

National Bureau of Economic Research (NBER) (Ed.)

**Periodical Part**

**NBER Reporter Online, Volume 1985**

NBER Reporter Online

**Provided in Cooperation with:**

National Bureau of Economic Research (NBER), Cambridge, Mass.

*Suggested Citation:* National Bureau of Economic Research (NBER) (Ed.) (1985) : NBER Reporter Online, Volume 1985, NBER Reporter Online, National Bureau of Economic Research (NBER), Cambridge, MA

This Version is available at:

<https://hdl.handle.net/10419/62110>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

FALL 1985

## Program Report

### The Development of the American Economy

Robert W. Fogel

Although the number of projects within the Program on the Development of the American Economy (DAE) has doubled since our last report (*NBER Reporter*, Spring 1982), the program's focus remains on those long-term changes in microeconomic behavior that are at the root of many of the current dilemmas facing economic policymakers. DAE seeks to create measures of microeconomic behavior that may be used to assess the role of long-term factors in such developments as the 90-year decline in savings and investment rates, the differences in the pace and pattern of technological change across industries, and the shifts in the demographic structure of the population and the labor force.

There are currently 22 projects divided into six subprogram areas in the DAE program. Four projects on the labor force are concerned with the socioeconomic causes of demographic changes and the effects of those changes on the supply and productivity of the labor force. Three projects on migration and labor markets analyze changes over the past 200 years in ease of entry into the labor force. They also consider the impact of changing institutional arrangements on the capacity of markets to redistribute labor with shifts in demands.

The three projects on technological change use actual firm records to learn why these firms adopted new technologies and how those new technologies helped to increase productivity. The subprogram on capital, which has two projects with a third pending, asks how changes in the distribution of income and wealth across households and firms have affected the aggregate savings rate and the sectoral distribution of investment. The three projects on government are developing a time series on public expenditures at the local and state levels that will go back to the founding of the nation.

#### In This Issue

Program Report: The Development of the American Economy	1
Research Summary	
Youth Unemployment	6
Economic Outlook Survey	9
NBER Profile	12
Conferences	12
Conference Calendar	15
Bureau News	17
Bureau Books	22
Current Working Papers	23

This issue of the *Reporter* highlights the Bureau's study of the development of the American economy. Next, David T. Ellwood describes his work on youth unemployment. After the quarterly Economic Outlook Survey are a biographical sketch, news of NBER conferences, the Conference Calendar, and other NBER news and reports. The *Reporter* concludes with short summaries of recent NBER Working Papers.

Together with the existing series at the federal level, these data will make it possible to measure the relative importance of various factors in the secular growth of the public sector.

Finally, five projects on the economics of aging deal with the influence of childhood and youthful nutrition and youthful exposure to disease on rates of labor force participation, morbidity, and mortality, and on the household arrangements of individuals at middle and late ages.

#### The Creation of Microeconomic Data Sets

Empirical research at the microeconomic level has typically been hindered by the absence of suitable data. DAE has, therefore, developed data sets capable of illuminating the relationship between the current and past behavior of families and firms.

The National Bureau of Economic Research is a private, nonprofit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers and board of directors are:

Chairman—*Franklin A. Lindsay*  
 Vice Chairman—*Richard N. Rosett*  
 Treasurer—*Charles A. Walworth*  
 President and Chief Executive Officer—*Martin Feldstein*  
 Executive Director—*Geoffrey Carliner*  
 Director of Finance and Administration—*Sam Parker*

#### DIRECTORS AT LARGE

Moses Abramovitz	Geoffrey H. Moore
Andrew Brimmer	Michael H. Moskow
Carl F. Christ	James J. O'Leary
George T. Conklin, Jr.	Robert T. Parry
Jean A. Crockett	Peter G. Peterson
Morton Ehrlich	Robert V. Roosa
Edward L. Ginzton	Richard N. Rosett
David L. Grove	Bert Seidman
George Hatsopoulos	Eli Shapiro
Walter W. Heller	Stephen Stamas
Saul B. Klamman	Donald S. Wasserman
Franklin A. Lindsay	Marina v. N. Whitman
Roy E. Moor	

#### DIRECTORS BY UNIVERSITY APPOINTMENT

Marcus Alexis, *Northwestern*  
 Albert Ando, *Pennsylvania*  
 Charles H. Berry, *Princeton*  
 James Duesenberry, *Harvard*  
 Ann F. Friedlaender, *Massachusetts Institute of Technology*  
 J. C. LaForce, *California, Los Angeles*  
 Paul McCracken, *Michigan*  
 James L. Pierce, *California, Berkeley*  
 Nathan Rosenberg, *Stanford*  
 James Simler, *Minnesota*  
 James Tobin, *Yale*  
 John Vernon, *Duke*  
 William S. Vickrey, *Columbia*  
 Burton A. Weisbrod, *Wisconsin*  
 Arnold Zellner, *Chicago*

#### DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

Edgar Fiedler, *National Association of Business Economists*  
 Robert S. Hamada, *American Finance Association*  
 James Hauck, *American Agricultural Economics Association*  
 Robert C. Holland, *Committee for Economic Development*  
 David Kendrick, *American Economic Association*  
 Douglass C. North, *Economic History Association*  
 Rudolph A. Oswald, *American Federation of Labor and Congress of Industrial Organizations*  
 Douglas D. Purvis, *Canadian Economics Association*  
 Albert T. Sommers, *The Conference Board*  
 Dudley Wallace, *American Statistical Association*  
 Charles A. Walworth, *American Institute of Certified Public Accountants*

Contributions to the National Bureau are tax deductible. Inquiries concerning contributions may be addressed to Martin Feldstein, President, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138.

The *Reporter* is issued for informational purposes and has not been reviewed by the Board of Directors of NBER. It is not copyrighted and can be freely reproduced with appropriate attribution of source. Preparation of the *NBER Reporter* is under the supervision of Donna Zerwitz, National Bureau of Economic Research, Inc., 1050 Massachusetts Avenue, Cambridge, MA 02138; (617) 868-3900.

We have used economic data on households from many diverse sources. Claudia D. Goldin, for example, has found the information needed to explain the rise in the labor force participation rate of women in the manuscript schedules of the published censuses, in city directories, in the manuscripts of household consumer surveys, and in the original schedules of Women's Bureau bulletins.<sup>1</sup>

James R. Kearl, Clayne L. Pope, and Larry T. Wimmer have also used the manuscript schedules and probate records to study economic mobility over the life cycle and across generations, and they have found additional information in the tithing records of churches and in genealogies.<sup>2</sup>

Military records have also turned out to be crammed with economic information. Robert A. Margo and Georgia C. Villaflor are producing annual indexes of wages reaching back to the 1820s for numerous occupations and for far smaller geographic regions (cities and counties) than have hitherto been available by making use of the fact that the Army has been one of the largest employers of civilian labor.<sup>3</sup> Indexes of wage rates by diverse localities are not only of interest in and of themselves but also are needed to assess the changing impact of wage differentials on both local and interregional patterns of migration.

Gathering the microeconomic data needed to study particular economic problems often requires linking information from several sources. The new subprogram on the economics of aging has used this type of linking with the experiences of the Civil War generation.<sup>4</sup> To create a life-cycle data set, the researchers began with a sample of 39,618 white males who were mustered into the Union Army between 1861 and 1865. The muster rolls contain information on the age, height, civilian occupation, morbidity, mortality, and other relevant characteristics of the men while in the service. Data on the individuals in this sample of recruits are being linked to information on their medical, occupational, income, residential, and demographic histories after 1865 as contained in the records of the U.S. Pension Bureau. Economic and demographic information

<sup>1</sup>C. D. Goldin, "The Historical Evolution of Female Earnings Functions and Occupations," *NBER Working Paper No. 529*, August 1980, and *Explorations in Economic History* 21 (January 1984), pp. 1-27; and "The Changing Status of Women in the Early Republic: Quantitative Evidence," *Journal of Interdisciplinary History*, forthcoming.

<sup>2</sup>J. R. Kearl and C. L. Pope, "Wealth Mobility: The Missing Element," *NBER Working Paper No. 692*, June 1981, and *Journal of Interdisciplinary History* (Winter 1983), pp. 461-488; "Mobility and Distribution," *Review of Economic Statistics* (May 1984), pp. 192-199; and "Unobservable Family and Individual Contributions to the Distributions of Income and Wealth," *NBER Working Paper No. 1425*, August 1984.

<sup>3</sup>R. A. Margo and G. C. Villaflor, "Reports of Persons and Articles Hired: New Evidence on Antebellum Skill Differentials," mimeo, University of Pennsylvania, 1984.

<sup>4</sup>R. W. Fogel, A. M. John, C. L. Pope, P. Temin, and L. T. Wimmer, "Economic and Demographic Aspects of Aging, 1880-1940: A Description of a Research Project," mimeo, University of Chicago, 1985.

on the households in which these individuals were reared is being obtained from the manuscript schedules of the 1850 and 1860 federal censuses. Information on the households in which they lived when elderly will be obtained from the manuscript schedules of the 1900 and 1910 censuses and from the pension records. The final data will also contain information that bears on the probability that the individuals in the sample were exposed to particular diseases during their developmental ages. Information on the prevalence of particular diseases at the county level (by wards within large cities) can be obtained from the records maintained by U.S. Army surgeons, from surveys by public health agencies, and from mortality registers.

