Percent change from year ago



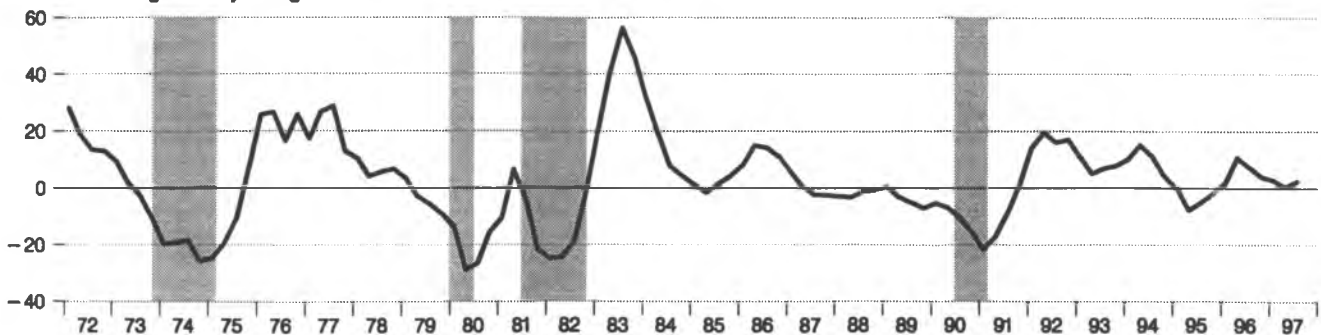
Real Nonresidential and Producers Durable Equipment Investment

