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ECONOMIC OUTLOOK USA is designed to aid private and public decision makers in achieving a better understanding of the economic and social environment in which they will be operating. The analysis of this publication incorporates direct measurements of the expectations, attitudes and plans of both consumers and business firms with the economic and financial variables traditionally used in forecast models. The philosophy of this publication is that a blend of anticipatory and traditional measures provides richer insights into prospective developments, insights which will produce more consistently reliable forecasts of both economic and social change.

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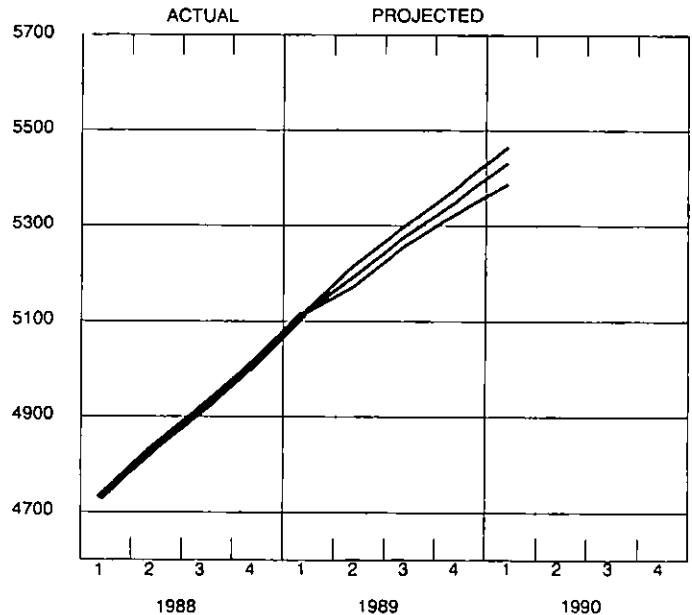
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ECONOMIC PROSPECTS: Actual and projected seasonally adjusted quarterly data at annual rates.

GROSS NATIONAL PRODUCT

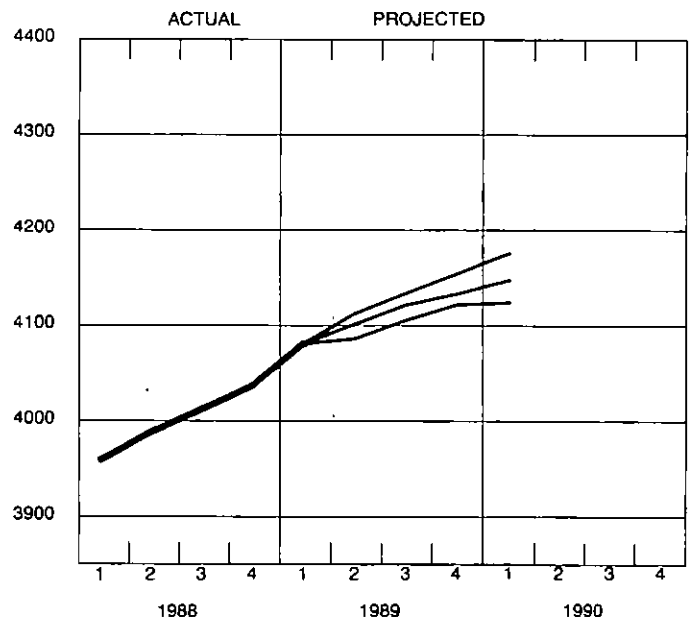
IN CURRENT DOLLARS
Billions of Dollars



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

GROSS NATIONAL PRODUCT

IN CONSTANT 1982 DOLLARS
Billions of Dollars



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

The U.S. Economic Outlook for 1989-90: May 1989 Forecast Update

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Research Seminar in Quantitative Economics
The University of Michigan

Introduction

Preliminary data for the first quarter of 1989 indicate that real GNP grew at a 5.5 percent annual rate following the 2.4 percent increase posted for the fourth quarter of 1988. The effect of last year's drought reduced fourth quarter growth by an estimated 1.1 percentage points, while the return to normal growing conditions in 1989, which is assumed in the estimate of first quarter growth, added 2½ percentage points to the preliminary estimate of first quarter growth. Thus, excluding the effects of the drought, real GNP grew at a 3 percent annual rate in the first quarter of 1989 following a 3.5 percent annual rate increase in the fourth quarter of 1988.

Real final sales, excluding the federal government Commodity Credit Corporation (CCC) inventory change, increased by \$26.6 billion (2.7 percent at annual rate) in the first quarter of 1989. Consumer purchases contributed only \$8.6 billion (1.3 percent at annual rate) to this increase, reflecting a decline, in response to higher interest rates, in purchases of automobiles and an increase of less than one percent at annual rate in real expenditure on other durable goods, coupled with modest growth in consumer spending on nondurables and services. Real business fixed investment increased by \$11.4 billion (9.6 percent at annual rate), led by purchases of production equipment, up \$5.3 billion (29.1 percent at annual rate), and of other equipment excluding autos, up \$7.8 billion (13.4 percent at annual rate). Purchases of automobiles by businesses declined by \$4 billion (1982 dollars). Real net exports increased by \$9.7 billion, reflecting a \$13.3 billion increase in real exports, an increase of \$8 billion in real non-oil imports, and a decline of \$4.4 billion in real oil imports.

Indications of weaker growth during the current quarter include the April increase in the civilian unemployment rate to 5.3 percent from its March low of 5 percent, reflecting no growth in total civilian employment during April. Car sales increased substantially in April, to nearly 10.8 million units at annual rate from just over 9½ million in March, but were being supported by financing incentives. Reductions in production schedules have been announced in recognition that, even with the boost from the current round of sales incentives, current levels of car sales will not support the previously planned production levels. Housing starts weakened throughout the first quarter, falling to only 1.4 million units at annual rate in March.

Inputs to the Forecast

Congress and the administration have agreed on the broad outlines of a federal budget that is intended to reduce the fiscal 1990 deficit by \$28 billion relative to a baseline budget that allows for inflation and increases in program participation.

The deficit reduction agreement includes a \$4.2 billion cut in defense spending relative to the baseline and a \$2.7 billion reduction in medicare expenditures. On the revenue side, the agreement calls for a \$2.7 billion increase in user fees and \$5.3 billion in as yet unspecified new revenue measures. Also included in the \$28 billion reduction are one-time asset sales totaling \$5.7 billion, another \$1.8 billion to be "saved" by taking the U.S. postal service off budget, and an acceleration of \$1 billion in farm price support payments so that the checks would be written in fiscal 1989 instead of fiscal '90.

Our federal budget assumptions for FY 1990 are summarized in Table 1. We have included the agreed-upon cuts in spending and increases in user fees and have assumed a \$7.7 billion increase in personal income taxes beginning January 1, 1990, in order to achieve the \$5.3 billion unspecified increase in revenues for fiscal 1990. We have also incorporated in the budget the direct costs and interest obligations resulting from the thrift industry bailout.

Total federal expenditures are projected to increase by 6.7 percent for fiscal 1989 and by 4.6 percent for fiscal 1990, following an increase of 4.6 percent for fiscal 1988. The increase in fiscal 1988 was held down by a relatively large reduction in CCC farm inventory stocks. Defense spending is projected to increase by 1.2 percent in both fiscal '89 and '90, following a 2.6 percent increase in fiscal '88. Nondefense spending, excluding the CCC inventory change, is projected to increase by 6.1 percent in fiscal '89 and 5.5 percent in fiscal '90, following a 10.8 percent increase in fiscal '88. Total federal receipts are forecast to increase by 6.6 percent in fiscal '89 and by 7.3 percent in fiscal '90. The bottom line is a federal deficit (NIPA basis) that increases to \$153 billion in fiscal 1989 from \$143 billion in fiscal '88 but declines to \$133 billion in fiscal 1990. While the projected fiscal '90 deficit represents a movement in the right direction, it does not achieve the deficit reduction target of \$100 billion set by the Deficit Reduction Act of 1987.

Short- and long-term interest rates continued to climb during the first quarter, leveling off during late March and retreating modestly during April. It appears that the Fed is no longer pushing interest rates up but is maintaining its tight monetary policy stance aimed at preventing excess demand inflation. We expect this policy to continue for the remainder of 1989. In the context of our forecast, short-term interest rates will decline by 60 to 70 basis points between the second and fourth quarters of 1989 in response to slower growth in the economy. With the consequent reduction in inflationary pressure and the fiscal tightening assumed in the 1990 federal budget, we project that the Fed will move to a somewhat less restrictive policy at the beginning of 1990, represented by a reduction in the discount rate to 6½ percent. Acceleration of growth in the economy during 1990 is then assumed to result in renewed tightening by the Fed during the final quarter of 1990.

TABLE 1
Federal Government Expenditures in the National Income and Product Accounts
(Billions of Dollars)

Expenditures, Receipts, and Deficit	Actual	RSQE Projections	
	Fiscal 1988 ¹	Fiscal 1989 ²	Fiscal 1990 ²
Federal Government Expenditures	1106.5	1180.4	1235.2
(% Change)	(4.6)	(6.7)	(4.6)
Purchases of Goods and Services	379.8	401.6	416.8
National Defense	297.7	301.2	304.6
(% Change)	(2.6)	(1.2)	(1.2)
Nondefense	82.1	100.4	112.2
Commodity Credit Corporation			
Inventory Change	-14.6	-2.1	4.0
Other Nondefense	96.6	102.5	108.2
(% Change)	(10.8)	(6.1)	(5.5)
Transfer Payments	433.8	460.6	489.0
Unemployment Benefits	13.5	14.3	18.8
Grants-in-Aid to State and Local Governments	108.6	115.2	117.8
Net Interest Paid	151.6	169.3	184.8
Subsidies Less Current Surplus of Government Enterprises	32.7	33.6	26.8
Federal Receipts	963.5	1027.1	1102.1
(% Change)	(7.7)	(6.6)	(7.3)
Surplus (+) or Deficit (-)	-143.1	-153.4	-133.1

1. Data for fiscal 1988 are from the *Survey of Current Business*, December 1988.

2. RSQE projections and Control Forecast for fiscal years 1989 and 1990.

Oil prices are projected to average \$19 to \$20 per barrel during the current quarter in response to curtailed production in the North Sea, caution in Alaska, and OPEC production restraint. Thereafter, oil prices are projected to fall back to the \$18 per barrel range during the second half of 1989 and then to increase at a 2.5 percent annual rate during the first half of 1990 and at a 4 percent annual rate during the second half of next year.

We have assumed nearly normal harvests for U.S. agriculture in 1989 and 1990, and we project that farm prices will be rising at an annual rate of about 4 percent from mid-1989 through the end of 1990.

Summary of the Forecast for 1989-90

The input assumptions and initial conditions discussed above yield a forecast of continued but slowing economic growth through the end of 1989. The slowdown in the economy resulting from recent Fed tightening is now materializing, with real GNP forecast to increase by 1.4 percent at annual rate during the current quarter and by only one percent during the third quarter of 1989.