One discovery of the pilot phase of this project is set forth in Table 1, which compares the age-specific labor force participation rates of white males in 1860 with the corresponding rates for 1983.<sup>5</sup> This table shows that labor force participation rates at ages 60-69 and 70+ were much higher in 1860 than they are today. One explanation of this finding is that the death rates at young ages, which were much higher in 1860 than today, were associated with a healthier, more vigorous group of elderly individuals. However, life expectancies at age 60 and over were much lower in 1860 than in 1983.

**Table 1**

**A Comparison between Labor Force Participation Rates of White Males in 1860 and 1983 (in percent)**

Age	1860	1983
50-59	96	86
60-69	91	44
70+	71	12

A second explanation is that there was a high proportion of farmers in the 1860 sample, and that farming encourages individuals to remain in the labor force (and not retire). However, Table 2 shows that participation rates in nonagricultural occupations have also fallen since 1860.<sup>6</sup>

<sup>5</sup> Tables 1 and 2 are derived from the computations reported in J. R. Moen, "Household Structure and the Rural Labor Force: The Northern United States in 1860," unpublished Ph.D. dissertation, University of Chicago, in progress. The 1860 column of Table 1 is based on a random sample of 20,646 households, of which just under 50 percent were headed by farmers or farm laborers. The heads of the remaining households had diverse occupations ranging from low-paid factory operatives and railroad hands to prosperous lawyers and merchants. For a more detailed description of the sample see F. Bateman and J. D. Foust, "A Sample of Rural Households Selected from the 1860 Manuscript Census," *Agricultural History* 48 (January 1974), pp. 75-93. The source for the 1983 column is U.S. Bureau of Labor Statistics, *Employment and Earnings* 31 (1983), p. 159.

<sup>6</sup> Table 2 is based on 765 households.

**Table 2**

**Labor Force Participation Rates of Native-Born White Males in 1860, by Occupational Status Outside of Agriculture (in percent)**

Age	Professionals and Proprietors	Laborers
50-59	98	97
60-69	95	93
70+	65	88

Perhaps the most interesting aspect of Table 2 is its indication of the income elasticity of the labor force participation rate. The individuals designated "professionals and proprietors" had more average real wealth than the typical worker today and about ten times as much as the laborers in 1860. Table 2 shows that the rate of decline in participation between ages 60-69 and 70+ was more rapid for professionals and proprietors than for laborers. Nevertheless, these high-wealth individuals had much higher participation rates at ages 70+ than the average white male today. Table 2 thus suggests an increase in the elasticity of the labor force participation rate with respect to wealth during the last century. In other words, the elasticity of work with respect to wealth does not appear to be a constant but may be subject to the influence of policymakers.

The most ambitious of the various DAE data-creation projects began with the collection of a large sample of genealogies, covering the period from 1640 to the present. These are being linked, household by household, to economic information contained in probate records, tax lists, manuscript schedules of federal and local censuses, military and pension records, and eventually with medical records. The projected sample of approximately 1 million individuals who lived in about 200,000 families will be linked intergenerationally for up to ten generations.

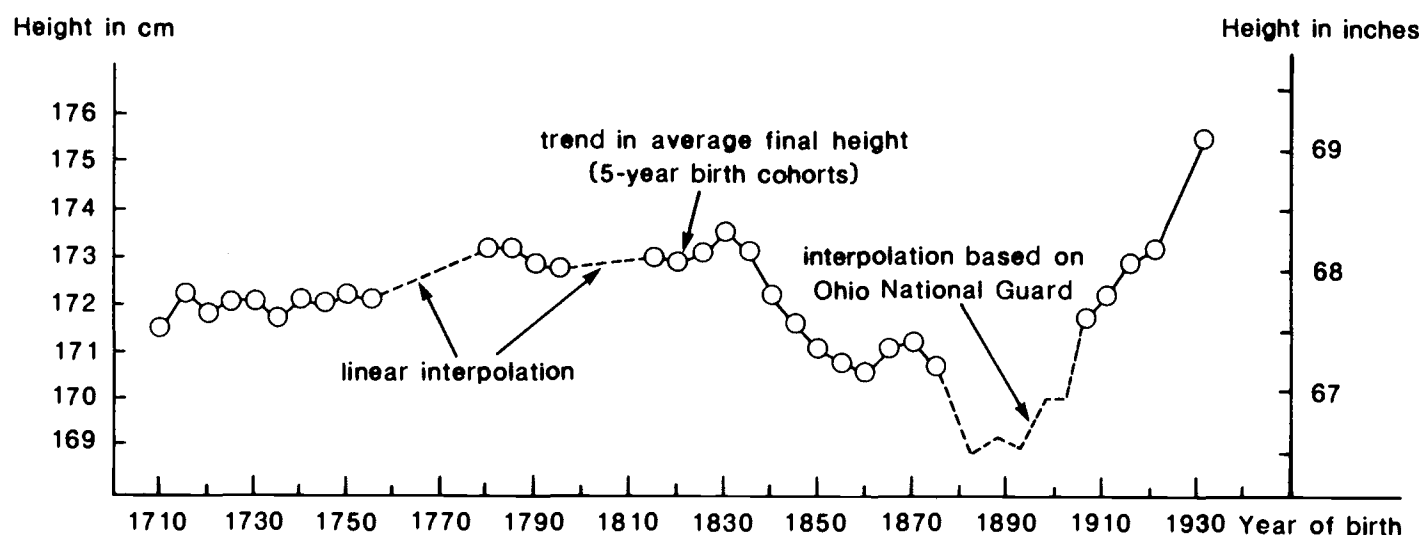
This exceedingly difficult undertaking, still in its pilot stage, is now in its eighth year. During that time a sample of approximately 80,000 persons who were born or entered the United States between 1640 and 1910 has been retrieved, coded, and put on tape. The data have been used to investigate the characteristics of various types of genealogical records, to determine which types of records possess the most desirable properties for economic and demographic analysis, and to design the procedures for the collection of the main sample.

The pilot sample, and ultimately the main sample, of this intergenerationally linked data set will be used in five of the DAE projects. The completed sample should also open up many possibilities for investigating the interaction between economic and cultural factors and their mutual influence on such variables as the savings rate, female labor force participation rates, fertility and mortality rates, the inequality of the wealth distribution, migration rates, and rates of economic and social mobility.

Figure 1

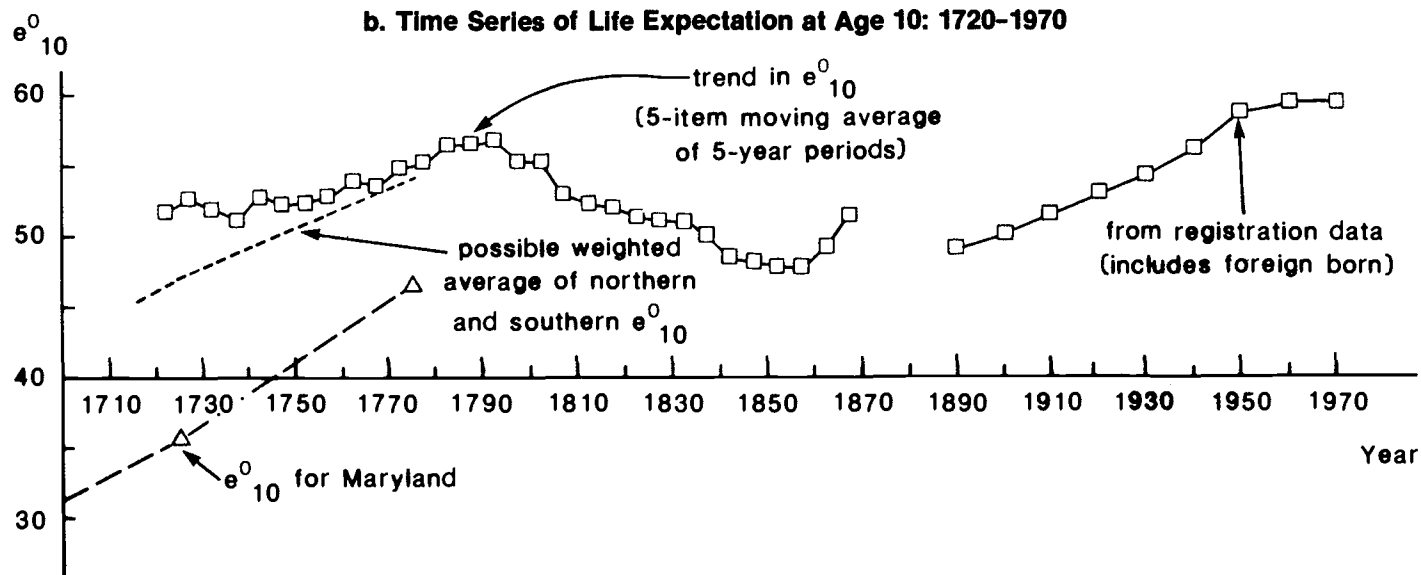
**A Comparison Between the Trend in the Mean Final Height of Native-Born White Males and the Trend in Their Life Expectation at Age 10 ( $e^0_{10}$ )**  
(height by birth cohort;  $e^0_{10}$  by period)

**a. Time Series of Heights: 1710-1930**



SOURCE: Data collected by DAE project on "Secular Trends in Nutrition, Labor Welfare, and Labor Productivity."