Percent change from year ago



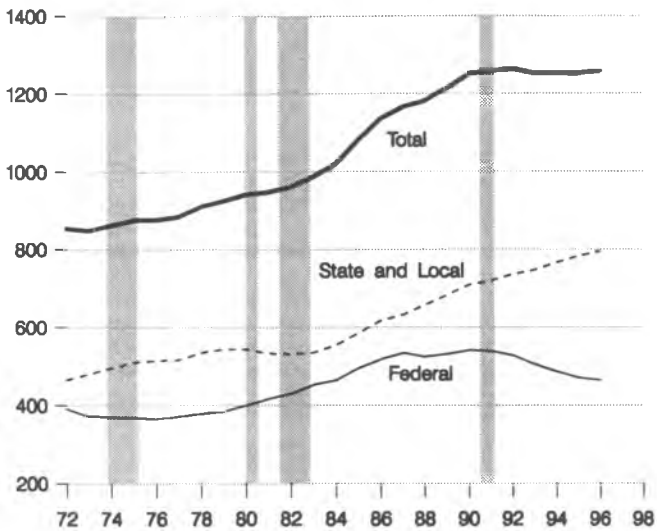
Real Residential Investment

Percent change from year ago



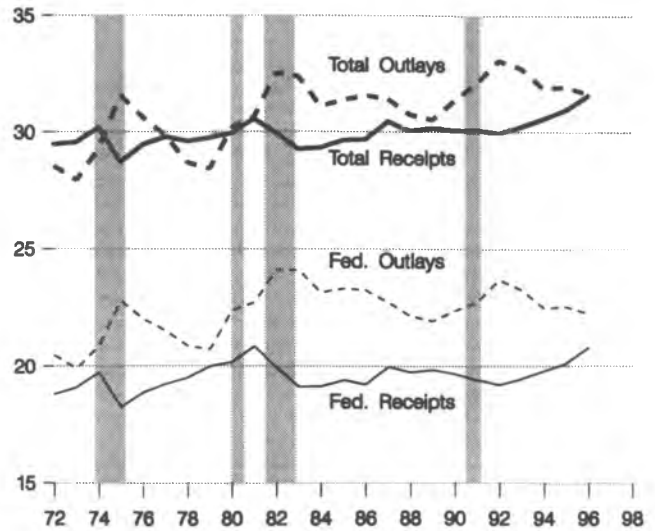
Govt. Consumption and Investment

Billions of 1992 dollars

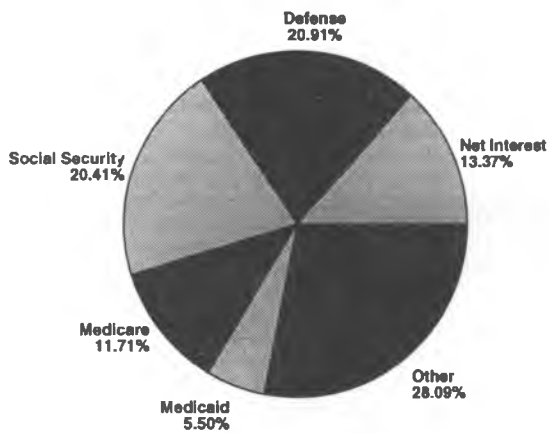


Government Receipts and Outlays

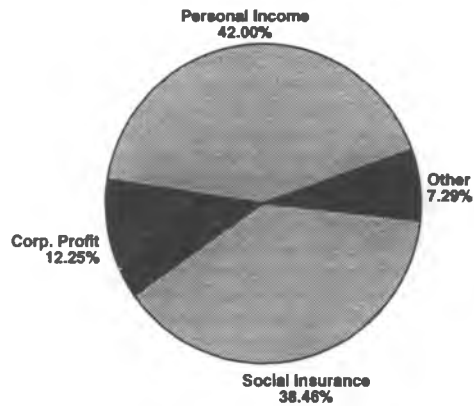
Percent of GDP



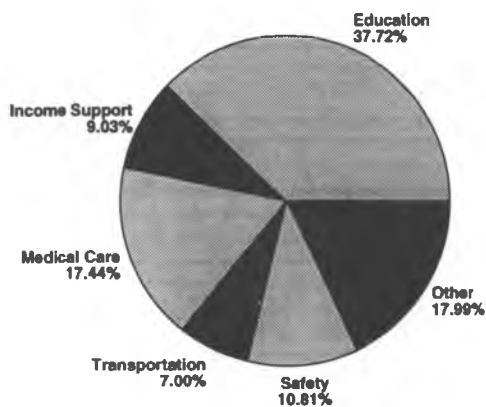
Federal Outlays, 1996



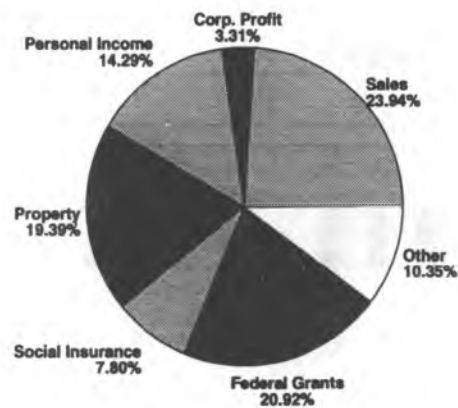
Federal Receipts, 1996



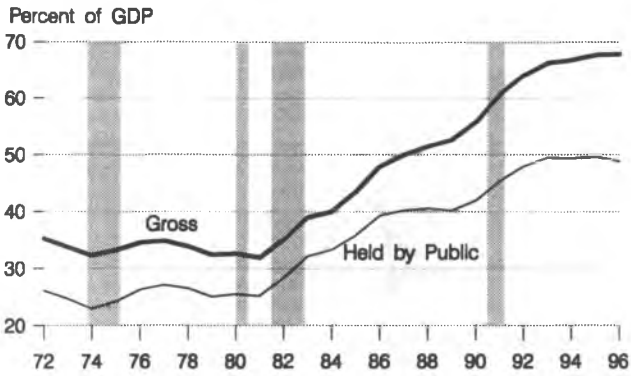
State and Local Outlays, 1996



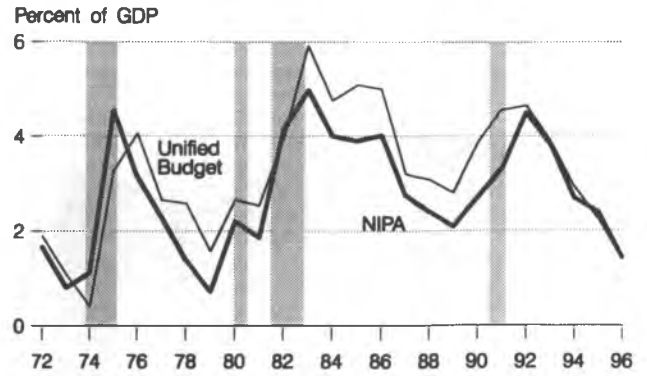
State and Local Receipts, 1996



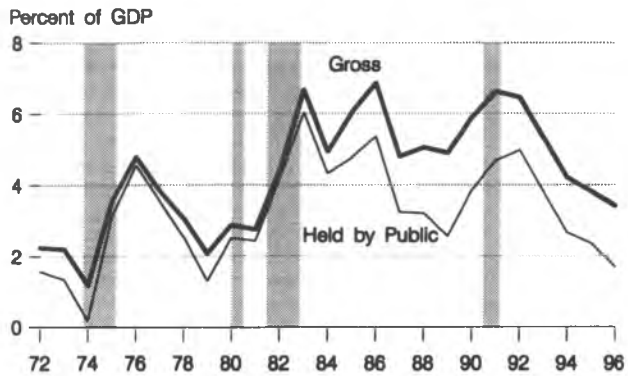
Gross Federal Debt



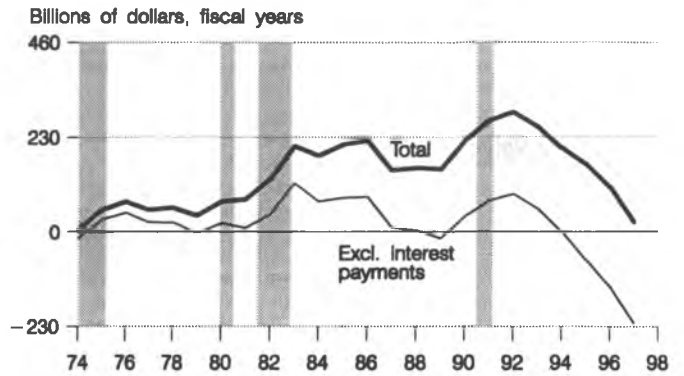
Federal Deficit



Change in Gross Federal Debt



Federal Deficit, Unified Basis



Government Budgets

Billions of dollars

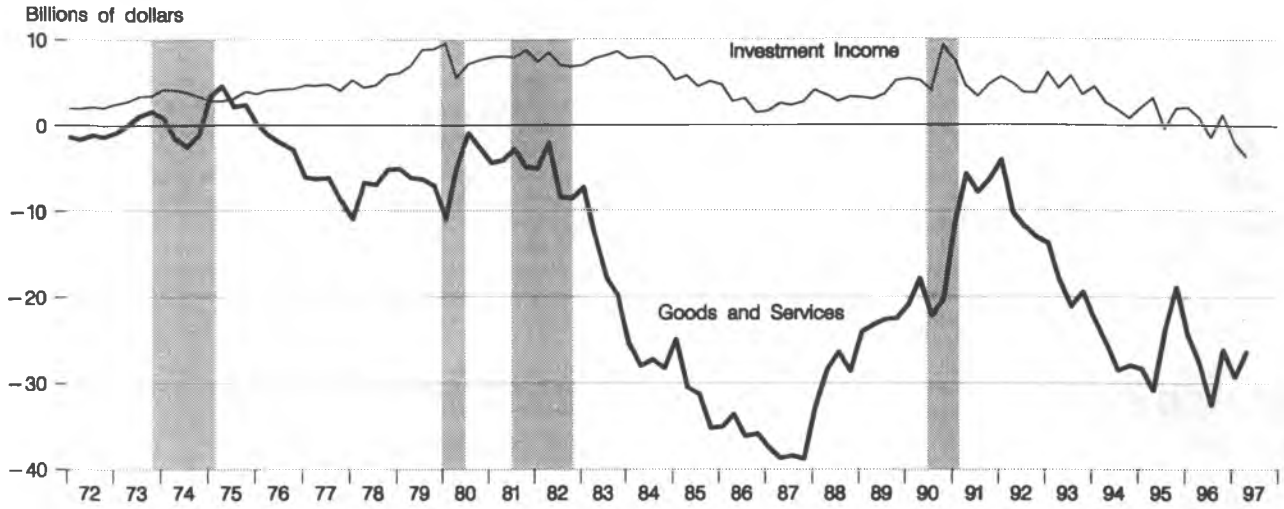
National Income Accounts Calendar Years

	State and Local			Federal		
	Receipts	Expenditures	Surplus or Deficit(-)	Receipts	Expenditures	Surplus or Deficit(-)
1980	361.4	307.0	54.4	561.5	622.5	-61.0
1981	390.8	335.4	55.4	649.3	707.1	-57.8
1982	409.0	357.7	51.3	646.4	781.0	-134.6
1983	443.6	378.8	64.8	671.9	846.3	-174.4
1984	492.0	405.1	86.9	746.9	902.9	-156.0
1985	528.7	437.8	90.9	811.3	974.2	-162.9
1986	570.6	475.7	94.9	850.1	1027.6	-177.5
1987	594.9	511.1	83.8	937.4	1066.3	-128.9
1988	631.4	545.5	85.9	997.2	1118.5	-121.3
1989	681.0	585.9	95.1	1079.3	1192.7	-113.4
1990	728.9	648.8	80.1	1129.8	1284.5	-154.7
1991	784.2	708.4	75.8	1149.0	1345.0	-196.0
1992	844.3	758.0	86.3	1198.5	1479.4	-280.9
1993	894.4	807.0	87.4	1275.1	1525.7	-250.6
1994	949.2	852.3	96.9	1374.8	1561.4	-186.6
1995	999.0	895.9	103.1	1463.2	1637.6	-174.4
1996	1043.4	938.0	105.4	1587.6	1698.1	-110.5
1997	NA	NA	NA	NA	NA	NA