Real business capital spending is forecast to lead again in the current quarter, increasing at a 9½ percent annual rate as investment in production, agricultural, and other non-auto

equipment remains strong and business purchases of autos rebound. By the third quarter of 1989, however, business capital spending exhibits only moderate growth, increasing by 3 percent at annual rate. Real spending by consumers is forecast to increase by only 1.4 percent at annual rate this quarter in spite of an incentive-induced increase in auto purchases, and by only one percent during the third quarter of 1989.

Even slower growth is forecast for the fourth quarter of 1989 and the first quarter of 1990, 6/10 and 9/10 of one percent at annual rate, respectively, when a tighter fiscal policy goes into effect. Short-term interest rates are forecast to decline by 60 to 70 basis points between the second and fourth quarters of this year in response to the slower growth in the economy. Our assumption of a less restrictive monetary policy in early 1990 results in a further reduction in short-term interest rates, with the 3-month treasury bill rate forecast to average 7 percent in 1990. Long-term interest rates, including mortgage rates, are forecast to remain at current levels for the remainder of 1989 and then to decline in 1990, averaging 20 to 50 basis points below current levels for calendar 1990. Real output growth is forecast to accelerate to 3¼ percent at annual rate in the second half of 1990 in response to the lower interest rates, as growth in interest-sensitive sectors rebounds. Thus, real GNP is forecast to increase by 2.1 percent from the fourth quarter of 1988 to the fourth quarter of 1989 and by 2.4 percent during 1990.

Corresponding to the growth path in our forecast is a civilian unemployment rate which increases throughout the forecast horizon, averaging 5 ¼ percent in the closing quarter of 1989 and 6.1 percent in calendar 1990.

Auto sales, which totaled 10.6 million units in calendar 1988, are forecast to decline to a total of 9.8 million units for 1989. Auto sales are forecast to decline in the second half of 1989 but to turn around in early 1990 as interest rates fall in response to the assumed easing of monetary policy. Housing starts are forecast to decline throughout 1989 and then to rebound as mortgage rates come down during 1990, but total only 1.4 million units each year.

The exchange value of the dollar is forecast to stabilize during the current quarter after increasing at a 13 ½ percent annual rate last quarter in response to higher U.S. interest rates relative to foreign rates. The exchange value of the dollar is forecast

to decline by 3 percent at annual rate during the second half of 1989 and by 4.9 percent during 1990. Improvement in the real trade deficit will be small through mid-1989 due to the relatively high interest rates and the stronger dollar which they have induced. Real import growth slows in late 1989 and remains weak, showing virtually no growth during 1990, while real export growth continues in the 8 to 8 ½ percent range. The bottom line is a real trade deficit that declines from \$100 billion for calendar 1988 to \$93 billion for 1989 and \$62 billion for 1990.

Core industrial price inflation, as measured by the growth rate of the implicit price deflator for the nonfarm business sector, is forecast to increase through the third quarter of 1989 as higher oil prices filter through the system. It then declines in response to the slower growth of the economy and more stable oil prices, remaining in the 5 ¼ to 5 ½ percent range from late 1989 through 1990.

TABLE 2. Selected Economic Indicators as Forecast by RSQE, May 1989

Seasonally adjusted data, billions of current dollars unless otherwise indicated

ECONOMIC INDICATORS	QUARTERLY DATA								ANNUAL DATA			
	Actual 1989:1	Projected							Projected			% Changes 88-89 89-90
		1989:2	1989:3	1989:4	1990:1	1990:2	1990:3	1990:4	1989	1990		
GROSS NATIONAL PRODUCT	5,116.8	5,212.6	5,302.0	5,376.6	5,464.7	5,567.2	5,681.7	5,805.6	5,252.0	5,629.8	8.0	7.2
PERSONAL CONSUMPTION EXPENDITURES	3,380.4	3,457.8	3,519.3	3,580.7	3,647.9	3,720.5	3,796.9	3,874.9	3,484.5	3,760.0	8.0	7.9
DURABLE GOODS	461.5	469.0	469.8	472.6	475.4	483.7	493.5	502.7	468.2	488.8	3.8	4.4
AUTOMOBILES and PARTS	208.2	213.1	210.5	209.9	209.3	213.7	219.1	224.1	210.4	216.5	0.9	2.9
FURNITURE and H.H. EQUIPMENT	167.8	169.4	171.6	173.6	175.5	178.0	180.7	183.2	170.6	179.3	7.3	5.1
OTHER DURABLES	85.5	86.5	87.7	89.0	90.5	92.1	93.7	95.5	87.2	93.0	4.4	6.6
NONDURABLE GOODS	1,093.7	1,124.3	1,141.0	1,154.1	1,172.0	1,190.6	1,210.4	1,230.9	1,128.3	1,201.0	7.8	6.4
SERVICES	1,825.3	1,864.5	1,908.5	1,954.1	2,000.4	2,046.2	2,093.1	2,141.2	1,888.1	2,070.2	9.2	9.6
GROSS PRIVATE DOMESTIC INVESTMENT	816.0	814.8	824.3	827.9	830.0	839.9	859.0	882.1	820.7	852.7	7.1	3.9
NONRESIDENTIAL	516.5	532.9	544.6	554.4	562.4	570.4	580.4	592.3	537.1	576.4	10.0	7.3
RESIDENTIAL STRUCTURES	237.7	237.3	233.7	230.7	233.5	242.3	253.7	263.5	234.8	248.2	2.2	5.7
CHANGE in BUSINESS INVENTORIES	61.8	44.6	46.0	42.8	34.1	27.2	24.9	26.3	48.8	28.1	—	—
NET EXPORTS	-90.5	-92.5	-92.8	-93.1	-91.5	-85.9	-78.4	-69.0	-92.2	-81.2	—	—
EXPORTS	570.3	590.6	607.9	627.3	647.6	670.1	693.8	718.4	599.0	682.5	15.2	13.9
IMPORTS	660.8	683.1	700.7	720.3	739.2	755.9	772.2	787.4	691.2	763.7	12.5	10.5
GOVERNMENT PURCHASES	1,010.9	1,032.5	1,051.2	1,061.0	1,078.3	1,092.7	1,104.2	1,117.7	1,038.9	1,098.2	7.7	5.7
FEDERAL	394.8	403.7	411.7	410.6	416.8	419.9	419.9	421.8	405.2	419.6	6.4	3.6
NATIONAL DEFENSE	298.7	301.0	303.0	301.9	305.5	305.5	305.5	307.6	301.1	306.0	0.9	1.6
NONDEFENSE	96.1	102.7	108.7	108.7	111.3	114.4	114.4	114.2	104.0	113.6	*26.0	*9.2
STATE and LOCAL	616.1	628.8	639.5	650.4	661.5	672.8	684.3	696.0	633.7	678.6	8.5	7.1
GROSS NATIONAL PRODUCT DEFLATOR, 1982 = 100	125.2	127.1	128.9	130.6	132.4	134.1	135.9	137.6	127.9	135.0	5.1	5.5
REAL GROSS NATIONAL PRODUCT (billions of 1982 dollars)	4,088.2	4,102.2	4,112.0	4,117.7	4,127.3	4,150.8	4,181.8	4,217.9	4,105.0	4,169.4	2.7	1.6
CIVILIAN UNEMPLOYMENT RATE (percent)	5.2	5.4	5.5	5.8	6.0	6.0	6.1	6.2	5.5	6.1	—	—
CORPORATE PROFITS plus IVA and CCA	331.4	341.1	354.4	336.0	336.9	346.2	357.8	371.7	340.7	353.1	3.8	3.6
3-MONTH TREASURY BILL RATE (%)	8.5	8.5	8.1	7.9	7.0	7.0	6.9	7.2	8.3	7.0	—	—
REAL DISPOSABLE PERSONAL INCOME (billions of 1982 dollars)	2,881.1	2,873.0	2,871.6	2,872.9	2,877.9	2,881.6	2,889.0	2,899.9	2,874.6	2,887.1	3.1	0.4
PERSONAL SAVING RATE (percent of disposable income)	5.7	5.1	4.9	4.6	4.5	4.1	3.9	3.8	5.1	4.1	—	—

Sources: Projections by Research Seminar in Quantitative Economics, University of Michigan; actual data from Departments of Commerce and Labor, Board of Governors of the Federal Reserve System.

*Without Commodity Credit Corporation transactions, the increases are 6.0% (1988-89) and 5.4% (1989-90).

Social Relationships and Health

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Scientists have long noted an association between social relationships and health. More socially isolated or less socially integrated individuals are less healthy, psychologically and physically, and more likely to die. The first major work of empirical sociology found that less socially integrated people were more likely to commit suicide than the most integrated. In subsequent epidemiologic research age-adjusted mortality rates from all causes of death are consistently higher among the unmarried than the married. Unmarried and more socially isolated people have also manifested higher rates of tuberculosis, accidents, and psychiatric disorders such as schizophrenia. Clinicians have also observed potentially health-enhancing qualities of social relationships and contacts.

The causal interpretation and explanation of these associations has, however, been less clear. Does a lack of social relationships cause people to become ill or die? Or are unhealthy people less likely to establish and maintain social relationships? Or is there some other factor, such as a misanthropic personality, which predisposes people both to have a lower quantity or quality of social relationships and to become ill or die?

Such questions have been largely unanswerable before the last decade for two reasons. First, there was little theoretical basis for causal explanation. Second, evidence of the association between social relationships and health, especially in general human populations, was almost entirely retrospective or cross-sectional before the late 1970s. Retrospective studies from death certificates or hospital records ascertained the nature of people's social relationships after they had become ill or died, and cross-sectional surveys of general populations determined whether people who reported ill health also reported a lower quality or quantity of relationships. Such studies used statistical control of potential confounding variables to rule out third factors that might produce the association between social relationships and health, but could do this only partially. They could not determine whether poor social relationships preceded or followed ill health.

In this article, we review recent developments that have altered this state of affairs dramatically:

- Emergence of theoretical models for a causal effect of social relationships on health in humans and animals;
- Cumulation of empirical evidence that social relationships are a consequential predictor of mortality in human populations; and

- Increasing evidence for the causal impact of social relationships on psychological and physiological functioning in experimental studies of humans and animals.

These developments suggest that social relationships, or the relative lack thereof, constitute a major risk factor for health — rivaling the effects of well-established health risk factors such as cigarette smoking, blood pressure, blood lipids, obesity, and physical activity. Indeed, the theory and evidence on social relationships and health increasingly approximate that available at the time of the U.S. Surgeon General's 1964 report on smoking and health, with similar implications for future research and public policy.

Early Theory and Research

The study of social relationships and health was revitalized in the middle 1970s by the emergence of a seemingly new field of scientific research on "social support." This concept was first used in the mental health literature, and was linked to physical health in separate seminal articles by physician-epidemiologists John Cassel and Sidney Cobb. These articles grew out of a rapidly developing literature on stress and psychosocial factors as causes of health and illness. Chronic diseases have increasingly replaced acute infectious diseases as the major causes of disability and death, at least in industrialized countries. Consequently, theories of disease causation have shifted from ones in which a single factor caused a single disease, to ones in which multiple behavioral and environmental as well as biologic and genetic factors combine, often over extended periods, to produce any single disease, and in which most factors contribute to multiple disease outcomes.