**b. Time Series of Life Expectation at Age 10: 1720-1970**



Perhaps the most alluring promise of the projected sample is its use in identifying the role of heritable factors (which may be cultural and economic as well as genetic). One recent study that used the pilot genealogical data set, for example, found a statistically significant correlation between the wealth and fertility rates of the parents and the fertility rates of their children (after controlling for the lifetime wealth of the children).<sup>7</sup>

Figure 1 displays another preliminary result from the genealogical sample.<sup>8</sup> The bottom diagram (b.) presents a time series of life expectancy at age 10. The upper diagram (a.) presents a time series of heights from data collected by the DAE project on "Secular Trends in Nutrition, Labor Welfare, and Labor Productivity."

<sup>7</sup>J. Bourne, "Fertility in America: Historical Patterns and Wealth Effects on the Quantity and Quality of Children," unpublished Ph.D. dissertation, University of Chicago, 1985.

<sup>8</sup>For more comprehensive data on which Figure 1 is based, see R. W. Fogel, "Nutrition and the Decline in Mortality since 1700," in Long-Term Factors in American Economic Growth, S. L. Engerman and R. E. Gallman, eds., NBER Studies in Income and Wealth, vol. 51, forthcoming.

tivity."<sup>9</sup> This figure reveals that Americans not only achieved modern heights by the middle of the eighteenth century, but also that they reached levels of life expectation that were not attained by the general population of England, or even by the British peerage, until the first quarter of the twentieth century. Both series rose during most of the eighteenth century, attaining substantially greater heights (by about three inches) and life expectations (by about ten years) than prevailed in England during the same period.

Life expectation began to decline during the 1790s and continued to do so for more than half a century. There may have been a slight decline in the heights of cohorts born between 1785 and 1820, but the sharp decline, which probably lasted about half a century, began with cohorts born around 1830. A new rise in heights probably began with cohorts born during the last decade of the nineteenth century and continued for about 60 years. However, American males did not again achieve either the life expectations or the stature they enjoyed at the end of the eighteenth century until the eve of World War II.

The early attainment of modern stature and relatively long life expectations is surprising, and for that reason alone calls for further verification. Equally surprising is the cycling in both height and life expectancy, especially the amplitude of the movements. Yet in light of other evidence that has accumulated in recent years, the results are by no means unreasonable.

The preceding discussion of the methodological aspects of the DAE program should not obscure the important substantive findings yielded by several of the projects that are now well along. The next section of this report summarizes some of the principal findings of one of these projects.

## The Early Industrialization of the United States

This project, conducted by Kenneth L. Sokoloff, deals with such issues as the timing of entry into industrialization, the relative importance of capital accumulation (especially as compared with total factor productivity), the pace of economic advance, the nature of the technological changes embodied in the new production processes, why the early development of manufacturing was concentrated in the Northeast, and the importance of mechanization. In a series of pa-

pers<sup>10</sup> based on samples of firms drawn from the manuscript schedules of censuses and other sources, Sokoloff finds that the growth of labor productivity between 1820 and 1840 was rapid in all of the thirteen leading manufacturing industries, even those that were late to mechanize. There was only a modest acceleration in the rate of productivity growth over these 40 years, though. Moreover, in nearly all industries, about 90 percent on average of the growth in labor productivity is accounted for by increases in total factor productivity and increases in the raw-materials-to-labor ratios, not by increases in capital-to-labor ratios. In other words, substantial productivity growth was initially realized in many industries with only modest changes in the capital-to-labor ratio and largely without the aid of machinery.

Production-function analysis (in conjunction with estimates of the increases in firm size over time) for roughly 20 industries, a detailed analysis of how the geographic locations and clustering of firms were related to size, and other information point to the conclusion that the introduction of "nonmechanized factories" was associated with significant gains in productivity. These new types of establishments operated with capital-to-labor ratios similar to those of traditionally organized firms but were significantly larger. They typically divided labor among workers who operated under close supervision. Women, children, and other workers who lacked general skills comprised a large share of the labor force in these new establishments. Sokoloff also finds geographic patterns in the transition from the traditionally organized (preindustrial) artisanal shop to the "nonmechanized factory" consistent with the hypothesis that limits in the product market in less densely settled areas slowed the diffusion of methods of production associated with the factory form of organization that were technically more efficient.

Cross-sectional analysis of a detailed sample of data on manufacturing firms in 1832 indicates that working capital claimed well over half of the investment in virtually all manufacturing industries. Moreover, in only a few industries, basically textiles, was investment in tools and machinery more than a tiny fraction (generally less than 10 percent) of total investment or more than a small absolute amount per adult male (or equivalent) worker. Capital-labor ratios (for both fixed and working capital) increased with firm size, and working capital increased more rapidly than the fixed capital

<sup>9</sup>For a recent report of the finding of this project, see R. W. Fogel, S. L. Engerman, R. Floud, G. Friedman, R. A. Margo, K. L. Sokoloff, R. H. Steckel, T. J. Trussell, G. C. Villalor, and K. W. Wachter, "Secular Changes in American and British Stature and Nutrition," NBER Working Paper No. 890, May 1982, and *Journal of Interdisciplinary History* 14 (Autumn 1983), pp. 445-481.

<sup>10</sup>For an elaboration of the material presented in the early industrialization project, see K. L. Sokoloff, "Investment in Fixed and Working Capital during Early Industrialization: Evidence from U.S. Manufacturing Firms," *Journal of Economic History* 44 (June 1984), pp. 545-556; "Was the Transition from the Artisanal Shop to the Nonmechanized Factory Associated with Gains in Efficiency? Evidence from U.S. Manufacturing Censuses of 1820 and 1850," *Explorations in Economic History* 21 (October 1984), pp. 351-382, and "Productivity Growth in Manufacturing during Early Industrialization: Evidence from the Northeast, 1820 to 1860," NBER Working Paper No. 1685, August 1985, and in *Long Term Factors . . .*, S. L. Engerman and R. E. Gallman, eds., forthcoming.

(or of its two measurable subcomponents: land and structures; tools and machinery). These results not only call into question the importance of physical capital, particularly machinery, in manufacturing during early industrialization, but they also undercut theories of growth and of the regional concentration of industrial development that emphasize the availability of long-term credit to manufacturers.

In two papers<sup>11</sup> Goldin and Sokoloff provide evidence of the quantitative importance of female and child labor (classes that were typically lacking in general skills) to the factory organization of manufacturing. Whether mechanized or nonmechanized, factories were generally intensive in these classes of labor, particularly factories in the industries that grew most rapidly during the initial phase of industrialization. Consequently, at their peak use in manufacturing in 1840, adult females and children accounted for about 40 percent of the manufacturing labor force in the Northeast. Moreover, correlations of movements in the wages of women and children (relative to those of adult males) with the labor force participation rates of these classes, and with their migration rates, are consistent with the view that industrialization led to a major increase in the productivity of females and an expansion in their labor market, both in terms of territory and volume.

A related finding is that the productivity of female and child labor, relative to adult male labor, was substantially lower in the preindustrial Northeast than it was in the South. The available evidence suggests that this discrepancy is primarily attributable to the contrast in the production functions for the principal agricultural crops in the North (grains and hay—which required a lot of physical strength from field workers) and the principal agricultural commodities in the South (cotton and tobacco—which put more of a premium on dexterity). This last finding leads Goldin and Sokoloff to the conclusion that the relatively low productivity of female labor in northeastern agriculture may have been quite important in explaining the regional concentration of manufacturing, as compared with other contributing factors.

### The Williamsburg Conference

The DAE, in conjunction with the executive committee of the Conference on Income and Wealth, sponsored a meeting on "Long-Term Factors in American Economic Growth" in Williamsburg, Virginia, on March 22–24, 1984. The program, organized by Stanley L. Engerman and Robert E. Gallman, was divided into five parts: the development of the U.S. labor force; factors

affecting the growth and distribution of capital; new approaches to national income accounts, including a new approach to the treatment of transactions and new data on the scope of the government sector; analysis of trends in U.S. fertility and mortality; and studies of productivity growth at the industry level. The volume of conference proceedings, *NBER Studies in Income and Wealth*, Volume 51, will provide a convenient survey of much of the current work of the DAE.