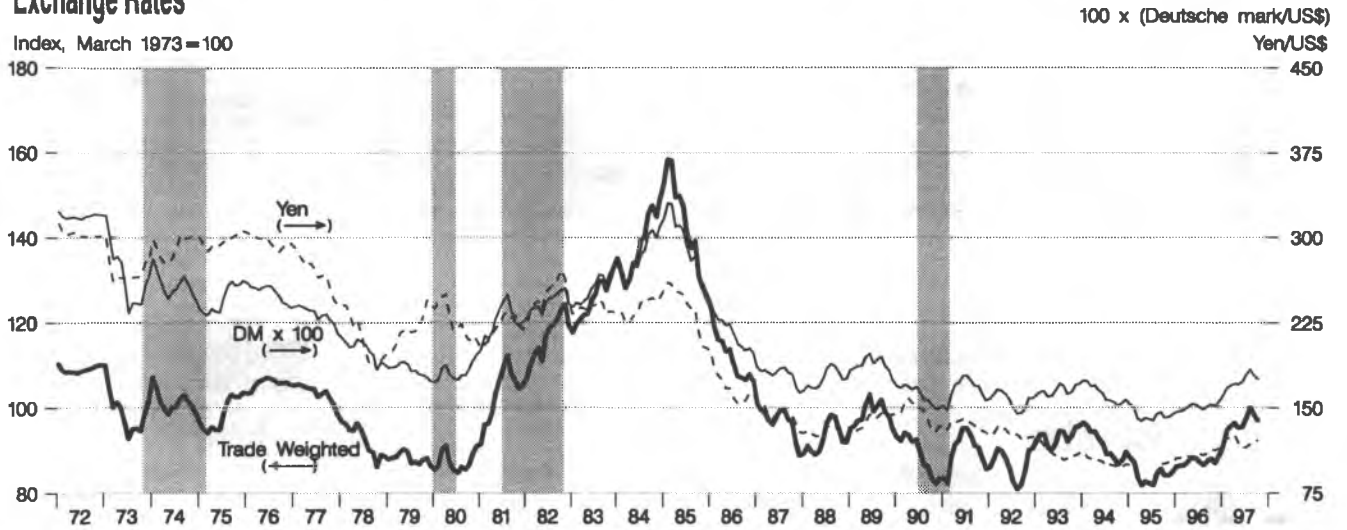
Unified Budget Fiscal Years

	Federal		
	Receipts	Outlays	Surplus or Deficit(-)
1980	517.1	590.9	-73.8
1981	599.3	678.2	-79.0
1982	617.8	728.4	-110.7
1983	600.6	808.4	-207.8
1984	666.5	851.8	-185.4
1985	734.1	946.4	-212.3
1986	769.1	990.3	-221.2
1987	854.1	1003.9	-149.8
1988	909.0	1064.1	-155.2
1989	990.7	1143.2	-152.5
1990	1031.3	1252.5	-221.2
1991	1054.3	1323.6	-269.4
1992	1090.5	1380.9	-290.4
1993	1153.5	1408.7	-255.1
1994	1257.7	1460.8	-203.1
1995	1351.5	1515.4	-163.9
1996	1452.8	1560.2	-107.4
1997	1579.0	1601.6	-22.6

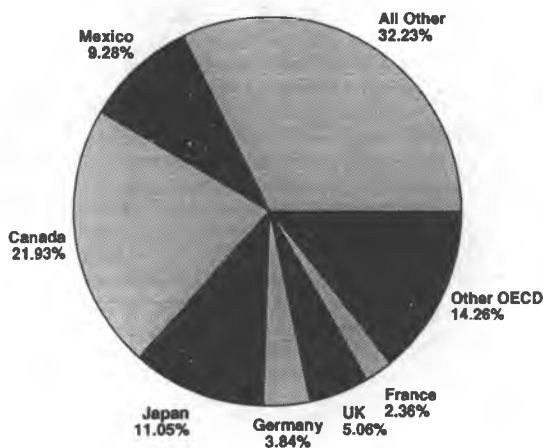
Trade and Investment Income Balances



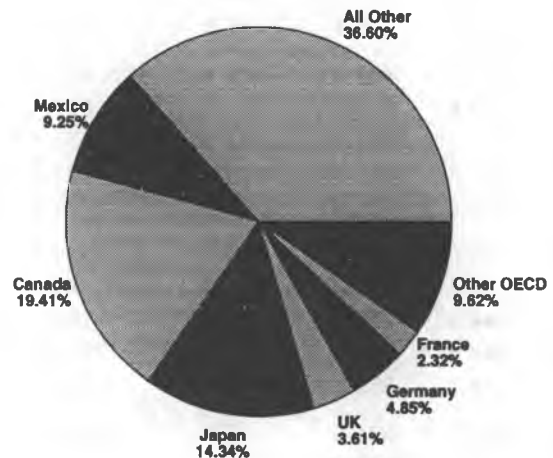
Exchange Rates



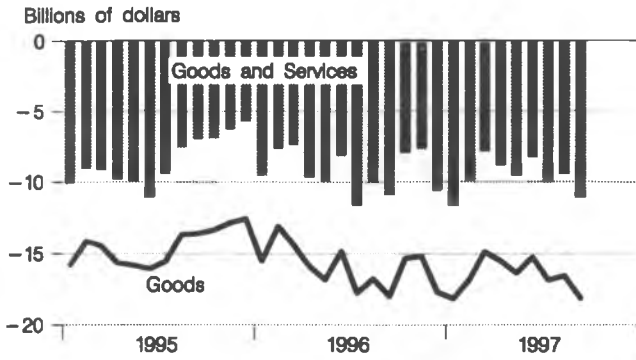
Goods Export Shares, 1996



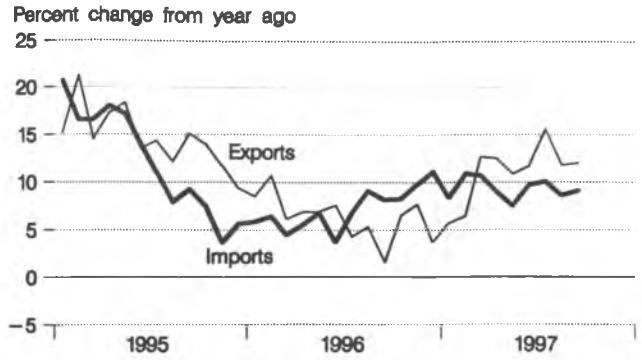
Goods Import Shares, 1996



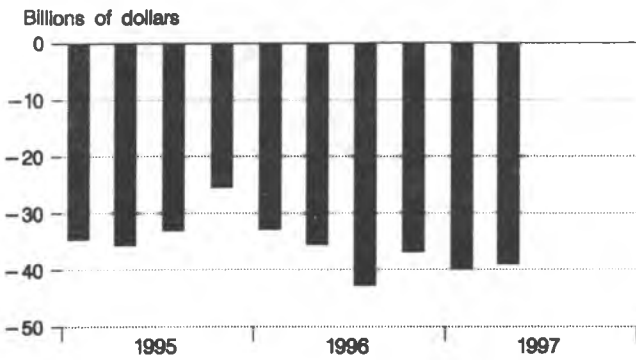
Trade Balance



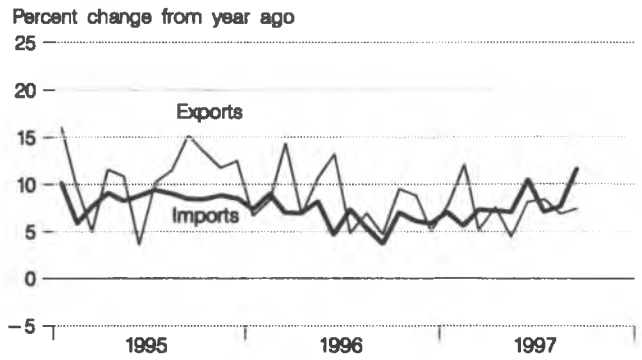
Goods Trade



Current Account Balance



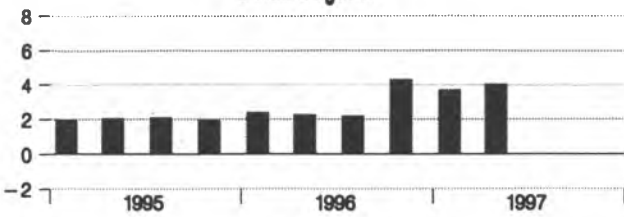
Services Trade



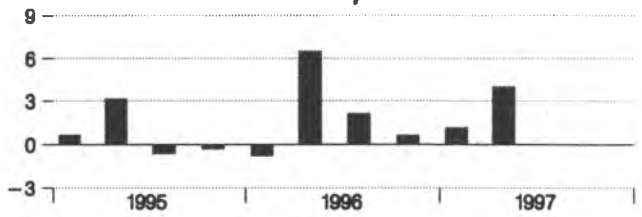
Real GDP Growth of Major Trading Partners