Cassel and Cobb reviewed more than 30 human and animal studies that found social relationships protective of health. Recognizing that any one study was open to alternative interpretations, they argued that the variety of study designs, of life stages studied, and of health outcomes involved suggested a robust, arguably causal, association. Cassel and Cobb indicated that social relationships might promote health in several ways, but emphasized the role of social relationships in moderating or buffering potentially deleterious health effects of stress or other health hazards. This idea of "social support," or something that maintains or sustains the organism by promoting adaptive behavior or physiologic responses in the face of stress or other health hazards, provided a general, albeit simple, theory of how and why social relationships should causally affect health.

Publications on "social support" increased almost geometrically from 1976 to 1981. By the late 1970s, however, serious questions emerged about the evidence cited by Cassel and Cobb and that generated in subsequent research. Concerns were expressed about causal priorities between

Editor's note: This presentation is adapted from the authors' article of the same name which appeared in *Science*, Vol. 241 (29 July 1988), pp. 540-545. (Copyright 1988 by the AAAS.) Complete references and notes are provided in the *Science* article. The editor appreciates the permission granted by *Science* to adapt the article for this publication and to reproduce herein the figures from pp. 540 and 543 of their article.

social support and health (since the great majority of studies remained cross-sectional or retrospective and based on self-reported data), about whether social relationships and supports buffered the impact of stress on health or had more direct effects, and about how consequential the effects of social relationships on health really were. These concerns have been addressed by a continuing cumulation of two types of empirical data: (1) a new series of prospective mortality studies in human populations and (2) a broadening base of laboratory and field experimental studies of animals and humans.

Prospective Mortality Studies

Just as concerns began to surface about the nature and strength of the impact of social relationships on health, data from long-term, prospective studies of community populations provided compelling evidence that lack of social relationships constitutes a major risk factor for mortality. One major study analyzed a probability sample of 4,775 adults in Alameda County, California (Oakland and environs), who were between 30 and 69 in 1965 when they completed a survey that assessed the presence or extent of four types of social ties — marriage, contacts with extended family and friends, church membership, and other formal and informal group affiliations. Each type of social relationship predicted mortality through the succeeding 9 years. A combined “social network” index remained a significant predictor of mortality (with a relative risk ratio for mortality of about 2.0, indicating that persons low on the index were twice as likely to die as persons high on the index) in multivariate analyses that controlled for self-reports in 1965 of physical health, socioeconomic status, smoking, alcohol consumption, physical activity, obesity, race, life satisfaction, and use of preventive health services. Such adjustment or control for baseline health and other risk factors provides a conservative estimate of the predictive power of social relationships, since some of their impact may operate through effects on these risk factors.

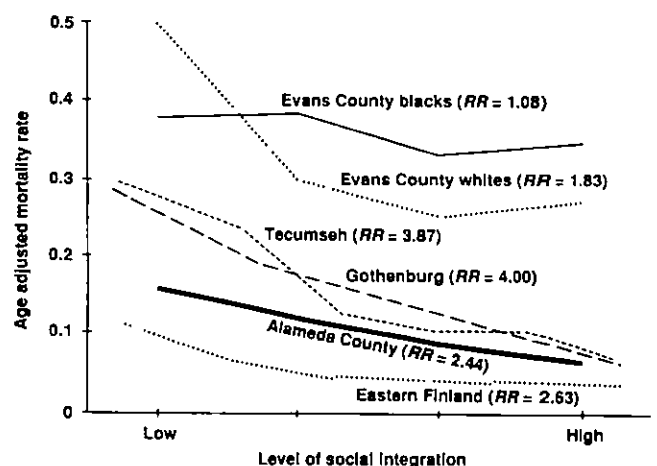
The major limitation of this study was the lack of other than self-reported data on health at the beginning of the study period. Thus, one of the authors of this article and associates sought to replicate and extend the Alameda County results in a study of 2,754 adults between 35 and 69 at their initial interview and physical examinations in 1967 through 1969 by the Tecumseh (Michigan) Community Health Study. Composite indexes of social relationships and activities (as well as a number of the individual components) were inversely associated with mortality during the succeeding 10- to 12-year follow-up period, with relative risks of 2 to 3 for men and 1½ to 2 for women, after adjustment for the effects of age and a wide range of biomedically assessed as well as self-reported risk factors of mortality. Researchers who studied 2,059 adults in Evans County, Georgia, found that a social network index similar to that used in the Alameda County study predicted mortality for an 11- to 13-year follow-up period, after adjustment for age and baseline measures of biomedical and self-reported risk factors of mortality. The Evans County associations were somewhat weaker than those in Tecumseh and in Alameda County, and as in Tecumseh were stronger for males than females.

Studies in Sweden and Finland have described similar results. One group of researchers studied men born in 1913 and 1923,

and living in Gothenburg, Sweden's second largest city, in 1973. After adjustments for age, baseline levels of systolic blood pressure, serum cholesterol, smoking habits, and perceived health status, mortality in these men through 1982 was inversely related to the number of persons in the household and the men's level of social and outside home activities in 1973. Another group of researchers analyzed the mortality experience through 1981 of a random sample of 17,433 Swedish adults aged 29 to 74 at the time of their 1976 or 1977 baseline interviews. Frequency of contact with family, friends, neighbors, and co-workers in 1976-77 was predictive of mortality through 1981, after adjustment for age, sex, education, employment status, immigrant status, physical exercise, and self-reports of chronic conditions. The effects were stronger among males than among females, and were somewhat nonlinear, with the greatest increase in mortality risk occurring in the most socially isolated third of the sample. Finally, in a prospective study of 13,301 adults in predominantly rural eastern Finland, researchers found a measure of “social connections” similar to those used in the U.S. studies to be a significant predictor of male mortality from all causes during 5 years, again after adjustments for other biomedical and self-reported risk factors. Female mortality showed similar, but weaker and statistically nonsignificant, effects.

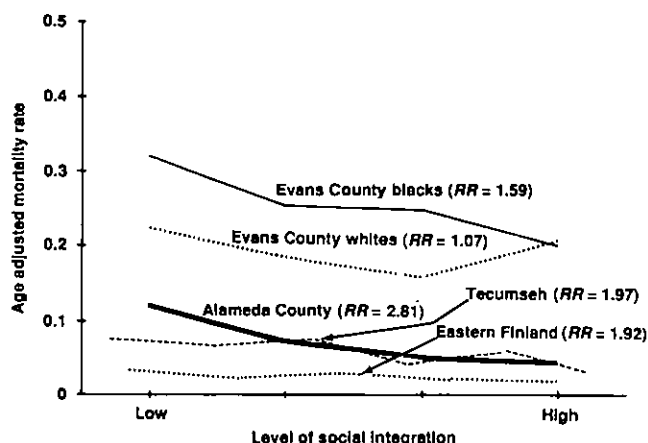
These studies manifest a consistent pattern of results, as shown in Charts 1 and 2, which show age-adjusted mortality rates plotted for the 5 prospective studies from which we could extract parallel data. The relative risks (RR) in the charts are higher than those reported above because they are only adjusted for age. The levels of mortality in the charts vary greatly across studies depending on the follow-up period and composition of the population by age, race, ethnicity, and geographic locale, but the patterns of prospective association between social integration (that is, the number and frequency of social relationships and contacts) and mortality are remarkably similar, with some variations by race, sex, and geographic locale.

CHART 1. Level of Social Integration and Age-adjusted Mortality for Males in Five Prospective Studies



Note: RR indicates the relative risk ratio of mortality at the lowest versus highest level of social integration.

CHART 2. Level of Social Integration and Age-adjusted Mortality for Females in Five Prospective Studies



Note: RR indicates the relative risk ratio of mortality at the lowest versus highest level of social integration.

Only the Evans County study reported data for blacks. The predictive association of social integration with mortality among Evans County black males is weaker than among white males in Evans County or elsewhere (Chart 1), and the relative risk ratio for black females in Evans County, although greater than for Evans County white females, is smaller than the risk ratios for white females in all other studies (Chart 2). More research on blacks and other minority populations is necessary to determine whether these differences are more generally characteristic of blacks compared to whites.

Modest differences emerge by sex and rural as opposed to urban locale. Results for men and women are strong, linear, and similar in the urban populations of Alameda County and Gothenberg, Sweden (only men were studied in the latter). In the predominantly small-town and rural populations of Tecumseh, Evans County, and eastern Finland, however, two notable deviations from the urban results appear: (1) female risk ratios are consistently weaker than those for men in the same rural populations (Charts 1 and 2), and (2) the results for men in more rural populations, although rivaling those in urban populations in terms of risk ratios, assume a distinctly nonlinear, or threshold, form. That is, in Tecumseh, Evans County, and eastern Finland, mortality is clearly elevated among the most socially isolated, but declines only modestly, if at all, between moderate and high levels of social integration.

Explanation of these sex and urban-rural variations awaits research on broader regional or national populations in which the same measures are applied to males and females across the full rural-urban continuum. The current results may have both substantive and methodological explanations. Most of the studies reviewed here, as well as others, suggest that being married is more beneficial to health, and becoming widowed more detrimental, for men than for women. Women, however, seem to benefit as much or more than men from relationships with friends and relatives, which tend to run along same-sex lines. On balance, men may benefit more from social relationships than women, especially in cross-gender

relationships. Small communities may also provide a broader context of social integration and support that benefits most people, except for a relatively small group of socially isolated males.

On the other hand, measures of social relationships or integration used in the existing prospective studies may be less valid or have less variance in rural and small town environments, and for women, thus muting their relationship with mortality. For example, the data for women in Chart 2 are similar to the data on men if we assume that women have higher quality relationships and hence that their true level of social integration is moderate even when the number of relationships is small. The social context of small communities may similarly provide a moderate level of social integration for everyone except quite isolated males. Thus, measures of frequency of social contact may be poorer indexes of social integration for women and more rural populations than for men and urban dwellers.

Variations in the results in Charts 1 and 2 should not, however, detract from the remarkable consistency of the overall finding that social relationships do predict mortality for men and women in a wide range of populations, even after adjustment for biomedical risk factors for mortality. Additional prospective studies have shown that social relationships are similarly predictive of mortality in studies of people who are elderly or have serious illnesses.

Experimental Research

The prospective mortality data are made more compelling by their congruence with growing evidence from experimental and clinical research on animals and humans that variations in exposure to social contacts produce psychological or physiological effects that could, if prolonged, produce serious morbidity and even mortality. Cassel reviewed evidence that the presence of a familiar member of the same species could buffer the impact of experimentally induced stress on ulcers, hypertension, and neurosis in rats, mice, and goats, respectively; and the presence of familiar others has also been shown to reduce anxiety and physiological arousal in humans in potentially stressful laboratory situations. Clinical and laboratory data indicate that the presence of or physical contact with another person can modulate human cardiovascular activity in general, and in stressful contexts such as intensive care units. Research also points to the operation of such processes across species. Affectionate petting by humans, or even their mere presence, can reduce the effects of stressful situations among dogs, cats, horses, and rabbits. It has also been found that human handling reduced the artery-damaging impact of a high fat diet in rabbits. Recent interest in the potential health benefits of pets for humans, especially the isolated aged, is based on similar notions, although the evidence for such efforts is only suggestive.