---

## Research Summary

---

### Youth Unemployment

David T. Ellwood

The youth unemployment problem periodically captures the attention of the press and politicians. To deal with the problem, a new program is proposed and sometimes implemented, but typically the problem is soon forgotten until a new cycle begins. This oscillation from "one of the most critical problems facing the nation" to a forgotten fad illustrates both the fears about the consequences of youth unemployment and the uncertainty about possible solutions to this complex problem. An important part of my research in recent years has been to explore the causes and the consequences of youth unemployment in order to assess the significance of the problem and what might be done about it.

Employment-to-population ratios (or employment rates) are more useful than unemployment rates in judging the performance of young people in the labor market. Unemployment rates alone miss the impact of changes in participation in the labor force. Over the past several decades employment rates for white men have been essentially stable. For white youths (aged 16–24), the employment rate has been around 65–70 percent, and employment of white females has risen sharply during this period.

By contrast, employment among young black men has fallen precipitously, from over 65 percent in the mid-1950s to under 40 percent today. Employment of young black women has not fallen much, but it has failed to keep pace with the strong employment growth of white women.

The apparent stability of the position of white youth during a period when blacks fared so much worse in the labor market is quite perplexing. Generally, we

---

<sup>11</sup>C. D. Goldin and K. L. Sokoloff, "Women, Children, and Industrialization in the Early Republic: Evidence from the Manufacturing Censuses," *NBER Working Paper No. 795*, November 1981, and *Journal of Economic History* 42 (December 1982), pp. 741–774; and "The Relative Productivity Hypothesis of Industrialization: The American Case, 1820 to 1850," *NBER Working Paper No. 722*, July 1981, and *Quarterly Journal of Economics* 99 (August 1984), pp. 461–488.

would expect both white and black youth to be sensitive to changing conditions in the labor market: the entrance of a vast number of women; the sharp increase in the size of the youth labor force as the baby boom generation grows up; the weakened state of general economic conditions; and the continuation of the minimum wage. All of these factors make the outlook for young job seekers worse. While the relative position of blacks might be expected to worsen somewhat, though, it should not have deteriorated so dramatically in the face of these general changes in the labor market.

The work that I highlight here concentrates on certain aspects of the youth labor market and the forces that seem to be influencing it. A more extensive discussion of the subject is available in a 1982 NBER conference volume (see footnote 6) and a forthcoming NBER book by Richard B. Freeman and Harry J. Holzer, *The Black Youth Employment Crisis*.

## The Spatial Mismatch Hypothesis

One common explanation of the black youth employment problem is the spatial mismatch hypothesis. It presumes that black youth are segregated into ghettos with extremely weak local economies where jobs are scarce and new jobs rarely appear. The growth in low-skill jobs, it is argued, is concentrated outside of the central cities in the suburban ring where land is relatively cheap, crime is low, access to transportation is better, and the physical environment is more appealing. Young blacks lack the contacts to learn about and to be hired for these suburban jobs. Further, the long commute virtually locks the black youth out of these jobs even if they could find them. Thus, black youth unemployment may be traced in large part to a spatial mismatch between workers and jobs.

I explore this issue in detail for a single labor market in a paper prepared for an NBER conference on minority youth unemployment.<sup>1</sup> I begin with the assumptions about labor markets that are needed for spatial mismatches to occur and to hurt black youth. There are many forces that ought to push the market toward equilibrium, even if blacks cannot move and even if capital is somewhat reluctant to locate in the ghetto. For a spatial mismatch to exist, three conditions must all be met. First, production of any good must be more expensive in the ghetto. Second, blacks must be unable to move to the jobs. Third, transportation or the costs of job search must be very high for blacks who do look outside the ghetto. If these conditions exist, the wages and/or employment of blacks will be depressed even without the sort of firm behavior that is required by most models of discrimination.

Then I test the spatial mismatch hypothesis for Chicago. Chicago is an appealing test case because data on its labor market are readily available, and because such proponents of the mismatch theory as John Kain<sup>2</sup> have often used it as a classic example of the problem. The city's housing is among the most segregated in the country.

In Chicago, low-skill jobs are leaving the city while blacks are not. As a result, in 1975 employed black youth in the Chicago area spent twice as long on average getting to work as did white youth—30 versus 15 minutes. This would seem to be strong evidence in support of the mismatch hypothesis. The 15-minute difference in commuting alone might not account for wide differences in employment. The key question becomes whether black youths who live closer to jobs do better in the labor market than blacks who do not.

To answer that question, I determine whether black and white employment rates in different areas across the city vary according to proximity to jobs. I tried many different measures of proximity and found uniformly negative results. It seems that proximity to jobs has very little impact on employment patterns. Perhaps the most convincing evidence comes from two natural experiments, one comparing two black ghettos, another comparing whites and blacks who live close to each other.

In Chicago there are two black ghettos: one on the west side of the city and one on the south. The West Side is in the heart of the primary manufacturing area in the city and is closer than the South Side to areas of rapid industrial growth. In fact, a large fraction of Chicago's jobs are located on the West Side.

The South Side, by contrast, has very few jobs (except at the University of Chicago). Yet blacks on the South Side are employed as often as blacks on the West Side—the South Side youth simply travel farther to work. Plenty of youth are employed on Chicago's black West Side, but most of them are white.

What about white and black youth who live close to each other? If the cause of weak labor market performance is the distance from home to job, then those white youth unfortunate enough to live near the black youth ought to do unusually badly in the labor market.

The West Side includes low-income white areas as well as low-income black areas. But, contrary to the mismatch story, the differences between whites and blacks who live nearby each other are just as great as the differences between whites and blacks who live far apart, once one adjusts for socioeconomic characteristics.

What emerges is not a geographic labor market where job vacancies in one area can coexist with a large group of unemployed workers a short distance away. Rather, workers (and jobs) move or flow through commuting or relocation to adapt to differing job opportunities. Housing segregation and movement of jobs out of the city are not necessarily the causes of the disadvantages faced by blacks. Although black youth may not be able

<sup>1</sup>D. T. Ellwood, "The Spatial Mismatch Hypothesis: Are There Teenage Jobs Missing in the Ghetto?" NBER Working Paper No. 1188, August 1983.

<sup>2</sup>J. Kain, "Housing Segregation, Negro Employment, and Metropolitan Decentralization," *Quarterly Journal of Economics* (May 1968).

to travel to the distant suburbs, white youth can, and blacks should be able to fill the inner-city jobs that they leave. Since this does not occur, the employment differences between blacks and whites are the result of race, not space.

## Youth and the Military

In spite of its importance, the military has only recently begun to receive serious attention for its role in the youth labor market. In the early 1950s, nearly 30 percent of all young men between 18 and 24 were in the military. That figure gradually dropped to 15 percent just before the Vietnam War, rose to 20 percent during that war, and has since fallen below 8 percent. These changes have created a large increase in the civilian labor force above and beyond demographic changes. Indeed, over half of the rise in the civilian labor force for young men during the 1970s can be traced not to the baby boom but to the military "bust."

In addition to the overall decline in the number of youth in the military, there were also shifts in the racial composition. Whites were disproportionately represented in the draft years, but young black men are more than twice as likely as whites to enlist. As a result of the compositional changes, declines in the number of young black men in the military were much more modest than declines among young white men during the 1970s.

A natural question, then, is whether the decline in military hiring has worsened youth unemployment in the civilian labor market. The answer depends on whether the youth labor market is in equilibrium (that is, as many people working as want to work) or in disequilibrium (with fewer jobs available than potential workers willing to fill them). In the equilibrium case, hiring of one worker by the military simply draws one worker from the civilian sector. Total jobs—civilian plus military—stay the same even when workers move from one sector to another. If there is a shortage of jobs, however, military hiring increases the total youth employment. Those hired may have been unemployed. If they have been working, their departure from the civilian sector opens up a position for someone who otherwise would have been unemployed.

David A. Wise and I have coauthored several papers on the impact of the military on the youth labor market.<sup>3</sup> We looked at the relationship between hiring and civilian employment across states and over time. We found that the question of whether military hiring supplements civilian jobs or substitutes for them differs by age and racial group. Among young black men, for each military hire, total black employment increases by almost one full job. By contrast, for older white men, a military hire seems to push total employment up only slightly. To some degree, then, shifts in military hiring

have filled job gaps for young blacks. There is also evidence that the black youth labor market is more out of equilibrium than the white market.<sup>4</sup>

Unfortunately for black youth, the military is not always available as an employer of last resort. All potential recruits are given the Armed Forces Qualification Test (AFQT), which the military believes is a good predictor of performance. When overall economic conditions in the civilian labor market are bad, the military can select more high-scoring recruits. When civilian economic conditions are more rosy, the military must lower its standards to fill its quota. In general, blacks score worse on the AFQT than whites. As a result, when the economy goes sour, military hiring of blacks also diminishes because high-scoring recruits are taken. Military hiring thus exacerbates the effects of macroeconomic conditions on young blacks. More are hired when the economy is good, fewer when it is bad.

The military thus serves as an employer of last resort for many white youth, and a procyclical source of jobs for blacks. There is a shortage of civilian jobs for black youth, and the military provides additional work, particularly when a strong civilian economy makes other recruits hard to find. Our results indicate that many black youth would be willing to serve in the military but are not accepted and presumably remain unemployed instead.