Percent change at annual rate

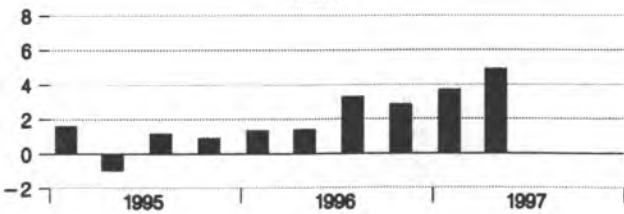
United Kingdom



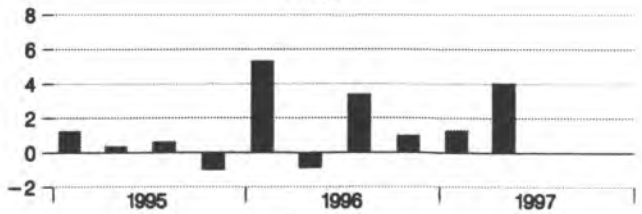
Germany



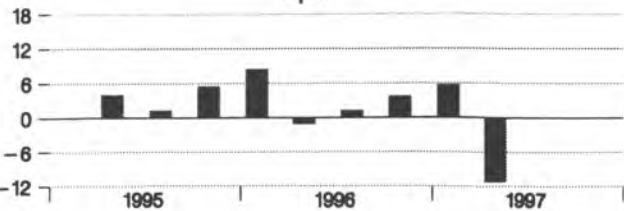
Canada



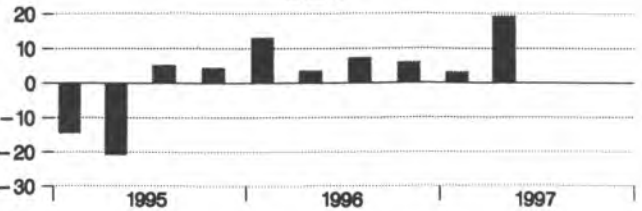
France



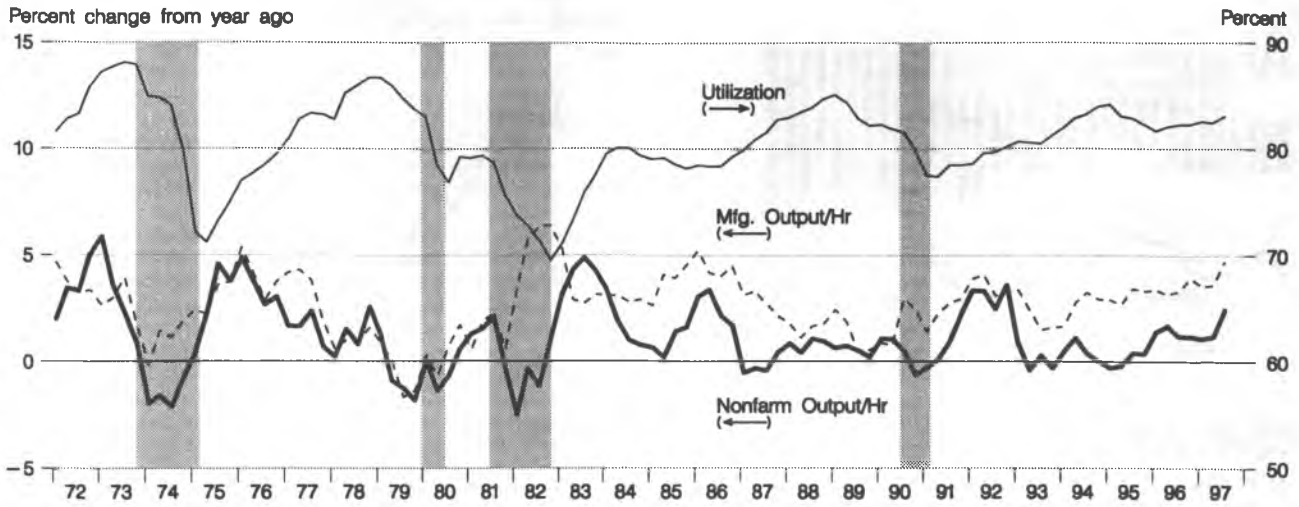
Japan



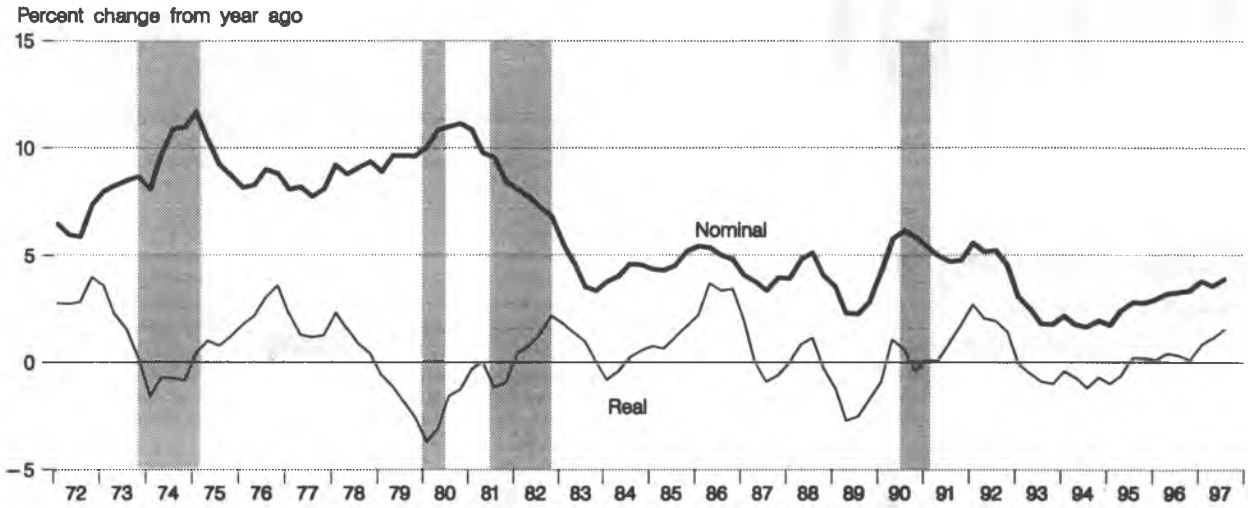
Mexico



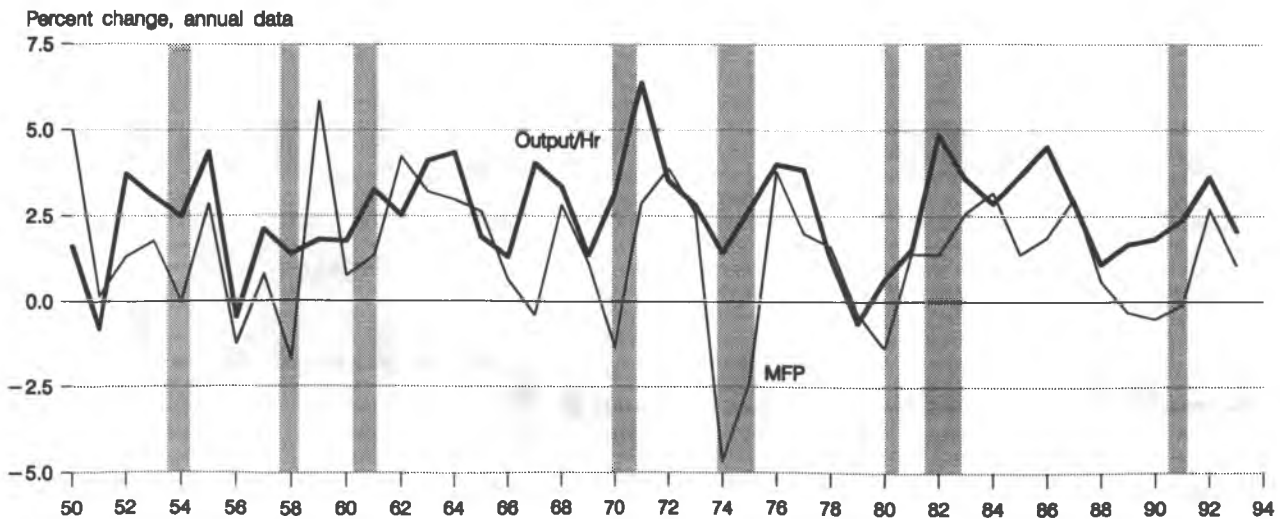
Output per Hour and Manufacturing Capacity Utilization