The epidemiologic evidence linking social relationships and supports to illness in humans is limited and not fully consistent. For example, although laboratory studies show short-term effects of (inadequate) social relationships on cardiovascular functioning that would, over time, produce cardiovascular disease, and prospective studies show impacts of social relationships on mortality from cardiovascular

disease, the link between social relationships and the incidence of such disease has yet to be firmly demonstrated. Overall, however, the theory and evidence for the impact of social relationships on health are building steadily.

Social Support and Policy Issues

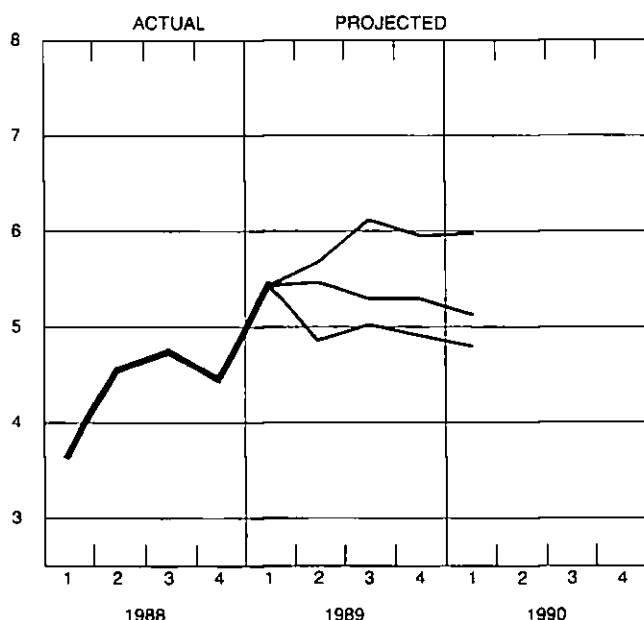
The extent and quality of social relationships experienced by individuals is certainly affected by biology and personality, but it is also a function of broader social forces. Whether people are employed, married, attend church, belong to organizations, or have frequent contact with friends and relatives, and the nature and quality of those relationships, are determined in part by their positions in a larger social structure that is stratified by age, race, sex, and socioeconomic status and is organized in terms of residential communities, work organizations, and larger political and economic structures. Older people, blacks, and the poor are generally less socially integrated, and differences in social relationships by sex and place of residence have been discussed in relation to Charts 1 and 2. Changing patterns of fertility, mortality, and migration in society affect opportunities for work, marriage, living and working in different settings, and can even affect the nature and quality of these relations. These

demographic patterns are themselves subject to influence by both planned and unplanned economic and political change, which can also affect individuals' social relationships more directly — witness the massive increase in divorce during the last few decades in response to the women's movement, growth in women's labor force participation, and changing divorce law.

In contrast with the 1950s, adults in the United States in the 1980s were less likely to be married, more likely to be living alone, less likely to belong to voluntary organizations, and less likely to visit informally with others. Changes in marital and childbearing patterns and in the age structure of our society will produce in the 21st century a steady increase of the number of older people who lack spouses or children — the people to whom older people most often turn for relatedness and support. Thus, just as we discover the importance of social relationships for health, and see an increasing need for them, their prevalence and availability may be declining. Changes in other risk factors (for example, the decline of smoking) and improvements in medical technology are still producing overall improvements in health and longevity, but the improvements might be even greater if the quantity and quality of social relationships were also improving.

CONSUMER PRICE INDEX

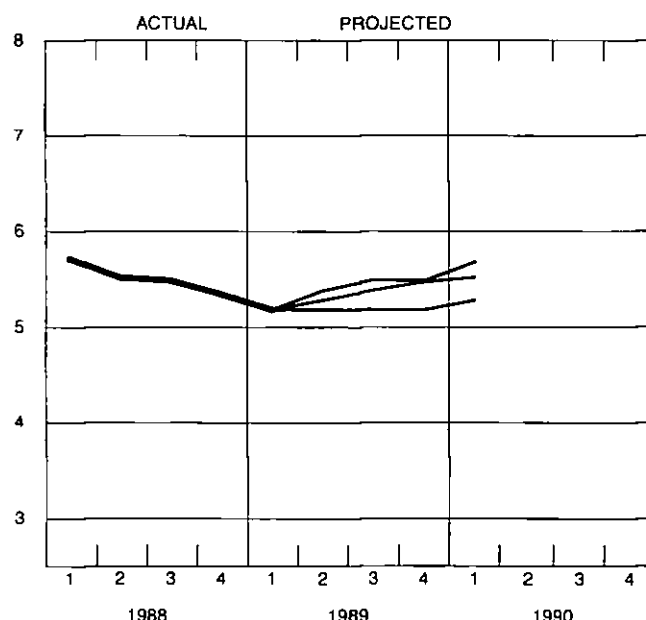
Percent Change
at Annual Rate



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

UNEMPLOYMENT RATE

Percent



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

Generations and Collective Memories: Part 1*

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That each generation receives a distinctive imprint from the social and political events of its youth is an old idea, most often associated with the name of Karl Mannheim. Mannheim did not define generation with any precision, and in fact he emphasized that a generation is a social creation rather than a biological necessity. Where novel events are rare and change is slow, as in traditional peasant societies, distinct generations may not appear. Only where events occur in such a manner as to demarcate a cohort in terms of its "historical-social" consciousness, should we speak of a true generation.¹

Although Mannheim emphasized the socially constructed nature of a generation, implicit in his discussion was also the concept of "life course." His essay is not entirely clear on the point at which a cohort begins to develop a unique generational character, but he seems to specify "the age of 17, sometimes a little earlier and sometimes a little later." He further suggests that age 25 may well mark the terminal point of major generational formation. Thus Mannheim assumed, as have almost all later writers, that "late adolescence and early adulthood are the formative years during which a distinctive personal outlook on politics emerges."

Subsequent interest in the generational concept has been motivated largely by a belief in its potential explanatory power for understanding individual and collective political behavior. In simplest terms, the generational character created by the events a cohort experiences during its youth is assumed to exert an important, even decisive, influence on the later attitudes and actions of its members.

However, the attempt to go directly from the formal delineation of cohorts in terms of age to the prediction of later behavior skips an important step: that of identifying what earlier experience is carried forward in memory by a particular cohort. The generational hypothesis explored here is that experience from adolescence and early adulthood is carried

forward with at least some self-awareness. Thus the belief that the Depression generation will be frugal usually assumes memories that are at least partially conscious.

In our research we focused directly on the formative events and changes that cohorts are assumed to have experienced in the past and to carry with them into the present. We ask whether there are memories that distinguish one cohort from another, and whether cohorts defined initially in arbitrary age terms can be redefined generationally by the qualitatively distinct events and changes that are currently predominant in memory. This then is a study of the collective political and societal memories of a cross-section sample of the American population, and our initial hypothesis is that these memories will be structured along the age dimension in ways that point to important cohort effects. We will also explore possible interactions between generational effects and major stratification variables (education, race, and gender), since it is possible that effects are limited to or magnified in certain social divisions of the population.

A more specific hypothesis is that the events and changes that have maximum impact in terms of memorableness occur during a cohort's adolescence and young adulthood, often referred to as "youth." There are three types of consideration that point to this period as the critical one for generational effects. First and most obviously, we assume that people will tend *not* to recall as important those events and changes that preceded their own lifetime. As Mannheim stated it, only knowledge "personally gained in real situations . . . sticks," and thus even very important political events and changes that preceded one's life should not have registered very clearly. Maurice Halbwachs makes a similar point in distinguishing between autobiographical and historical memory, the former richer and more personally meaningful than the latter, and recent evidence on the attitude-behavior connection provides further indirect support for the importance of direct experience.

Second, although by elementary school age, children are fairly well developed in terms of language and other abilities, there is considerable evidence that they have only a very superficial grasp of the political world beyond their family and other personal relationships. Apparently an awareness of larger political events and changes does not appear until early adolescence. The extent to which this is largely a result of intellectual maturation, or psychosocial development of personal identities, or of changes in social expectations and opportunities is a matter of dispute; but consistent with Mannheim's assumption, developmental psychologists view youth as a kind of "critical period" for learning about the larger society, almost in the same sense that earlier years are critical for other developmental tasks, for example, the acquisition of language.

Third, we expect that most people will tend *not* to recall as important those events and changes that occur after their early

Editor's note: This presentation is adapted from the authors' article of the same name published in *American Sociological Review*, 1989, Vol. 54 (June:359-381). A second part will be presented in the final issue of *ECONOMIC OUTLOOK USA* (Vol. 16, No. 1). Complete references and notes are provided in the *ASR* article. We appreciate the permission granted by the American Sociological Association to republish the material here, and to reproduce Charts 1-5 from the original article.

*Philip E. Converse contributed in important ways to the development of the research on which this study is based. The article is based on research supported by the National Science Foundation (SES-8410078).

¹We will use the term *cohort* descriptively to refer to "the aggregate of individuals (within some population definition) who experienced the same event within the same time interval" (Norman Ryder), but treat *cohort effect* and *generation* as having the additional implication of long-lasting, if not permanent, change in the cohort. In Mannheim's usage, generation has the still further implication of ideological distinctiveness, whereas a cohort effect can include social or demographic changes that may or may not have direct ideological effects. *Generation* is sometimes limited to lineage relations, but in this paper the wider meaning of the term is employed.

adulthood. The events that register most strongly during adolescence and early adulthood have the great advantage of primacy, and research in experimental settings suggests that primacy effects are especially strong on impression formation. Moreover, primacy should be much more important in the life course than in standard laboratory experiments, since striking political events that occur during adolescence or early adulthood are primary in a more fundamental sense, both disrupting the taken-for-granted natural world of childhood and providing an induction into the larger political and social world. In Mannheim's view there is a "fresh" encounter with the political world at that point that can seldom be duplicated in later life. More dramatically, Fred Davis speaks of noteworthy historic events during adolescence that rip "the larger existential fabric of our being-in-the-world," and thus leave an indelible impression in memory.

In summary, our paper reports investigations of three closely connected hypotheses. First, after identifying in an open-ended manner major collective memories about the past half century, we test whether these memories are structured by age in a way that points clearly to generational differences. Second, if such generational effects occur, we ask whether they fit the model of adolescence and early adulthood as the primary source of political and social memories. Third, we compare the meaning of such youthful memories with those that occur from other periods of the life course, with the expectation that even the latter memories can best be understood by taking into account the adolescent and early adult experiences of the rememberers.

In describing our investigation as one dealing with "collective memories," we make use of a term advanced by Halbwachs to describe memories of a shared past that are retained by members of a group, large or small, that experienced it. The concept is both suggestive and difficult to specify clearly. Initially, we use it to refer to shared memories of societal-level events, but in our concluding section (forthcoming in the next issue) we draw on our results to distinguish among several possible meanings of "collective memories."

Method and Data

We pursued these ideas in 1985 by asking a probability sample of 1,410 Americans, 18 years and older, to think of "national or world events or changes" that have occurred over the past 50 years and to name "one or two . . . that seem to you to have been especially important." Both "events" and "changes" were always mentioned together, since we wished to include both time-bound occurrences and more general social movements or changes, and each respondent was encouraged to give two such events or changes. (The full question is presented in the footnote to Table 1.) We then asked each respondent why he or she chose each event or change, to be discussed in part 2 of this presentation.