## Other Causes of Black Youth Unemployment

There is a serious shortage of jobs among black youth, even if it is not caused by weak ghetto economies or a spatial mismatch. Still, there is considerable debate on why blacks are not being hired. Everything from education to motivation has been blamed; clearly the problem is complex and thus defies simple solutions.<sup>5</sup> Moreover, we do not know the long-run consequences of early unemployment. However, my work suggests that they are probably modest.<sup>6</sup>

<sup>4</sup>More evidence for this proposition comes from D. T. Ellwood and J. Crane, "The Summer Youth Employment Program: Job Supplement or Substitute?" mimeo, Kennedy School of Government, Harvard University, March 1984. In this paper, I find that the jobs the federal government provides through its summer employment programs increase overall employment among young blacks rather than displacing private jobs by pulling youth out of jobs they otherwise would have had.

<sup>5</sup>In D. T. Ellwood and D. A. Wise, "Youth Employment in the Seventies: The Changing Circumstances of Young Adults," *NBER Working Paper No. 1055*, January 1983, we explore the combined impact of macroeconomic conditions, declining size of the military, changing schooling patterns, altered family structures and fertility patterns, and several public policies. We find that these factors explain roughly half of the change in the relative position of young blacks.

<sup>6</sup>D. T. Ellwood, "Youth Unemployment: Permanent Scars or Temporary Blemishes?" in *The Youth Employment Problem: Its Nature, Causes, and Consequences*, R. B. Freeman and D. A. Wise, eds. Chicago: University of Chicago Press, 1982; also *NBER Reprint No. 397*, August 1983.

<sup>3</sup>D. T. Ellwood and D. A. Wise, "Military Hiring and Youth Employment," and "Uncle Sam Wants You—Sometimes. Military Enlistments and the Youth Labor Market," in *Public Sector Payrolls*, D. A. Wise, ed. Chicago: University of Chicago Press, forthcoming.

# Economic Outlook Survey

## Third Quarter 1985

Victor Zarnowitz

According to the August survey of 31 professional forecasters taken by NBER and the American Statistical Association, real GNP will rise at an average rate of 2.7 percent in the year ahead, above the 2 percent estimated for the last four quarters but still below the longer trend of about 3 percent. The unemployment rate of the civilian labor force will continue to hover above 7 percent. The chances of a recession are not very high but rising significantly. On the whole, no large increases in inflation and interest rates are anticipated.

### The Latest News and Forecasts

The most recent data show that the low-growth phase of the current expansion has now lasted over a year. The slowdown continues to be pervasive. In July, personal income barely changed and the gains in industrial production and nonfarm employment were fractional. Retail sales declined in both May and June and gained only 0.4 percent in July. The index of coincident indicators based on these series in real terms (plus deflated wholesale and manufacturing sales available with a month's lag) also fell in May and June; it rose only 0.2 percent in July according to preliminary figures. The index of leading indicators gained 0.4 percent in July, the same as June, and finally reached a new high, exceeding its previous peak of May 1984. Most of its components, though, still show downward or horizontal drifts; only the real money balances, stock prices, and building permits for new housing appear to have upward trends (although permits declined in July).

The annual growth rate of real GNP was 2 percent in the spring quarter. Domestic demand increased much faster, with the difference being accounted for by a rise in net imports and a decline in inventory investment. Forecasters are divided on whether the strength of demand will persist. Some consider it unlikely that consumer buying will continue to outpace consumer incomes; they see the weakness of corporate profits as undermining the prospects for a more vigorous expansion

in capital spending. They therefore anticipate some softening of domestic demand but count on the declines in interest rates and the exchange value of the dollar to keep the slowdown from turning into a recession.

On the other hand, monetarists expect that the high monetary (M1) growth rates observed so far this year will stimulate spending and output during the second half of 1985 and in 1986. Higher inflation and interest rates will also result in time, so the Fed will tighten its policy to limit these effects. Critics argue against this scenario on the ground that the recent declines in short-term rates have increased the attractiveness of interest-bearing deposits and reduced the velocity of money.

The data for August are still very sparse. The survey of purchasing managers saw "no signs of improvement." But the latest news at least supports the cautious optimism of most forecasters. The automobile and retail (particularly department store) sales improved strongly. The unemployment rate fell with surprising abruptness to 7.0 percent.

### Growth in Real GNP: Predictions and Probabilities

Total output as measured by GNP in 1972 dollars will rise 2.5 percent in 1984-85 and 2.7 percent in 1985-86 according to the new median forecasts. These are downward revisions from the figures reported in the June survey (3.1 percent and 2.9 percent, respectively). The quarterly growth figures show a rise in the second half of 1985, a decline in the first half of 1986, and an improvement thereafter. They vary between 2.4 percent and 3.2 percent at annual rates (a.r.).

Survey participants report the probabilities they attach to alternative intervals of annual percentage changes in real GNP. The means of these assessments have the following percentage distributions:

<i>Percentage Change in Real GNP</i>	<i>Percentage of Responses</i>	
	1984-85	1985-86
6.0 percent or more	0.6	2.7
4.0 to 5.9 percent	6.7	13.0
2.0 to 3.9 percent	70.6	47.9
0 to 1.9 percent	20.8	28.5
Negative	1.3	8.0

As would be expected, the distribution for 1984-85 is much tighter than that for 1985-86. This tabulation quantifies the sharp contrast between the subjective uncertainties attached to the forecasts for the two years. It is also worth noting the increased skewness toward the low and negative growth rates in 1985-86.

The probabilities that output will decline averages 15, 19, 23, and 27 (chances in 100) for the last quarter of 1985 and the first three quarters of 1986, respectively.

## Projections of GNP and Other Economic Indicators, 1985-86

	Annual				
	1984 Actual	1985 Forecast	1986 Forecast	Percent Change	
				1984 to 1985	1985 to 1986
1. Gross National Product (\$ billions)	3662.8	3892.5	4166.0	6.3	7.0
2. GNP Implicit Price Deflator (1972 = 100)	223.4	231.8	241.0	3.8	4.0
3. GNP in Constant Dollars (billions of 1972 dollars)	1639.3	1680.0	1725.0	2.5	2.7
4. Unemployment Rate (percent)	7.5	7.3	7.2	-0.2 <sup>1</sup>	-0.1 <sup>1</sup>
5. Corporate Profits After Taxes (\$ billions)	145.9	138.2	150.3	-5.2	8.7
6. Nonresidential Fixed Investment (billions of 1972 dollars)	204.9	220.0	227.0	7.4	3.2
7. New Private Housing Units Started (annual rate, millions)	1.7	1.8	1.7	2.5 <sup>2</sup>	-3.2 <sup>2</sup>
8. Change in Business Inventories (billions of 1972 dollars)	24.8	12.0	14.0	-12.8 <sup>3</sup>	2.0 <sup>3</sup>
9. Treasury Bill Rate (3-month, percent)	9.6	7.6	7.7	-2.0 <sup>1</sup>	0.1 <sup>1</sup>
10. Consumer Price Index (annual rate)	4.3	3.7	4.1	-0.6 <sup>1</sup>	0.4 <sup>1</sup>

	Quarterly						Percent Change	
	1985 Q2 Actual	1985		1986 Q2	Q3	Q4	Change	
		Q3	Q4				Q2 85 to Q2 86	Q3 85 to Q3 86
1. Gross National Product (\$ billions)	3853.5	3915.5	3987.5	4057.4	4126.0	4204.0	7.1	7.4
2. GNP Implicit Price Deflator (1972 = 100)	230.6	232.6	234.6	237.1	239.7	242.2	3.9	4.1
3. GNP in Constant Dollars (billions of 1972 dollars)	1670.7	1684.0	1698.0	1708.0	1718.0	1729.7	2.8	2.7
4. Unemployment Rate (percent)	7.3	7.3	7.2	7.3	7.2	7.2	-0.1 <sup>1</sup>	-0.1 <sup>1</sup>
5. Corporate Profits After Taxes (\$ billions)	136.5	139.0	142.0	147.0	151.0	152.0	10.6	9.4
6. Nonresidential Fixed Investment (billions of 1972 dollars)	219.9	222.0	225.0	226.0	227.0	228.0	3.2	2.7
7. New Private Housing Units Started (annual rate, millions)	1.8	1.8	1.8	1.8	1.8	1.7	-1.1 <sup>2</sup>	-3.9 <sup>2</sup>
8. Change in Business Inventories (billions of 1972 dollars)	5.8	10.0	12.0	13.0	14.0	15.0	8.2 <sup>3</sup>	5.0 <sup>3</sup>
9. Treasury Bill Rate (3-month, percent)	7.5	7.2	7.4	7.6	7.9	7.8	0.4 <sup>1</sup>	0.6 <sup>1</sup>
10. Consumer Price Index (annual rate)	4.8	3.5	3.8	4.1	4.4	4.4	-0.4 <sup>1</sup>	0.9 <sup>1</sup>

SOURCE: National Bureau of Economic Research and American Statistical Association, Business Outlook Survey, September 1985. The figures on each line are medians of thirty-one individual forecasts.