Nonfarm Compensation per Hour

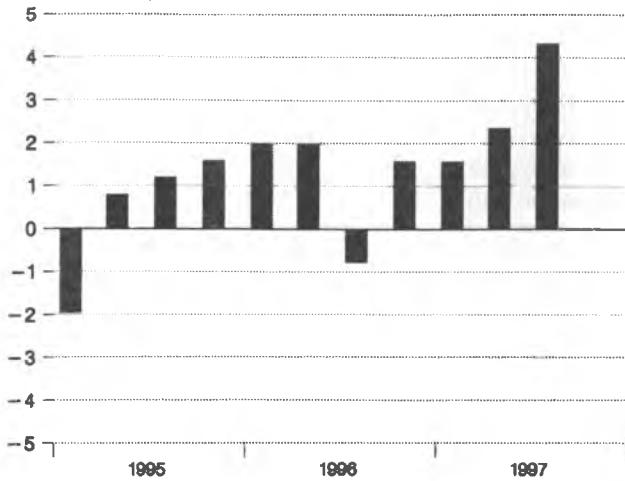


Output per Hour and Multifactor Productivity, Manufacturing



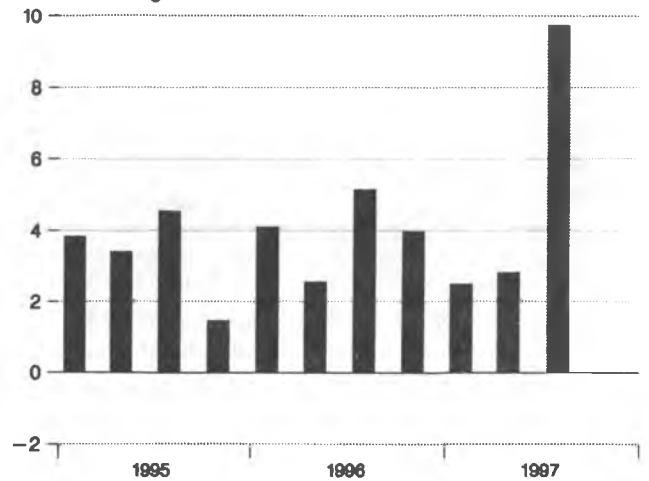
Nonfarm Output per Hour

Percent change at annual rate



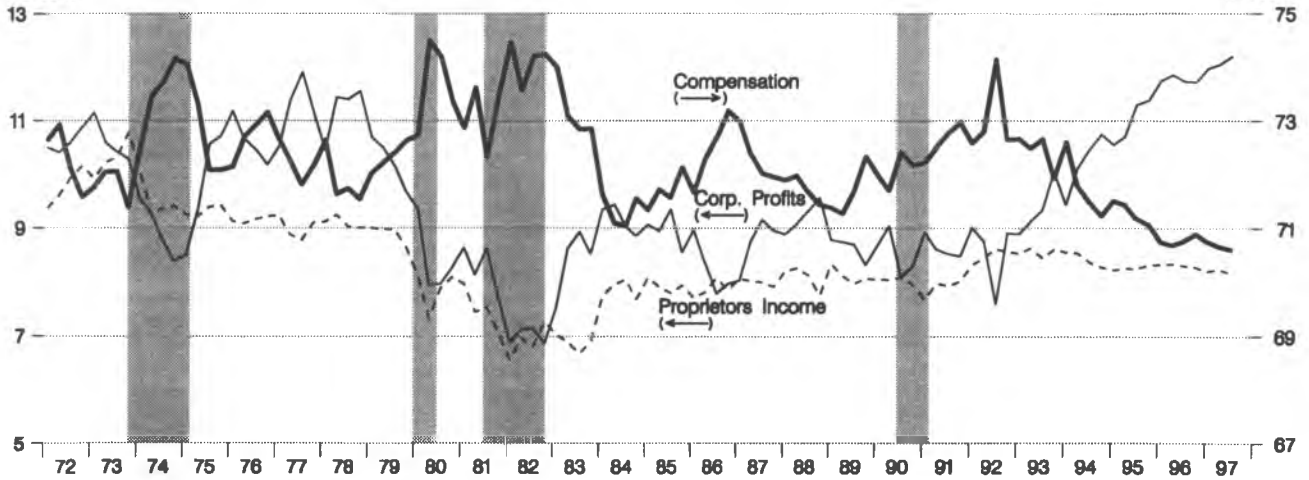
Manufacturing Output per Hour

Percent change at annual rate



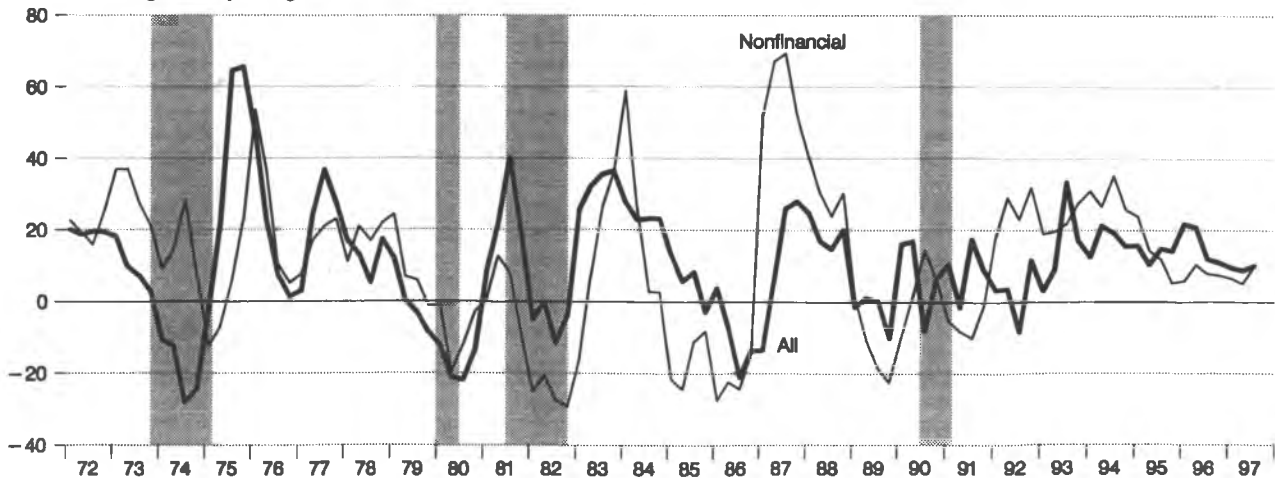
Selected Component Shares of National Income