Selected Events and Changes

The half century marked off by the period of approximately 1930 to 1985 was a momentous one for the United States. It included three major wars, important movements to effect changes in race and gender relations, the development of nuclear weapons, repeated acts of political terrorism abroad

and assassination at home, and . . . One could go on and on. Certainly it was a half century full of both specific events and broader changes that might be remembered by Americans. Our initial interest is in which ones are remembered as important. (Although we will use words like "recall" and "remember," some respondents who mention an early event or change will be too young to have experienced it personally; what is presumably remembered is having heard or read about it.)

World War II and Vietnam are clearly the most frequently recalled events or changes from the past five decades, as shown in Table 1, with 29 percent and 22 percent, respectively, mentioning one or the other of these two wars.² Along with the two wars, we will include in our primary analysis the next listed 10 events and changes as well. Six of these were mentioned by more than 5 percent of the sample: space exploration, the assassination of John F. Kennedy, civil rights, the nuclear threat, advances in communication and transportation, and the 1930s Depression. In addition, we include the next four most frequent mentions; although not quite making the 5 percent threshold, they are close to it and all are of considerable intrinsic interest — the development of the computer, terrorism (mainly the 1979 hostage-taking in Iran), moral decline, and women's rights.

Altogether, 82 percent of the 1,253 respondents who were able to mention any event or change mentioned at least one that fell into these 12 categories. We shall therefore concentrate our analysis on these "major" categories, which range from time-bound events such as World War II to broader changes like civil rights that are difficult to describe in terms of precise dates. Since there is a high correlation between an event or change being mentioned at all and its being mentioned first, our analysis will treat each major category dichotomously: mentioned at all or not mentioned. Other analysis using only first mentions produces results for age generally quite consistent with what will be presented here.

The 12 major events and changes are listed in Table 1 in a straightforward way, but judgment is necessarily involved in creating and using such categories. Even a well-demarcated "event" such as World War II consisted of a complex series of more specific events (the attack on Pearl Harbor, the invasion of North Africa, the surrender of Germany, etc), and the placement of these under the label "World War II" is an act of conceptualization, since historical reality is an undivided stream. In the case of World War II, the conceptualization is provided by the larger culture, and a reexamination of the 367 respondents coded into that category shows that 310 answered by using the exact words "World War II." However, we have also included within the category respondents whose answers

²The base for percentages in the first column in Table 1 is the 1,253 respondents who mentioned at least one event or change in answer to our question. (We deal below with 157 respondents included in our sample who were unable to mention any event or change but who answered other questions that were part of our study.) In the last column the same base of 1,253 is used, but the percentage in each row is for those who mentioned each event, whether as a first mention or a second mention, as against all those who did not mention the event. For example, 29.3 percent of the 1,253 respondents mentioned World War II and 70.7 percent did not mention it. The percentages in this last column are not mutually exclusive, since those who gave two responses appear in two categories. Thus the column does not add to 100 percent.

TABLE 1. Highly Mentioned Events and Changes

Event	Percent First Mention	Number First Mention	Number Second Mention	Combined Number	Percent of Respondents Mentioning ^a
*World War II	21.3%	267	100	367	29.3
*Vietnam War	11.6	145	131	276	22.0
*Space exploration	7.4	93	66	159	12.7
*Kennedy assassination	5.0	63	48	111	8.8
*Civil rights	6.1	77	30	107	8.5
*Nuclear war, threat of	4.5	56	42	98	7.8
*Communication/transportation	3.7	46	31	77	6.1
*Depression	4.6	58	12	70	5.6
*Computers	1.8	23	26	49	3.9
*Terrorism	1.5	19	24	43	3.4
*Moral decline	2.9	28	13	41	3.3
*Women's rights	1.6	20	17	37	3.0
Reagan's presidency	1.6	20	15	35	2.8
Nixon (Watergate)	0.7	9	26	35	2.8
Inflation	1.6	20	14	34	2.7
Medical advances	1.1	14	19	33	2.6
Social security	1.8	23	6	29	2.3
Nuclear power	1.2	15	14	29	2.3
Unemployment problems	1.2	15	11	26	2.1
Korean War	1.0	12	14	26	2.1
War in general	1.0	13	11	24	1.9
Soviet Union, Cold War	1.0	12	9	21	1.7
World hunger	1.1	14	6	20	1.6
Education, better/worse	1.0	12	4	16	1.3
F.D. Roosevelt	0.9	11	5	16	1.3
Israel, creation of	0.7	9	4	13	1.0
Peace movement	0.6	8	5	13	1.0
Farm problems	0.6	7	5	12	1.0
Middle East	0.4	5	7	12	1.0
Central America	0.6	7	4	11	0.9
Economic improvement	0.6	7	3	10	0.8
Immigration	0.5	6	4	10	0.8
Miscellaneous	9.5	119	96	201	16.0
Total	100.0%	1253	840	—	—
Base N	(1253)				(1253)

*Major events and changes.

^aEach row represents a dichotomy of those mentioning the event at all divided by the total (N = 1253) mentioning any event.

Event/Change Question

The next questions concern how people think about the past. There have been a lot of national and world events and changes over the past 50 years—say, from about 1930 right up until today. Would you mention one or two such events or changes that seem to you to have been *especially* important. There aren't any right or wrong answers to the question—just whatever *national or world events or changes* over the past 50 years that come to mind as important to you. (IF ONLY ONE MENTION, ASK: Is there any other national or world event or change over the past 50 years that you feel was especially important?)

referred to "Pearl Harbor," to "the end of World War II," or in a few cases to some other event that seemed to fit best there. Thus, even for the simplest event categories, some judgments were needed both in creating the code and in actual coding.

Other categories in Table 1 are less tightly constrained by specific dates and cultural definitions; for example, Women's Rights includes positive responses that refer to greater employment opportunities for women, positive references to the Equal Rights Amendment (ERA), mentions of the Women's Movement, and similar answers. In this case, more conceptualization was required on our part than was true for World War II. In our subsequent analysis we have tried to

remain sensitive to variation within, as well as between, categories, and at points we will note tests carried out to make certain that the labels in Table 1 do not become so reified as to prevent discovery of important relationships at other levels of conceptualization.

One grouping that requires note is not represented at all in Table 1: the 157 individuals out of our total sample of 1,410 who answered other questions in our study but were unable (or conceivably unwilling) to mention even one event or change over the past 50 years that seemed important to them. By far the most powerful background factor that accounts for the lack of historical memory is education. Most of the people

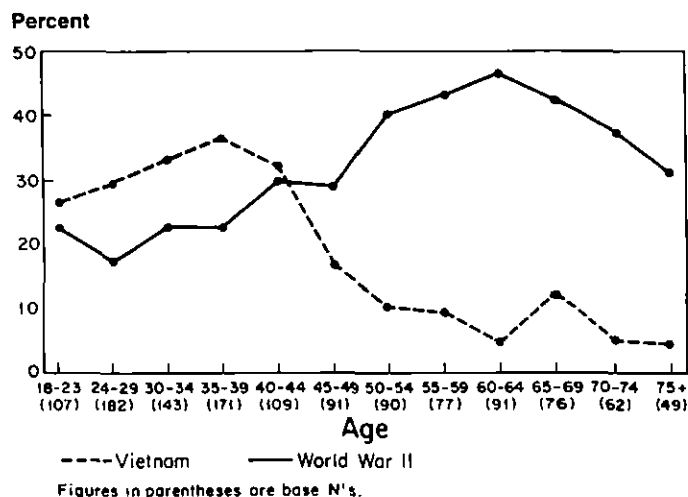
with no apparent memory of events or changes are located among those without college education: 17 percent of those with no college experience, as against 4 percent of those with any college experience at all.

Generational Effects

Our first interest is in determining whether generation, operationalized in the form of age categories, helps explain mentions of events and changes as important in response to our initial question. The simplest form of the generational hypothesis — that people of all ages will tend to report events and changes from their youth — is supported remarkably well for the majority of the 12 major events and changes, as will be seen in Charts 1 to 5, to be discussed in detail. (The exact percentages that are graphed in the charts are available on request.) The figures present bivariate relations between age and each major category, but the relations have also been tested using logistic regressions that included education, gender, and race; the results from such tests are reported in Table 2, both for control purposes and in order to provide comparisons of the sizes of the age effects with those attributable to the other three variables. In addition, since for events that occurred toward the middle of the 50-year period, the generational hypothesis about youth predicts curvilinearity, we regularly included in the logistic analysis a quadratic term for age. In no case do the controls for education, gender, and race alter substantially the main effect of age, and for most events on which age has a significant effect at all, it is the strongest of the predictors, often with both linear and curvilinear trends registering as significant. We also explored interactions between age and education, gender, and race; the four such interactions discovered will be noted at later points.

Wars. We begin with two major wars in which the United States has been engaged over the past 50 years. Chart 1 shows that nominations of World War II as especially important are relatively high and sharply demarcated among those in their 50s and 60s in 1985. Nominations of the Vietnam War are high

CHART 1. World War II and Vietnam Mentions by Age



among those 18 to about 44, and especially among those in their 30s and early 40s, but decline rapidly at later ages.

If we transpose the present peak ages to the ages of the respondents at the beginning and end of each war, we find that the highest proportions of mentions occur as follows:

	Beginning	End
World War II (1941-1945):	16-20	20-24
Vietnam War (1965-1973):	15-19	23-27.

There is the clear beginning date of 1941 for World War II, and we use 1965 as the year in which the Vietnam War "could be considered as having started as far as the American public was concerned" (John Mueller's words). The transposed peaks of 16 to 24 for World War II and of 15 to 27 for Vietnam are remarkably close to the 17 to 25 age range identified by Mannheim as critical for generational formation.

TABLE 2. Relations of Major Event/Change Categories and Age, Education, Gender, and Race: Significant *t*-Ratios^a

	World War II	Vietnam	Space	Civil Rights	Kennedy	Nuclear	Comm. & Transp.	Depression	Computers	Moral Decline	Terrorism	Women's Rights
Education	5.63	(1.89)	—	2.35	—	—	—	2.00	2.74	—	—	—
Gender	-3.12	—	—	—	2.27	-2.30	—	—	—	—	—	3.66
Race	-3.66	-3.70	(-1.90)	10.99	—	—	—	—	—	—	—	—
Age (linear)	6.83	-8.26	—	— ^b	-3.65	-2.93	3.52	4.63	—	—	-4.08	-2.11 ^c
Age (squared)	(-1.68)	-3.82	—	— ^d	-4.52	—	—	2.22	—	—	(1.75)	—

^aBased on logistic analysis of each major event or change using four predictors: age (6 categories), education (6 categories), gender (1 = Men, 2 = Women), race (1 = White, 2 = Black). The cell figures are statistically significant ($p < .05$) *t*-ratios (coefficient/standard error), with those in parentheses of borderline significance ($.10 > p > .05$). Each analysis was done with and without an additional term for age squared to test for curvilinearity; if the age-squared term was not significant, results are shown only for the model omitting it. The sample size for these analyses was 1165, a number smaller than that for Table 1 because only whites and blacks are included for the race variable. Nominal two-tailed statistical significance levels for this table are: $t = 1.64$, $p < .10$; $t = 1.96$, $p < .05$; $t = 2.58$, $p < .01$; $t = 3.29$, $p < .001$.