<sup>1</sup>Change in rate, in percentage points.

<sup>2</sup>Apparent discrepancy in percent change is caused by rounding.

<sup>3</sup>Change in billions of dollars.

### No Large Changes Foreseen in the Unemployment Rate

The median forecasts of the unemployment rate show almost no change: 7.3 percent for 1985:3 and 7.2 percent for 1986:3 (and again 7.3 percent for 1985 as a whole and 7.2 percent for 1986). Few respondents stray far away from these averages (the standard deviations increase from 0.1 percent for the shortest to 0.4 percent for the longest forecasts). But the diversity with respect to the directions of the change is considerable. Eighteen respondents see the jobless rate in 1986:3 as lower than in 1985:3, nine as higher; in four cases the two rates are equal. The projected rises are on the average larger than the declines. The range for 1985:3 is 6.5-8.3 percent.

### A Slow Rise in Inflation Is Widely Expected

The rates of change in the consumer price index are expected to average 3.7 percent for 1985 and 4.1 percent for 1986. The quarterly figures rise from 3.5 percent a.r. in 1985:3 to 4.4 percent in 1986:3. These medians do not differ much from their counterparts in the June survey. But a significant minority of respondents believed then that inflation may weaken somewhat in the year ahead. Now most individuals see inflation as increasing, if only gradually.

The projections in terms of the implicit price deflator (IPD) are similar on the average: 3.8 percent for 1985, 4.0 percent for 1986, 4.1 percent for 1985:3-1986:3. The percentage distributions of means of the individual probabilistic forecasts for IPD inflation are as follows:

<i>Percentage Change in IPD</i>	<i>Percentage of Responses</i>	
	<i>1984-85</i>	<i>1985-86</i>
8.0 percent or more	4.9	10.6
6.0 to 7.9 percent	29.0	42.3
4.0 to 5.9 percent	61.9	41.8
Less than 4.0 percent	4.2	5.3

Again, the distributions of the longer forecasts are flatter on average, indicating greater uncertainty. A comparison of the two columns in the inserted tabulations shows just as clearly, though, that most forecasters now view higher inflation rates next year as being increasingly probable.

### **The Prevailing View of Short-Term Interest Rates: Up Mildly**

The forecasts of interest rates generally run at lower levels now than in June, by some 50 or 60 basis points on average. The three-month Treasury bill rate is to increase from 7.2 percent in 1985:3 to 7.8 percent in 1986:3 according to the median predictions. However, about 25 percent of our sample still anticipate that the bill rate will be *lower* a year from now. The range for 1986:3 is very wide: 6.0-10.2 percent, but the central half of the forecasts fall in the interquartile interval of 7.1-8.5 percent.

The average forecasts of the yield on new high-grade corporate bonds show little change: 11.4 percent and 11.5 percent for 1985:3 and 1986:3, 11.7 percent and 11.6 percent for 1985 and 1986, respectively. The range for the longest forecasts is 9.6-13.8 percent.

### **The Worst May Be Over for Industrial Production**

Output of manufacturing, mining, and utilities will rise 2.6 percent in 1984-85, about the same as total real GNP, but the forecasters predict larger gains ahead: 3.6 percent in 1985-86 and 4.0 percent in 1985:3-1986:3. In many forecasts, industrial production is helped by a partial reversal of the decline in inventory investment and by a less unbalanced trade as the result of a weaker dollar. According to the median predictions, the year-to-year changes in billions of 1972 dollars in 1985 and 1986 will be, respectively, -12.8 and +2.0 for the change in business inventories and -18.6 and 0 for net exports of goods and services.

### **Less Strength in Consumption and Housing**

Total consumption expenditures in constant dollars will grow faster than real GNP in 1985 (3.9 percent versus 2.5 percent, according to the median forecasts). In

1986, however, consumption is expected to increase by 2.7 percent only, the same as total output. Most respondents see the consumer as assuming less debt and saving more in the year ahead but the dispersion of the longest (1986:3) forecasts is rather large.

Housing starts are predicted to increase 2.5 percent in 1984-85 and to decline 3.2 percent in 1985-86 and 3.9 percent in 1985:3-1986:3. The range for 1986:3 is 1.5-2.0 million units, a.r. Residential fixed investment in 1972 dollars is seen as gaining 2.8 percent in 1985, 1.8 percent in 1986, and 1.3 percent in 1985:3-1986:3.

### **Gains in Profits and Business Investment**

On the average, corporate profits after taxes are predicted to fall 5.2 percent in the current year but to rise 8.7 percent in 1986 and 9.4 percent in 1985:3-1986:3. Most individual predictions for 1986 fall between 140 and 160 billion dollars.

Nonresidential fixed investment in 1972 dollars is to gain 7.4 percent in 1985 but only 3.2 percent in 1986 and 2.7 percent in 1985:3-1986:3, according to the median forecasts. Most responses show business capital formation expanding somewhat faster than total output.

### **Government Expenditures and Policies**

Federal government purchases of goods and services are expected to grow 6.9 percent in 1985, 3.9 percent in 1986, and 3.6 percent in 1985:3-1986:3. For state and local governments, the corresponding figures are 1.9 percent, 2.2 percent, and 1.9 percent.

Twenty-one respondents assumed no substantial change in the current tax law; others were divided between a tax cut and a tax rise in 1986. Most estimates of the growth in defense outlays fall in the range of 2-6 percent.

On monetary policy, the most common assumptions were that M1 will grow by 6-10 percent or near the upper end of the target range and that M2 will grow 8-9 percent.

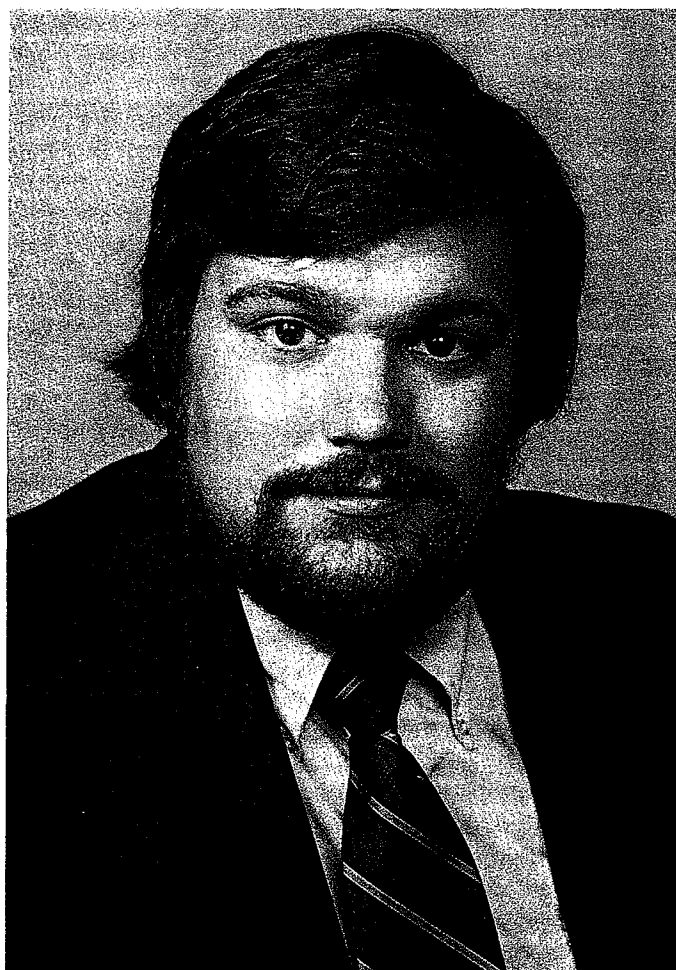
A large majority of the survey participants assumed that the dollar will decline; ten added "gradually," eight specified "about 10 percent," and four "15-20 percent."

For the most part, energy prices are seen as stable or decreasing moderately.

*This report summarizes a quarterly survey of predictions by 31 business, academic, and government economists who are professionally engaged in forecasting and are members of the Business and Economics Statistics Section of the American Statistical Association. Victor Zarnowitz of the Graduate School of Business of the University of Chicago and NBER, assisted by Robert E. Allison of NBER, was responsible for tabulating and evaluating this survey.*

### David Ellwood

David T. Ellwood, a faculty research fellow in NBER's Program in Labor Studies, has been associated with the Bureau since his undergraduate years at Harvard College. Ellwood, who received both his A.B. and his Ph.D. from Harvard, was a research assistant to Bureau President Martin Feldstein and to Research Associate A. Mitchell Polinsky in 1974-75. From 1978-80 he was a research assistant in the labor program at NBER and in 1981 he was named a faculty research fellow.



Ellwood joined the faculty of Harvard's Kennedy School of Government in 1980 and was promoted to associate professor of public policy in 1984. His work on youth unemployment, welfare, and poverty has been published in a number of journals and books. He also serves on several advisory boards and is a panel member of the National Academy of Sciences' Committee on the Status of Black Americans.