Percent



Corporate Profits after Tax (with IVA and CCAdj)

Percent change from year ago



National Economic Trends

	Nominal GDP			Real GDP			Final Sales			Change in Business Inventories		
	Billions of \$	Annual rate	Year ago	Billions of 1992 \$	Annual rate	Year ago	Billions of 1992 \$	Annual rate	Year ago	Billions of 1992 \$	Year/Year ago	
1992	6244.4		5.5	6244.442		2.7	6237.441		2.5		-2.977	
1993	6558.1		5.0	6389.563		2.3	6368.864		2.1		7.001	
1994	6947.0		5.9	6610.741		3.5	6551.247		2.9		22.102	
1995	7265.4		4.6	6742.062		2.0	6712.672		2.5		60.552	
1996	7636.0		5.1	6928.396		2.8	6900.980		2.8		27.341	
1994 1	6794.3	5.5	5.4	6524.505	3.0	3.1	6473.029	1.2	2.8	53.061	32.301	
2	6911.4	7.1	6.2	6600.313	4.7	3.8	6526.671	3.4	2.9	75.896	16.644	
3	6986.5	4.4	6.3	6629.474	1.8	3.7	6580.376	3.3	3.2	49.662	15.283	
4	7095.7	6.4	5.8	6688.609	3.6	3.3	6624.848	2.7	2.7	63.590	24.179	
1995 1	7168.9	4.2	5.5	6703.721	0.9	2.7	6654.289	1.8	2.8	48.479	53.061	
2	7209.5	2.3	4.3	6708.841	0.3	1.6	6685.289	1.9	2.4	21.638	75.896	
3	7301.3	5.2	4.5	6759.234	3.0	2.0	6739.306	3.3	2.4	17.023	49.662	
4	7381.9	4.5	4.0	6796.513	2.2	1.6	6771.927	2.0	2.2	22.223	63.590	
1996 1	7467.5	4.7	4.2	6826.362	1.8	1.8	6814.966	2.6	2.4	8.039	48.479	
2	7607.7	7.7	5.5	6926.023	6.0	3.2	6902.290	5.2	3.2	21.288	21.638	
3	7676.0	3.6	5.1	6943.820	1.0	2.7	6905.034	0.2	2.5	37.903	17.023	
4	7792.9	6.2	5.6	7017.379	4.3	3.2	6981.692	4.5	3.1	32.922	22.223	
1997 1	7933.6	7.4	6.2	7101.617	4.9	4.0	7034.087	3.0	3.2	63.657	8.039	
2	8034.3	5.2	5.6	7159.627	3.3	3.4	7077.749	2.5	2.5	77.603	21.288	
3	8128.8	4.8	5.9	7217.638	3.3	3.9	7162.142	4.9	3.7	49.488	37.903	
	Consumption			Durables Consumption			Private Fixed Investment			Nonresidential Investment		
	Billions of 1992 \$	Annual rate	Year ago	Billions of 1992 \$	Annual rate	Year ago	Billions of 1992 \$	Annual rate	Year ago	Billions of 1992 \$	Annual rate	Year ago
1992	4219.796		2.8	488.530		5.8	783.427		5.7	557.869		1.9
1993	4343.563		2.9	523.841		7.2	842.772		7.6	600.167		7.6
1994	4485.981		3.3	561.189		7.1	915.536		8.6	648.361		8.0
1995	4595.273		2.4	583.598		4.0	962.119		5.1	706.513		9.0
1996	4714.061		2.6	611.107		4.7	1041.699		8.3	771.683		9.2
1994 1	4439.436	3.8	3.6	550.661	6.4	9.2	887.795	3.2	9.0	626.191	0.4	8.4
2	4472.224	3.0	3.5	555.796	3.8	7.0	913.178	11.9	9.9	641.209	9.9	7.8
3	4498.218	2.3	3.0	561.741	4.3	6.0	922.712	4.2	9.3	653.153	7.7	8.5
4	4534.129	3.2	3.1	576.563	11.0	6.3	938.467	7.0	6.6	672.890	12.6	7.6
1995 1	4551.303	1.5	2.5	572.230	-3.0	3.9	955.820	7.6	7.7	695.674	14.2	11.1
2	4583.458	2.9	2.5	577.706	3.9	3.9	954.034	-0.7	4.5	705.353	5.7	10.0
3	4612.912	2.6	2.5	590.755	9.3	5.2	962.315	3.5	4.3	708.231	1.6	8.4
4	4633.463	1.8	2.2	593.701	2.0	3.0	976.315	5.9	4.0	716.800	4.9	6.5
1996 1	4669.373	3.1	2.6	600.662	4.8	5.0	1001.533	10.7	4.8	736.939	11.7	5.9
2	4712.204	3.7	2.8	614.771	9.7	6.4	1035.683	14.4	8.6	759.734	13.0	7.7
3	4718.196	0.5	2.3	611.864	-1.9	3.6	1060.886	10.1	10.2	789.290	16.5	11.4
4	4756.427	3.3	2.7	617.131	3.5	3.9	1068.696	3.0	9.5	800.771	5.9	11.7
1997 1	4818.079	5.3	3.2	637.766	14.1	6.2	1079.006	3.9	7.7	808.932	4.1	9.8
2	4829.430	0.9	2.5	628.992	-5.4	2.3	1111.393	12.6	7.3	836.993	14.6	10.2
3	4897.875	5.8	3.8	655.895	18.2	7.2	1148.214	13.9	8.2	872.546	18.1	10.5