^bThe *t*-ratios for age for blacks and whites separately on Civil Rights are 2.42 and .27, respectively.

^cThe *t*-ratios for men and women separately on Women's Rights are -.48 and -2.06, respectively.

^dThe *t*-ratio for age squared for blacks on Civil Rights is -1.89.

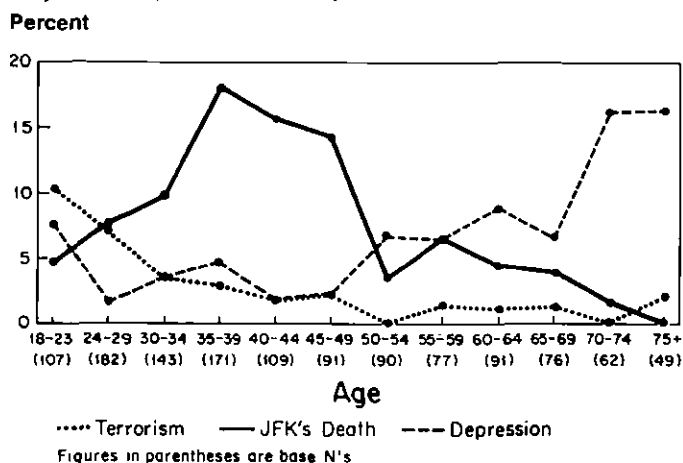
Whatever credence we give to these exact estimates, it is apparent from Chart 1 that memories are strongest for those in their youth at the time of the event. This finding arises, however, from two different sources. On the one hand, those now too young to have directly experienced a war during their adolescence (below age 50 in the case of World War II) are less likely to mention the event, presumably because it was simply not part of the world they knew personally. On the other hand, those who were beyond their youth at the time of an event — beyond present age 45 with reference to the Vietnam War — are also less likely to mention it, probably because it is overshadowed by earlier events that dominate their memories. We should emphasize that, since respondents were encouraged to name two events or changes, the fact that a person mentioned World War II in no way precluded their mentioning Vietnam also. Yet of those 50 to 74 years in age who gave World War II and who gave one other event/change, only 11 percent mentioned Vietnam, a percentage essentially the same as the figure (12 percent) for those of the same age range who did not give World War II as one of their two mentions. Thus, it is not only that older people tend to remember World War II, but also that such people tend *not* to mention a war that occurred after their youth.

Other clearly datable events. Three other clearly datable categories are the Depression, the assassination of John F. Kennedy in 1963, and terrorism (consisting almost entirely of responses about the 1979 Iran hostage-taking and subsequent terrorist incidents). All three of these events show clear relations to age, as indicated in Chart 2.

Not many respondents mention the Depression, but the modal age of those who do is in the 70s and over category, so that these people are even older than those mentioning World War II, as they should be according to the generational hypothesis. (However, because of small samples at the oldest ages, it is not practical to identify a highest age range for mentions in this case.)

John Kennedy's assassination is given especially by people now in their late 30s and their 40s, which means teens to early and mid-20s in 1963 when the event occurred. One might also expect still younger persons to mention this particular event because recognition and idealization of the president appears

CHART 2. Other Datable Events by Age: Depression, JFK's Death, and Terrorism



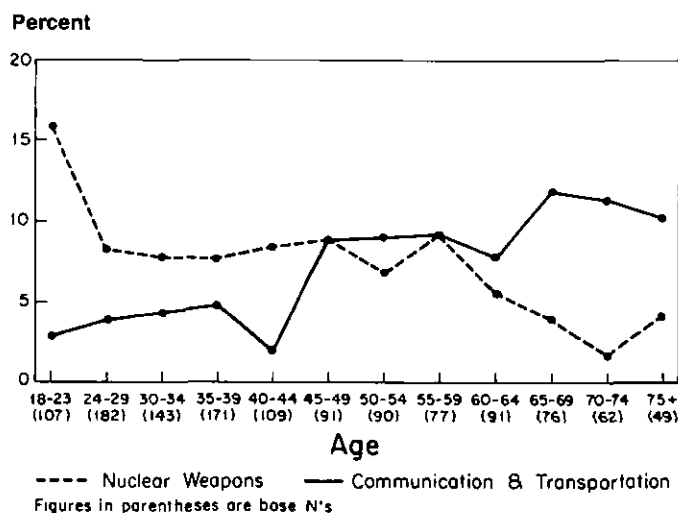
earlier than other political awareness, and in addition television brought the dramatic impact of Kennedy's assassination directly into most American homes. Although the peak age of mentions is by individuals who were 15 in 1963, persons then 8 to 12 years old are also relatively high in naming the assassination as important.

Finally, terrorist incidents, which captured public attention in late 1979 with the hostage-taking in Iran and continued into the 1980s, are mentioned most often by the youngest members of our sample — that is, by those who had not experienced most of the other major events and changes but who were at least entering their teens when the Iran hostage incident began. In sum, these three events, like the two major wars, are recalled most readily by those in a narrow age band of teens to middle 20s when each occurred.

Broader changes. Two changes less easy to connect with specific dates but nevertheless amenable to age-related interpretation are shown in Chart 3. First, advances in communication and transportation include mentions such as the development of radio and television and of the jet airplane. Not surprisingly, these are reported as important changes disproportionately by older Americans, who witnessed such extraordinary advances in their own lifetimes. For younger Americans, television and jet planes are part of their natural world and not something to be remarked on.

One might have expected a somewhat similar relation of age to the category "nuclear war," since the initial impact of the atomic and hydrogen bomb developments go back to 1945 and 1950, respectively, and the 1950 date was also caught up in growing U.S./Soviet hostilities. However, Chart 3 shows almost the opposite: responses about nuclear war, which include both nuclear weapon developments and nuclear disarmament talks (but not nuclear power), are associated with younger ages. Our interpretation here cannot be as straightforward in terms of simple age-related experience as for previous categories, but it is likely that a general increase in concern about nuclear destruction over the recent past is responsible in part for this age effect. Various antinuclear movements gained considerable ground in the years just

CHART 3. Other Changes by Age: Nuclear, Communication and Transportation



preceding 1985, and these both result from and have further raised national consciousness on the nuclear issue. Thus, to the extent that the issue has been reborn as a new one, like all new issues it has impressed the young most of all, if only because it does not compete in their minds with "old" events and changes. From this perspective, mentions of nuclear weapons are similar to mentions of terrorism. In addition, however, it seems possible that there is a life cycle effect also, in that it is the young who will be particularly anxious about growing up in a world, and bringing children into a world, that may be destroyed by nuclear war. Older people are probably less concerned about such apocalyptic visions because their worries center on aging and illness, the loss of loved ones, and other more personal harbingers of mortality.

Civil rights and women's rights. For these two social changes, it is only the group most directly affected — blacks and women, respectively — who show a clear relation to age (see Charts 4 and 5, which use only six age breaks because of the smaller number of cases when racial and gender subsamples are graphed). On civil rights, it is older blacks who are most likely to offer this as important (although not the very oldest if the small case base of blacks 70 and over can be trusted). The drop among younger blacks can readily be attributed to the lack of recent civil rights activities, since they were too young to experience the height of such activity in the 1954-1965 period. (The generally high levels of mentions among blacks at all ages no doubt reflect the breadth of impact across the black population of the civil rights movement.) It is difficult to explain the null age relationship for whites, especially since the proportion of whites mentioning civil rights (5.2 percent) would place it fairly high in Table 1 even with black respondents omitted. We have no satisfactory interpretation of the puzzling absence of an age trend in this case.

In the case of women's rights, the number of mentions by men is so small ($n = 5$) that the lack of an age relation does not merit speculation. The number of mentions by women is also not large ($n = 32$), but there is a marginally significant relation to age ($p < .05$), with younger women more likely to mention the women's movement or associated responses, readily

CHART 4. Civil Rights by Age and Race

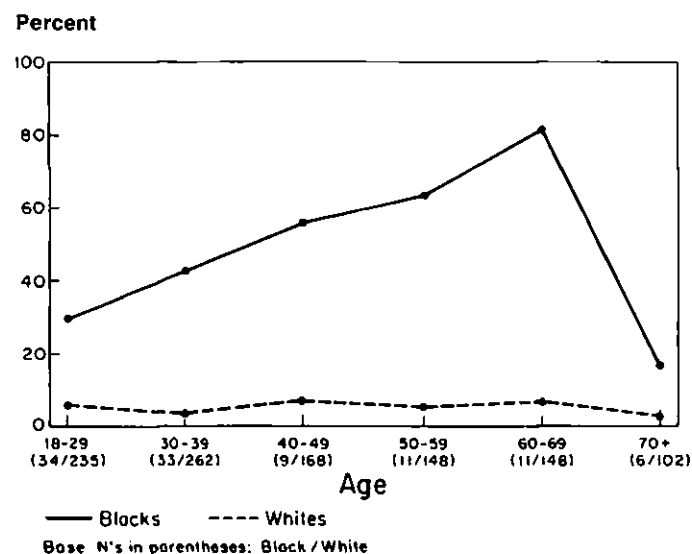
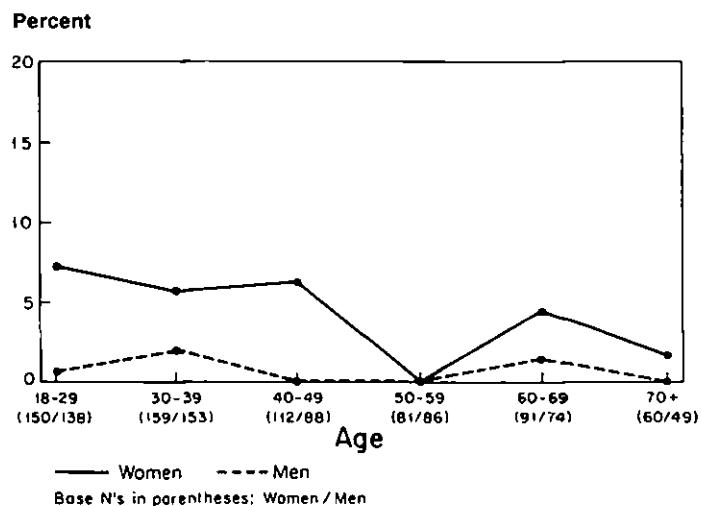


CHART 5. Women's Rights by Age and Gender



understandable in terms of its more recent origin as compared with the civil rights movement. The usual nonlinearity beyond age 49 must be interpreted with caution (neither a quadratic nor a cubic term is significant in the logistic regression); however, it is worth noting that women now in their 60s were in their 20s during World War II, a point at which women were briefly encouraged to move into male occupations, while the women now in their 50s who do not mention women's rights at all were maturing during the postwar period that emphasized marriage, motherhood, and homemaking.