Ellwood's wife, Marilyn Rymer, is Division Director of Systemetics, Inc. The Ellwoods and their daughters, Malinda and Andrea, live in Winchester (MA). They enjoy skiing, tennis, and hiking.

### International Seminar on Macroeconomics

The eighth International Seminar on Macroeconomics (ISOM) was held at the Chateau de Ragny, Burgundy, France, on June 23-25, 1985. ISOM is cosponsored by the National Bureau of Economic Research and La Maison des Sciences de l'Homme and this year was under the auspices of the Bank of France. The seminar is organized jointly by Robert J. Gordon of NBER and Northwestern University and Georges de Menil of the Ecole des Hautes Etudes en Sciences Sociales (EHESS).

This year's program focused on international debt. The seven papers and their discussants were:

Jonathan Eaton, NBER and University of Virginia, Mark Gersovitz, Princeton University, and Joseph E. Stiglitz, NBER and Princeton University, "Survey of the Economics of International Debt"

Discussants: Robert Guesnerie, CEQC, EHESS, Paris, and Martin Hellwig, Bonn University

Herschel I. Grossman, NBER and Brown University, and John B. Van Huyck, Brown University, "Sovereign Debt as a Contingent Claim: Excusable Default, Repudiation, and Reputation"

Discussants: Sweder van Wijnbergen, World Bank, and John Flemming, Bank of England

Barry J. Eichengreen, NBER and Harvard University, and Richard Portes, NBER and Center for Economic Policy Research, "Debt and Default in the 1930s: Causes and Consequences"

Discussants: Giorgio Basevi, Institute of Economic Science, Bologna, and G. Toniolo, University of Venice

Peter M. Garber and Vittorio Grilli, University of Rochester, "The Belmont-Morgan Syndicate as an Optimal Investment Banking Contract"

Discussants: Barry J. Eichengreen and Yves Barroux, Bank of France

Sebastian Edwards, NBER and University of California, Los Angeles, "Country Risk and Developing Countries' Foreign Borrowing: An Empirical Analysis of the Loans and Bond Markets"

Discussants: Xavier DeBonneuill, Bank of France, and Heinz Konig, University of Mannheim

Werner Gaab, University of Mannheim, Markus Granziol, University of Zurich, and M. Horner, University of Zurich, "On Some International Parity Conditions: An Empirical Investigation"

Discussants: Michael Galy, Bank of France, and Jacob A. Frenkel, NBER and University of Chicago

Daniel Cohen, CEPREMAP, and Jeffrey D. Sachs, NBER and Harvard University, "Growth and External Debt under Risk of Debt Repudiation"  
Discussants: William D. Nordhaus, NBER and Yale University, and Patrick Artus, ENSAE

In addition, a roundtable discussion focused on recent developments in exchange rate markets and budgetary policies in Europe, Japan, and the United States. The panelists were Robert J. Gordon; M. Okabe, Bank of Japan; and Robert Raymond, Bank of France.

The paper by Eaton, Gersovitz, and Stiglitz surveys and puts into perspective the recent literature on the nature of credit relations between developed and developing countries. The analysis uses recent advances in the economics of information and strategic interaction.

The authors show that traditional concepts of solvency and liquidity are of little help in understanding problems of sovereign debt. Creditors do not have the means to seize the assets of a borrower in default. Hence the borrower's net worth is not relevant in determining the amount of a loan that can be recovered. A borrower who is expected to repay his debts eventually should be able to borrow to meet any current debt-service obligations. The paper also analyzes the enforcement problem: the difficulty of ensuring that the two parties to a loan contract adhere to it, in particular that the borrower repays the lenders and that the lenders can penalize the borrower if he does not.

Grossman and Van Huyck analyze a reputational equilibrium using a model that interprets sovereign debts as contingent claims that both finance investments and facilitate risk shifting. An essential aspect of sovereignty is the power to abrogate commitments without having to answer to a higher enforcement authority. Thus, a decision by a sovereign to validate a lender's expectations about debt servicing depends on the sovereign's concern for its reputation for trustworthiness. A reputation for trustworthiness is valuable because it provides continued access to loans. In the reputational equilibrium, the short-run benefits from repudiation are smaller than the long-run costs from loss of a reputation for trustworthiness. Thus, although sovereigns sometimes excusably default, they never repudiate their debts.

The reputational equilibrium can involve efficient risk shifting and efficient investment or it can involve a binding ceiling on lending that limits risk shifting and can also restrict investment. The factors that tend to produce a binding ceiling on lending include a high time discount rate for the sovereign, low risk aversion for the sovereign, and a low net return on the sovereign's investments.

Eichengreen and Portes's paper studies interwar experience with external debt and default. They use empirical models from recent literature and 1970s data to describe the interwar data. They examine the relationship between macroeconomic variables for over 20 countries and the cross-sectional variation in borrowing and debt from the end of the 1920s to 1938. The paper also considers the incidence and correlates of

sovereign default for 1934-38 by examining the association between standard measures of economic structure and performance and subsequent interruptions to debt service. Such variables as the magnitude of the debt burden, the deterioration of the terms of trade during the Great Depression, and the stance of monetary and fiscal policies provide a remarkably accurate explanation of the incidence of default.

Further, the paper provides a long-run perspective on default and on the remedies available to creditors and computes new estimates of the ex post realized rates of return on British and American foreign lending in the 1920s. The empirical analysis uncovers a striking contrast in the returns realized on loans floated in the two countries: while the (nominal) internal rate of return on dollar loans was less than 1 percent per annum, the comparable return on sterling loans was in excess of 5 percent. The paper concludes with a discussion of factors that help to account for this dramatic difference.

Garber and Grilli study the Belmont-Morgan Syndicate, the temporary institutional arrangement for preserving U.S. adherence to the gold standard in 1895. The authors show how recent theories of speculative attacks on fixed exchange rate systems and of optimal investment banking contracts can be applied to this arrangement. Garber and Grilli outline the laws restricting the behavior of the Treasury, its objectives, the historical context of the Belmont-Morgan Syndicate, and the provisions of the contract. They then develop a theory of government and syndicate behavior to explain the qualitative features of the contract, given the Treasury's constraints and the environment.

In contrast to most recent empirical studies on creditworthiness and country risk that have dealt with the international bank loan market, Edwards examines the bond market and analyzes the process of determining default risk premiums. His paper analyzes three basic problems. First, he tests some of the more important implications of modern models of LDCs' foreign borrowing. In particular, he investigates the supposed positive effect on the risk premium of the level of indebtedness. Second, he compares the pricing of bonds and bank loans to test whether these two markets are significantly different. Third, Edwards analyzes data on yields on LDC bonds in the secondary market to investigate the extent to which the market anticipated the debt crisis and how it reacted to the crisis. The empirical results confirm the positive effect of higher debt ratios on the risk premium and that the pricing of bonds and bank loans has differed. Edwards also concludes that the market anticipated by only a few weeks—and only partially—the world debt crisis of 1982.

The paper by Gaab, Granzol, and Horner investigates "weak," "semistrong," and "strong" forms of the following international parity conditions: (1) uncovered interest parity; (2) the hypothesis of equal ex ante real interest rates; and (3) ex ante purchasing power parity. Based on data that roughly cover the 1975-84 decade, they find little evidence in favor of the "strong" form of the parity conditions under consideration.

However, most test results are consistent with the "weak" forms. Finally, the results on the "semistrong" forms are mixed.

Cohen and Sachs analyze theoretically the pattern of growth of a nation that borrows abroad and has the option of repudiating its foreign debt. They show that the equilibrium strategy of competitive lenders is to make the growth of foreign debt contingent on the growth of the borrowing country. They give a closed-form solution to a linear version of their model. In that case, the economy follows a two-stage pattern of growth. During the first stage, the debt grows more rapidly than the economy. During the second stage, both the debt and the economy grow at the same rate and more slowly than in the first stage. During this second stage, the total interest falling due on the debt is never entirely repaid; only an amount proportional to the difference between the rate of interest and the rate of growth of the economy is repaid each period.

### Summary of Roundtable Discussion

The panel discussion focused on "The Macro-Policy Mix, Exchange Rate Movements, and International Adjustment." John Flemming, who chaired the discussion, began by stating that there is widespread unease about economic prospects within OECD countries. This arises from the view that both real and nominal exchange rates will probably have to change considerably in the medium term. This is related to a need for change in the mix of fiscal and monetary policies, particularly in the United States, and the policy framework adopted by other industrial countries makes it unlikely that activity in those countries will pick up fast enough to offset a slowdown in the growth of U.S. demand. These issues also interact with the debt problem of many less industrialized countries, the main theme of the ISOM.

Gordon did not minimize the adjustment required of the dollar exchange rate but questioned the inevitability of a recession as a side effect of the dollar's decline. He discussed the adoption of a nominal GNP target for U.S. monetary policy and suggested that the Fed had recently allowed real interest rates to fall in its pursuit of such a policy. The U.S. policy mix no longer consists of tight money combined with fiscal ease, since monetary policy is no longer tight. Tax reform proposals, Gordon suggested, reduce the likelihood of the desired fiscal adjustment.