	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	102.643		2.6	118.4		3.6	115.2		2.9	127.0		5.4	
1994	105.088		2.4	122.3		3.3	118.5		2.9	132.0		4.0	
1995	107.763		2.5	125.6		2.8	121.9		2.9	135.0		2.2	
1996	110.224		2.3	129.2		2.8	125.9		3.3	137.4		1.8	
1994	1	104.156	2.5	2.3	120.8	3.0	3.3	117.1	2.1	2.8	130.3	4.4	4.3
	2	104.736	2.2	2.3	121.8	3.4	3.3	118.1	3.5	3.1	131.5	3.7	4.0
	3	105.391	2.5	2.5	122.8	3.3	3.3	119.0	3.1	2.9	132.8	4.0	4.0
	4	106.071	2.6	2.5	123.6	2.6	3.1	119.8	2.7	2.8	133.5	2.1	3.6
1995	1	106.933	3.3	2.7	124.4	2.6	3.0	120.6	2.7	3.0	133.9	1.2	2.8
	2	107.485	2.1	2.6	125.2	2.6	2.8	121.5	3.0	2.9	134.6	2.1	2.4
	3	108.031	2.0	2.5	126.0	2.6	2.6	122.4	3.0	2.9	135.3	2.1	1.9
	4	108.603	2.1	2.4	126.9	2.9	2.7	123.2	2.6	2.8	136.0	2.1	1.9
1996	1	109.349	2.8	2.3	127.7	2.5	2.7	124.4	4.0	3.2	136.0	0.0	1.6
	2	109.857	1.9	2.2	128.8	3.5	2.9	125.5	3.6	3.3	137.0	3.0	1.8
	3	110.588	2.7	2.4	129.7	2.8	2.9	126.4	2.9	3.3	137.7	2.1	1.8
	4	111.103	1.9	2.3	130.6	2.8	2.9	127.4	3.2	3.4	138.7	2.9	2.0
1997	1	111.775	2.4	2.2	131.4	2.5	2.9	128.5	3.5	3.3	138.7	0.0	2.0
	2	112.272	1.8	2.2	132.5	3.4	2.9	129.7	3.8	3.3	139.7	2.9	2.0
	3	112.681	1.5	1.9	133.6	3.4	3.0	130.9	3.8	3.6	140.4	2.0	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	658.183		2.9	728.409		8.9	100.1		0.1	102.3		2.3	
1994	712.399		8.2	817.026		12.2	100.5		0.4	104.1		1.8	
1995	791.213		11.1	890.057		8.9	100.7		0.2	106.7		2.5	
1996	857.022		8.3	971.469		9.1	102.0		1.3	110.1		3.2	
1994	1	676.029	-1.8	4.4	773.638	7.6	10.2	100.6	-0.8	0.5	103.8	3.1	2.2
	2	704.131	17.7	6.7	808.022	19.0	11.8	100.7	0.4	1.1	103.9	0.4	1.8
	3	722.105	10.6	11.7	833.229	13.1	14.2	100.4	-1.2	0.4	104.2	1.2	1.7
	4	747.330	14.7	10.0	853.197	9.9	12.3	100.8	1.6	0.0	105.0	3.1	1.9
1995	1	760.368	7.2	12.5	873.861	10.0	13.0	100.3	-2.0	-0.3	105.6	2.3	1.7
	2	777.447	9.3	10.4	890.284	7.7	10.2	100.5	0.8	-0.2	106.4	3.1	2.4
	3	802.435	13.5	11.1	895.368	2.3	7.5	100.8	1.2	0.4	107.1	2.7	2.8
	4	824.604	11.5	10.3	900.720	2.4	5.6	101.2	1.6	0.4	107.9	3.0	2.8
1996	1	828.178	1.7	8.9	928.963	13.1	6.3	101.7	2.0	1.4	108.7	3.0	2.9
	2	847.444	9.6	9.0	960.043	14.1	7.8	102.2	2.0	1.7	109.8	4.1	3.2
	3	851.382	1.9	6.1	990.240	13.2	10.6	102.0	-0.8	1.2	110.6	2.9	3.3
	4	901.071	25.5	9.3	1006.623	6.8	11.8	102.4	1.6	1.2	111.5	3.3	3.3
1997	1	922.652	9.9	11.4	1048.941	17.9	12.9	102.8	1.6	1.1	112.8	4.7	3.8
	2	962.500	18.4	13.6	1099.106	20.5	14.5	103.4	2.4	1.2	113.7	3.2	3.6
	3	972.731	4.3	14.3	1135.658	14.0	14.7	104.5	4.3	2.5	114.9	4.3	3.9

	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	108591	336		0.3	121.0			0.7	
1993	120259	1771		1.5	110707	2116		1.9	124.5			2.9	
1994	123067	2808		2.3	114145	3438		3.1	129.8			4.2	
1995	124899	1833		1.5	117195	3051		2.7	133.4			2.8	
1996	126705	1806		1.4	119517	2322		2.0	136.4			2.2	
1995	1	124924	519	1.7	2.4	116482	873	3.1	3.4	133.0	0.8	3.2	4.3
	2	124711	-213	-0.7	1.7	116937	455	1.6	2.9	132.9	-0.1	-0.4	2.7
	3	124820	109	0.4	1.3	117414	478	1.6	2.4	133.6	0.6	2.3	2.5
	4	125142	322	1.0	0.6	117949	534	1.8	2.0	134.2	0.4	1.7	1.7
1996	1	125693	551	1.8	0.6	118471	522	1.8	1.7	134.3	0.1	0.4	1.0
	2	126381	688	2.2	1.3	119248	778	2.7	2.0	136.1	1.3	5.5	2.5
	3	127042	661	2.1	1.8	119898	649	2.2	2.1	137.0	0.7	2.7	2.5
	4	127705	664	2.1	2.0	120452	555	1.9	2.1	138.1	0.8	3.1	2.9
1997	1	128728	1023	3.2	2.4	121138	686	2.3	2.3	139.5	1.0	4.1	3.8
	2	129462	734	2.3	2.4	121854	715	2.4	2.2	140.1	0.4	1.7	2.9
	3	129742	280	0.9	2.1	122564	711	2.4	2.2	140.5	0.3	1.3	2.6
1995	Oct	125235	308	3.0	1.0	117775	139	1.4	2.2	134.4	0.4	4.6	1.8
	Nov	125124	-111	-1.1	0.5	117951	176	1.8	2.0	134.3	-0.1	-0.9	1.9
	Dec	125068	-56	-0.5	0.3	118120	169	1.7	1.9	133.9	-0.3	-3.5	1.4
1996	Jan	125311	243	2.4	0.4	118058	-62	-0.6	1.6	132.5	-1.0	-11.8	-0.8
	Feb	125706	395	3.8	0.6	118550	492	5.1	1.7	135.1	2.0	26.3	1.9
	Mar	126062	356	3.5	0.8	118804	254	2.6	1.8	135.4	0.2	2.7	2.0
	Apr	126125	63	0.6	0.9	118966	162	1.6	1.8	135.1	-0.2	-2.6	1.0
	May	126428	303	2.9	1.5	119263	297	3.0	2.1	135.7	0.4	5.5	2.9
	Jun	126590	162	1.5	1.7	119516	253	2.6	2.1	137.6	1.4	18.2	3.5
	Jul	126889	299	2.9	1.7	119691	175	1.8	2.2	136.1	-1.1	-12.3	1.9
	Aug	126988	99	0.9	1.8	119983	292	3.0	2.1	137.1	0.7	9.2	2.8
	Sep	127248	260	2.5	1.9	120019	36	0.4	2.0	137.9	0.6	7.2	3.0
	Oct	127617	369	3.5	1.9	120248	229	2.3	2.1	137.2	-0.5	-5.9	2.1
	Nov	127644	27	0.3	2.0	120450	202	2.0	2.1	137.9	0.5	6.3	2.7
	Dec	127855	211	2.0	2.2	120659	209	2.1	2.1	139.1	0.9	11.0	3.9
1997	Jan	128580	725	7.0	2.6	120909	250	2.5	2.4	138.2	-0.6	-7.5	4.3
	Feb	128430	-150	-1.4	2.2	121162	253	2.5	2.2	140.0	1.3	16.8	3.6
	Mar	129175	745	7.2	2.5	121344	182	1.8	2.1	140.2	0.1	1.7	3.5
	Apr	129384	209	2.0	2.6	121671	327	3.3	2.3	139.6	-0.4	-5.0	3.3
	May	129639	255	2.4	2.5	121834	163	1.6	2.2	140.0	0.3	3.5	3.2
	Jun	129364	-275	-2.5	2.2	122056	222	2.2	2.1	140.6	0.4	5.3	2.2
	Jul	129708	344	3.2	2.2	122440	384	3.8	2.3	140.2	-0.3	-3.4	3.0
	Aug	129804	96	0.9	2.2	122492	52	0.5	2.1	140.8	0.4	5.3	2.7
	Sep	129715	-89	-0.8	1.9	122761	269	2.7	2.3	140.6	-0.1	-1.7	2.0
	Oct	129894	179	1.7	1.8	123045	284	2.8	2.3	140.9	0.2	2.6	2.7