Space exploration and the development of computers. Next we turn to two types of scientific change that might have been expected to be related to age — especially for those who associate technological innovation with youth — but are not. (The absence of relations to age holds not only for the sample as a whole, but for such major sample components as high- and low-educated respondents.) We thought that in the case of space exploration this might be due to the heterogeneous content of the category, and therefore carried out a separate analysis that focused on only those respondents (49 out of 159) who specifically mentioned man's first landing on the moon in 1969. Despite our successful isolation of this specific event, as starkly dramatic on television as was the assassination of President Kennedy six years earlier, there is not a hint of any relation to age.

Mentions of the computer also show no sign of a relation to age. In this case there is no single dramatic point in time, but we are able to separate the sample into those who, to a later question, report having used a computer in some way (41 percent of our total sample) and those reporting no use (59 percent): neither set of respondents shows any relation of mentions of computers to age, and indeed there is only an insignificant trend for those who have used computers to mention them as important more frequently than do non-users of computers. (However, we have found other evidence that in the case of computers the open question may not have adequately encouraged spontaneous mentions.)

The fact that so many events and changes are related clearly and meaningfully to age suggests that we ought to take seriously the absence of such a relationship for space

exploration and for computers. Apparently people at all ages attend more or less equally to space exploits — the third most highly mentioned category in Table 1 — and all ages must also have been influenced at least vaguely by the emergence on the scene of the computer. Perhaps for the old, these nonpolitical categories do not face interference from earlier events such as World War II, while at the same time the continuing exploits in each area prevent the young from taking either for granted. However, when we come to the reasons that people give for mentioning space exploration, we will see that cohorts do differ in their perception of the same event.

Moral decline. The category Moral Decline is different in character from all other political and technological changes discussed thus far. It covers a variety of responses referring to crime, abortion, drugs, sexual promiscuity, alcohol, loss of religion, or other similar problems. Since in many instances respondents mentioned several together, or themselves used a general term like “moral decline,” we created a single category with this label. It seemed likely that such concerns would be voiced more often by older or at least middle-aged Americans, but, surprisingly, there is no sign of such a relation overall. A plausible interpretation is that a rising concern with such issues as abortion and drugs has affected the young in a way that balances the presumed tendency for older people to be troubled over a more general long-term change in values from the era in which they grew up. If purely present concerns (e.g., “too much use of drugs and sex”) are separated out from those that make an explicit contrast with the past (e.g., “the growing lack of religious respect among the younger people”), the trend is for the former to be given by younger respondents and the latter by older respondents (gammas of $-.20$ and $+.25$, respectively, in the associations with age). The number of cases, however, is too small for this finding to be more than

suggestive, and the interaction of age by mention (past versus present concern) is not significant ($p > .10$).

Other Background Factors

Our presentation has focused on the bivariate relations of age to memories of events and changes. Not only are these relations maintained when education, gender, and race are included in the logistic regressions reported in Table 2, but age is the most frequent and for most memories the strongest predictor in the table. Some of the other predictors may be of independent interest (e.g., World War II is mentioned more often by highly educated than by less educated respondents), but extended comment on these taken alone is not relevant to our present concern with generational effects. Furthermore, in none of the 12 cases does education interact significantly with age in yielding memories of events, and in only two instances each do race and gender produce such interactions. Only blacks show an age relation to mentions of civil rights, as noted in connection with Chart 4, and in addition only whites show the relation for mentions of Vietnam presented in Chart 1, perhaps because of black preoccupation with civil rights during much the same years. Only women show the age relation to women's rights, as noted in connection with Chart 5, and moral decline is mentioned more by older women (gamma = $.23$) and by younger men ($-.34$), but this difference is too close to borderline in significance to justify speculative interpretation here. In sum, age is clearly the most general predictor of memories for events and changes over the past 50 years, and the graphing of the age relations provides strong evidence that in all or almost all such cases, age represents cohort effects, which in turn have their origins in adolescence and early adulthood.

Publication to Cease after Next Issue

Because of a declining base of subscribers and difficulty in obtaining appropriate content, we regret to tell you that the final issue of this publication will be Volume 16, Number 1. Subscribers who have paid for issues beyond 16:1 will receive a full (pro rata) refund.

Although we have examined various alternatives, we have been unable to find a satisfactory solution to the problems of finances and content. We appreciate the support of subscribers during the 15-year history of ECONOMIC OUTLOOK USA and hope that we have served a useful purpose during this period.

Actual and Projected Economic Indicators

seasonally adjusted

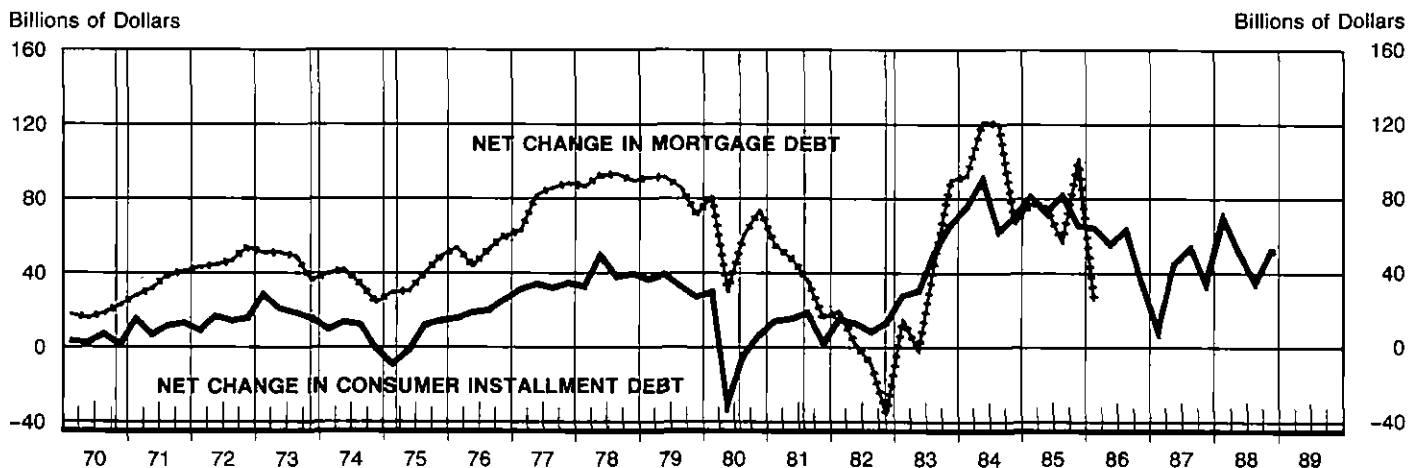
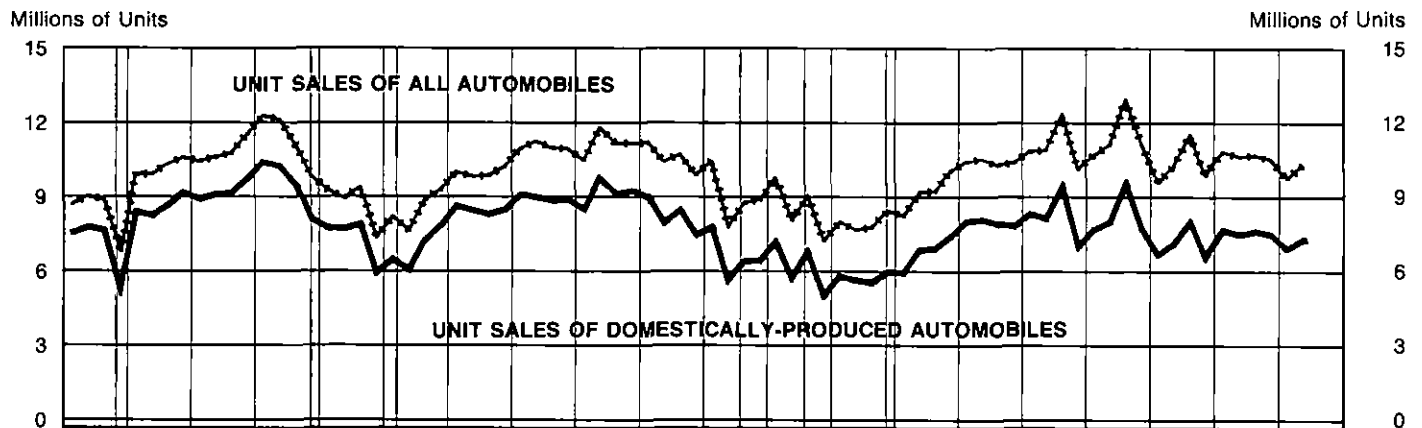
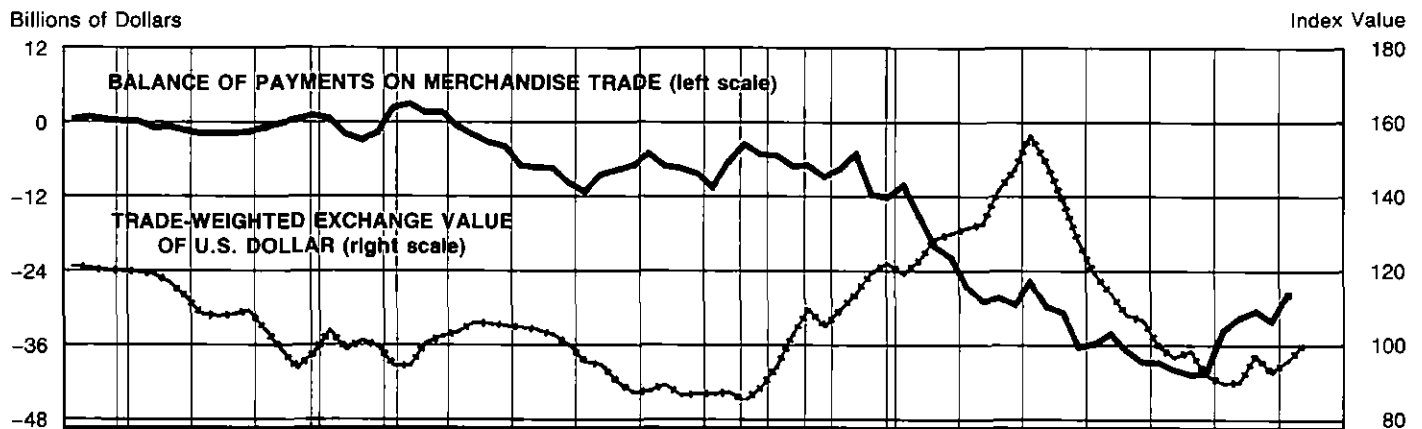
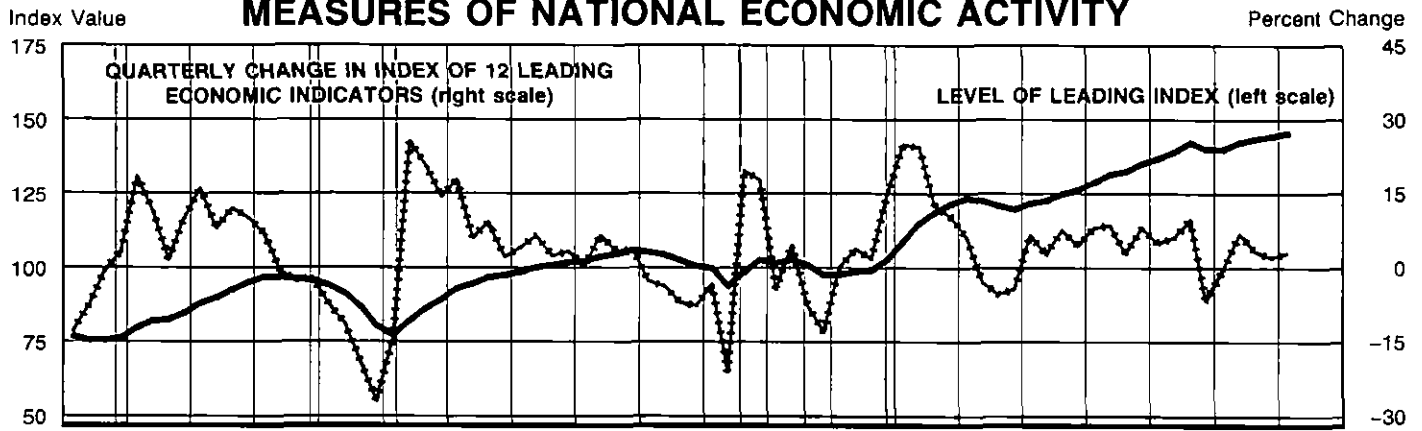
SERIES FORECAST BY THE ASA-NBER PANEL													
ECONOMIC INDICATOR	Quarterly Data										Annual Data		
	Actual					Projected					Actual	Projected	
	1988:1	1988:2	1988:3	1988:4	1989:1	1989:1	1989:2	1989:3	1989:4	1990:1	1988	1989	1990
GROSS NATIONAL PRODUCT	4,724.5	4,823.8	4,909.0	4,999.7	5,105.0	5,094.0	5,173.0	5,255.0	5,328.0	5,409.4	4,864.3	5,211.0	5,515.0
GNP IMPLICIT PRICE DEFLATOR (index, 1982 = 100)	119.4	121.0	122.4	124.0	125.2	125.1	126.3	127.9	129.3	130.8	121.7	127.2	132.7
CORPORATE PROFITS AFTER TAXES	149.4	162.7	169.1	174.5	171.6	173.0	173.0	172.0	175.0	175.5	163.9	173.0	178.0
UNEMPLOYMENT RATE (percent)	5.70	5.50	5.47	5.33	5.17	5.30	5.40	5.50	5.60	5.65	5.50	5.48	5.80
INDUSTRIAL PRODUCTION (index, 1977 = 100)	134.5	136.0	138.4	139.9	140.6	141.0	142.0	143.0	143.0	143.0	137.2	142.0	144.0
NEW PRIVATE HOUSING UNITS STARTED (millions)*	1.477	1.477	1.467	1.559	1.514	1.520	1.480	1.440	1.420	1.415	1.495	1.470	1.467
CONSUMER PRICE INDEX (annualized percent change from prior quarter or year)*	3.63	4.54	4.73	4.44	5.42	4.60	5.00	4.85	4.85	4.70	4.08	4.80	4.60
3-MONTH TREASURY BILL RATE (%)	5.76	6.23	6.99	7.70	8.53	8.45	8.75	8.80	8.40	8.00	6.67	8.60	7.75
NEW HIGH-GRADE CORPORATE BOND YIELD (percent)	9.64	10.08	10.14	9.96	NA	10.00	10.20	10.30	10.30	10.20	9.96	10.20	9.95
GNP IN 1982 DOLLARS	3,956.1	3,985.2	4,009.4	4,033.4	4,076.5	4,074.0	4,095.0	4,115.0	4,126.0	4,140.0	3,996.0	4,102.0	4,164.0
PERSONAL CONSUMPTION EXPENDITURES (1982 dollars)	2,559.8	2,579.0	2,603.8	2,626.2	2,633.6	2,638.5	2,653.0	2,622.5	2,674.0	2,685.0	2,592.2	2,656.2	2,698.5
NONRESIDENTIAL FIXED INVESTMENT (1982 dollars)	473.4	490.2	495.0	491.4	500.5	499.7	505.4	512.2	512.9	508.1	487.5	506.5	507.4
RESIDENTIAL FIXED INVESTMENT (1982 dollars)	189.5	189.6	191.6	196.6	193.9	198.0	196.5	196.0	194.5	194.3	191.8	197.5	197.0
CHANGE IN BUSINESS INVENTORIES (1982 dollars)	66.0	35.3	39.5	29.1	38.0	40.0	32.0	28.0	27.0	28.5	42.5	30.0	28.0
NET EXPORTS (1982 dollars)	-109.0	-92.6	-93.9	-105.4	-87.8	-95.0	-89.7	-87.0	-83.0	-78.4	-100.2	-89.0	-70.0
FEDERAL GOVERNMENT PURCHASES (1982 dollars)	327.8	331.6	320.1	335.0	335.8	333.0	334.0	334.0	335.0	332.5	328.8	333.0	332.0
STATE AND LOCAL GOVERNMENT PURCHASES (1982 dollars)	448.7	452.2	453.4	460.0	462.4	461.0	463.3	464.2	466.0	468.5	453.6	463.0	472.0
SERIES FROM THE CURRENT-DOLLAR GNP ACCOUNTS													
ECONOMIC INDICATOR	Quarterly Data										Annual Data		
	1986:4	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1988:3	1988:4	1989:1	1986	1987	1988
GROSS NATIONAL PRODUCT	4,304.6	4,391.8	4,484.2	4,568.0	4,662.8	4,724.5	4,823.8	4,909.0	4,999.7	5,105.0	4,240.3	4,526.7	4,864.3
PERSONAL CONSUMPTION EXPENDITURES	2,876.0	2,921.7	2,992.2	3,058.2	3,076.3	3,128.1	3,194.6	3,261.2	3,326.4	3,377.2	2,807.5	3,012.1	3,227.5
GROSS PRIVATE DOMESTIC INVESTMENT	656.4	685.5	698.5	702.8	764.9	763.4	758.1	772.5	772.0	793.6	666.0	712.9	766.5
NET EXPORTS	-114.3	-119.1	-122.2	-125.2	-125.7	-112.1	-90.4	-80.0	-96.1	-77.5	-104.4	-123.0	-94.7
GOVERNMENT PURCHASES	886.5	903.8	915.7	932.2	947.3	945.2	961.6	955.3	997.5	1,011.8	871.2	924.8	964.9
DISPOSABLE PERSONAL INCOME	3,064.7	3,143.9	3,154.1	3,224.9	3,315.8	3,375.6	3,421.5	3,507.5	3,582.5	3,696.0	3,019.6	3,209.7	3,471.8
PERSONAL SAVING RATE (percent of disposable income)	3.2	4.2	2.2	2.3	4.3	4.4	3.7	4.2	4.3	5.8	4.0	3.3	4.1

Note: (1) All data are at annual rates and in billions of current dollars unless otherwise indicated. (2) To facilitate comparison and evaluation of forecasts, both actual data, released in May, and projected data, released by ASA-NBER in March, are displayed for first quarter 1989.

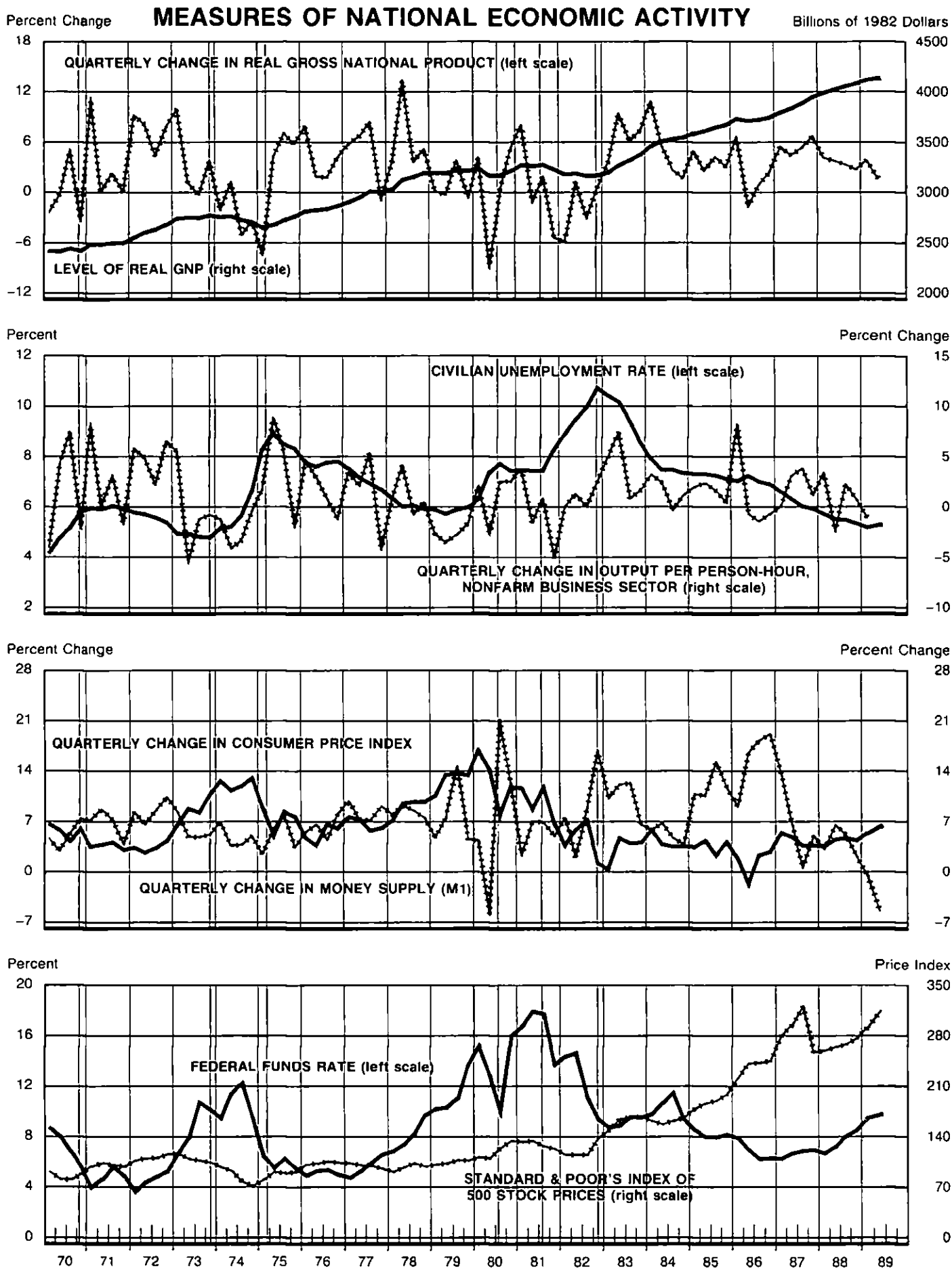
Sources: Projections: American Statistical Association—National Bureau of Economic Research panel of forecasters
Actual Data: U.S. Departments of Commerce and Labor, Board of Governors of the Federal Reserve System.

*Substantial revision of the data for series marked with an asterisk has occurred since the last printing.

MEASURES OF NATIONAL ECONOMIC ACTIVITY



Note: Shaded areas indicate recession periods as designated by NBER; percent changes are at annual rates.



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