	Unempl. Rate	Retail Sales				Industrial Production				Treasury Yields	
		Billions of dollars	Percent change			Index	Percent change			3- mo	10-yr
			Monthly/ quarterly	Annual rate	Year ago		Monthly/ quarterly	Annual rate	Year ago		
1992	7.5	1944.605			4.8	100.000			3.2	3.43	7.01
1993	6.9	2071.178			6.5	103.366			3.4	3.00	5.86
1994	6.1	2224.913			7.4	108.558			5.0	4.25	7.08
1995	5.6	2326.536			4.6	112.109			3.3	5.49	6.58
1996	5.4	2440.379			4.9	115.198			2.8	5.01	6.44
1995	1	573.137	0.2	0.8	5.6	111.764	1.0	3.9	5.1	5.74	7.48
	2	578.680	1.0	3.9	5.2	111.561	-0.2	-0.7	3.3	5.60	6.62
	3	585.146	1.1	4.5	4.5	112.441	0.8	3.2	3.0	5.37	6.32
	4	589.573	0.8	3.1	3.1	112.671	0.2	0.8	1.8	5.26	5.89
1996	1	600.484	1.9	7.6	4.8	113.128	0.4	1.6	1.2	4.93	5.91
	2	609.371	1.5	6.1	5.3	114.844	1.5	6.2	2.9	5.02	6.72
	3	611.126	0.3	1.2	4.4	115.774	0.8	3.3	3.0	5.10	6.78
	4	619.398	1.4	5.5	5.1	117.048	1.1	4.5	3.9	4.98	6.34
1997	1	635.597	2.6	10.9	5.8	118.326	1.1	4.4	4.6	5.06	6.56
	2	630.244	-0.8	-3.3	3.4	119.581	1.1	4.3	4.1	5.05	6.70
	3	642.057	1.9	7.7	5.1	121.495	1.6	6.6	4.9	5.05	6.24
1995	Oct	194.865	-0.1	-1.3	2.3	112.522	-0.4	-5.0	2.3	5.28	6.04
	Nov	196.702	0.9	11.9	3.1	112.704	0.2	2.0	1.9	5.36	5.93
	Dec	198.006	0.7	8.3	3.8	112.788	0.1	0.9	1.1	5.14	5.71
1996	Jan	197.714	-0.1	-1.8	2.6	112.361	-0.4	-4.4	0.4	5.00	5.65
	Feb	201.085	1.7	22.5	6.1	113.782	1.3	16.3	1.9	4.83	5.81
	Mar	201.685	0.3	3.6	5.6	113.241	-0.5	-5.6	1.4	4.96	6.27
	Apr	202.496	0.4	4.9	6.0	114.284	0.9	11.6	2.6	4.95	6.51
	May	204.177	0.8	10.4	5.8	114.782	0.4	5.4	2.9	5.02	6.74
	Jun	202.698	-0.7	-8.4	4.2	115.466	0.6	7.4	3.3	5.09	6.91
	Jul	203.090	0.2	2.3	4.5	115.495	0.0	0.3	3.4	5.15	6.87
	Aug	203.087	-0.0	-0.0	3.7	115.848	0.3	3.7	2.9	5.05	6.64
	Sep	204.949	0.9	11.6	5.1	115.978	0.1	1.4	2.6	5.09	6.83
	Oct	206.715	0.9	10.8	6.1	116.231	0.2	2.6	3.3	4.99	6.53
	Nov	205.789	-0.4	-5.2	4.6	117.216	0.8	10.7	4.0	5.03	6.20
	Dec	206.894	0.5	6.6	4.5	117.697	0.4	5.0	4.4	4.91	6.30
1997	Jan	210.233	1.6	21.2	6.3	117.765	0.1	0.7	4.8	5.03	6.58
	Feb	213.022	1.3	17.1	5.9	118.366	0.5	6.3	4.0	5.01	6.42
	Mar	212.342	-0.3	-3.8	5.3	118.846	0.4	5.0	4.9	5.14	6.69
	Apr	209.934	-1.1	-12.8	3.7	119.331	0.4	5.0	4.4	5.16	6.89
	May	209.370	-0.3	-3.2	2.5	119.508	0.1	1.8	4.1	5.05	6.71
	Jun	210.940	0.7	9.4	4.1	119.903	0.3	4.0	3.8	4.93	6.49
	Jul	213.549	1.2	15.9	5.1	120.847	0.8	9.9	4.6	5.05	6.22
	Aug	214.372	0.4	4.7	5.6	121.542	0.6	7.1	4.9	5.14	6.30
	Sep	214.136	-0.1	-1.3	4.5	122.096	0.5	5.6	5.3	4.95	6.21
	Oct	213.694	-0.2	-2.4	3.4	122.694	0.5	6.0	5.6	4.97	6.03

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/ quarterly	Annual rate	Year ago	Year to date		Monthly/ quarterly	Annual rate	Year ago	Year to date		Monthly/ quarterly	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
	2	160.1	0.3	1.1	2.4	1.7	169.5	0.7	2.8	2.5	2.5	131.3	-1.0	-3.9	0.4
	3	160.9	0.5	2.0	2.2	1.8	170.2	0.4	1.7	2.3	2.2	131.5	0.1	0.4	-0.1
1995	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	132.6	-0.3	-3.5	2.2
	Mar	159.9	0.1	0.8	2.8	1.8	168.7	0.2	2.9	2.5	2.4	132.3	-0.2	-2.7	1.5
	Apr	160.0	0.1	0.8	2.5	1.5	169.2	0.3	3.6	2.6	2.7	131.6	-0.5	-6.2	0.8
	May	160.1	0.1	0.8	2.3	1.4	169.5	0.2	2.1	2.5	2.6	131.3	-0.2	-2.7	0.4
	Jun	160.3	0.1	1.5	2.3	1.4	169.7	0.1	1.4	2.5	2.4	131.1	-0.2	-1.8	-0.1
	Jul	160.6	0.2	2.3	2.2	1.5	170.0	0.2	2.1	2.4	2.4	131.0	-0.1	-0.9	-0.2
	Aug	160.9	0.2	2.3	2.2	1.6	170.1	0.1	0.7	2.3	2.2	131.4	0.3	3.7	-0.2
	Sep	161.3	0.2	3.0	2.2	1.8	170.4	0.2	2.1	2.2	2.2	132.0	0.5	5.6	0.0
	Oct	161.6	0.2	2.3	2.1	1.8	170.8	0.2	2.9	2.3	2.2	132.1	0.1	0.9	-0.3

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 non-farm 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

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