Okabe illustrated the dependence of policy developments elsewhere on those in the United States. He hypothesized that a rise of the yen against the U.S. dollar would shift the balance of Japanese demand from exports to domestic production and would also reduce protectionist dangers in the United States. Japan has little scope for raising the value of the yen unilaterally, since policymakers are limited by the strength of the political consensus in favor of a tight fiscal policy, while a monetary stimulus to domestic demand would reduce the value of the yen and further increase the competitiveness of Japanese exports.

Raymond endorsed the view that European growth is unlikely to pick up strongly. He attributed this to structural weakness and inflexibility that both undermine the current account and necessitate restrictions on domestic demand. There is also political pressure in Europe, as in Japan, to consolidate the fiscal position. For these reasons, the European authorities see themselves as having little room for policy adjustment. This leads to a rather pessimistic outlook for the future, both for the unemployed in Europe and for the debtor countries that need sustained rapid growth in the OECD.

The general discussion emphasized excessive real wages in Europe as a source of European unemployment. It was also suggested that a more relaxed policy might be better than the present restrictive stance. Finally, the group discussed the fact that U.S. inflation would reduce the burden of existing debt both internally and for LDCs.

## NBER/NIRA Joint Study Group

A joint study group of the NBER and the Japanese National Institute for Research Advancement met in Cambridge for three days on August 5-7. The seven papers presented focused on financial, monetary, and taxation topics that bear on the economic interdependence between Japan and the United States. The agenda was:

Takatoshi Ito, NBER and University of Minnesota, "Use of (Time-Domain) Vector Autoregressions to Test Uncovered Interest Parity"

V. Vance Roley, NBER and University of Washington, "U.S. Monetary Policy Regime Changes and U.S.-Japan Financial Relations"

Hirohiko Okumura, Nomura Research Institute, "Internationalization of the Yen: Present Situation and Policy Choice"

Shoichi Royama, Osaka University, "Financial Liberalization and Internationalization in Japan"

Kazuo Ueda, Japanese Ministry of Finance, "A Savings-Investment Approach to the Japanese Current Account"

Koichi Hamada and Kazumasa Iwata, Tokyo University Economic Planning Agency, "The Long-Run Implication of Saving Ratios on the Balance of Current Account: The U.S.-Japan Case"

John H. Makin, NBER and American Enterprise Institute, "Saving Rates in Japan in the United States: The Roles of Tax Policy and Other Factors"

In his paper, Ito finds that covered interest parity between the Japanese and the three-month Euroyen markets began only after December 1980 when Japan deregulated capital controls. Uncovered interest parity did not hold during the period of strict capital controls from 1973-77 but did occur during the period of free capital mobility from 1981-85. Overall, Ito's paper suggests that the December 1980 relaxation of capital controls on Japan resulted in satisfaction of arbitrage conditions between capital markets inside and outside of Japan.

In the second presentation of the conference, Roley identified three distinct monetary policy regimes in the United States since 1977. His paper tests the sensitivity of spot and forward yen/dollar exchange rates and of onshore interest rates in Japan to changes in these regimes. Roley finds that the sensitivity of these variables and the satisfaction of the covered interest parity condition are related to the regime changes.

In his paper, Okumura reports that, although internationalization of Japan's financial markets has moved forward rapidly since 1980, international use of the yen as a countermedium of exchange has not progressed rapidly. Further, the limited use of the yen in international trade constrains its potential as the currency dominating international financial transactions. Still, since 1981, the yen has become the second most common currency in international borrowing and external bank loans.

Royama examines the evolution of the Japanese financial system since the high-growth era of the 1960s. The end of that era, and the tremendous increase in government borrowing required to finance large deficits after the oil crisis, have resulted in "securitization" of Japanese markets. That is, the amount of debt and equity issued has risen sharply relative to corporations' direct borrowing from banks as a means of financing corporate activity.

Next, Ueda used data for 1973-83 on saving and investment to decompose the current account into its cyclical and structural parts. He finds that the large U.S. government deficit is the major cause of the recent rise in the structural surplus in the Japanese current account. Japanese saving and investment behavior alone does not imply a very large structural surplus in Japan's current account.

In their work, Hamada and Iwata employ a similar approach. They attempt to decompose Japan's present current account surplus vis-à-vis the United States into a long-run component reflecting structural factors and a cyclical component reflecting business fluctuations and, possibly, a misalignment of exchange rates. The Hamada-Iwata analysis, based on plausible parameters for the United States, suggests that half of the domestic capital of Japan eventually will be invested in the United States, while one-quarter of the capital in the United States will belong to residents of Japan. That is, there will be a substantial asset-debt relationship between the United States and Japan if capital is allowed to move freely between the two countries or if

Japan's saving ratio remains twice that of the United States.

Finally, Makin discusses the role of an aging population, home financing, and tax factors in explaining a net saving rate for Japan that is approximately three times that of the United States. Makin will also need age-profile data on saving behavior in Japan to test the role of demographic and life-cycle factors in determining Japanese saving behavior. Makin reports a good fit in estimates of saving equations for the United States. He attributes the poor fit for the Japanese equation to the difficulty of identifying an aftertax real interest rate that will clear the market for the full sample period.

---

## Conference Calendar

---

Each *NBER Reporter* includes a calendar of upcoming conferences and other meetings that are of interest to large numbers of economists (especially in academia) or to smaller groups of economists concentrated in certain fields (such as labor, taxation, finance). The calendar is primarily intended to assist those who plan conferences and meetings, to avoid conflicts. **All activities listed should be considered to be "by invitation only," except where indicated otherwise in footnotes.**

Organizations wishing to have meetings listed in the Conference Calendar should send information, comparable to that given below, to Conference Calendar, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please also provide a short (fewer than fifty words) description of the meetings for use in determining whether listings are appropriate for inclusion. The deadline for receipt of material to be included in the Winter 1985/6 issue of the *Reporter* is November 15. If you have any questions about procedures for submitting materials for the calendar, please call Kirsten Foss at (617) 868-3900.

### October 31-November 1, 1985

Program Meeting: Taxation, NBER

### November 6-8, 1985

North American Meeting, International Association of Energy Economists\*

---

\*Open conference, subject to rules of the sponsoring organization.

**November 8, 1985**

Program Meeting: Financial Markets and Monetary Economics, NBER

**November 7-9, 1985**

Causes and Consequences of Non-Replacement Fertility, Hoover Institution

**November 11-12, 1985**

Panel on Economic Policy Journal, Center for Economic Policy Research-Maison des Sciences de l'Homme-Ecole des Hautes Etudes en Sciences Sociales

**November 15, 1985**

Program Meeting: Labor Studies, NBER

**November 22-23, 1985**

Public Policy Conference: Exchange Rates, Carnegie-Mellon/University of Rochester

**November 24-26, 1985**

Annual Meeting, Southern Economic Association\*

**December 10-13, 1985**

7th Annual North American Conference, International Association of Energy Economists\*

**December 13-14, 1985**

Conference on International Aspects of Fiscal Policies, NBER

**December 28-30, 1985**

Annual Conference, American Economic Association\*

**January 10-11, 1986**

Conference on Political Economy, NBER

**January 17, 1986**

Program Meeting: Economic Fluctuations, NBER

**January 17-18, 1986**

Preconference: U.S.-European Trade Relations, NBER

**February 13-16, 1986**

Conference on Capital Formation, NBER

**February 20-21, 1986**

Program Meeting: Financial Markets and Monetary Economics, NBER

**March 7-8, 1986**

Conference on Macroeconomics, NBER

**March 20-21, 1986**

U.S.-Japanese Economic Relations, NBER

**March 20-22, 1986**

Annual Meeting, Midwest Economics Association\*

**March 22, 1986**

Program Meeting: Economic Fluctuations, NBER

**April 1986**

International Conference, International Health Economics and Management Institute

**April 3-4, 1986**

Program Meeting: Taxation, NBER

**April 3-4, 1986**

Empirical Methods for International Trade, NBER/Columbia

**April 3-4, 1986**

Brookings Panel on Economic Activity, Brookings Institution

**April 3-5, 1986**

Annual Meeting, Midwest Economics Association

**April 4-5, 1986**

4th Annual Workshop: "Free Trade Options for the United States and Canada," Institute of Public Policy Studies

**April 11-12, 1986**

Public Policy Conference, Carnegie-Mellon/University of Rochester

**April 15-20, 1986**

21st International Conference, Atlantic Economic Society\*

**April 17-19, 1986**

Conference on Public Sector Unionism, NBER

**May 1986**

Conference: Research Project on Europe-U.S. Trade Relations, NBER

**May 1-2, 1986**

Annual Meeting, Association of Private Pension and Welfare Plans

**May 2-3, 1986**

Universities Research Conference, NBER

**May 2-3, 1986**

Political Economy Conference, Carnegie-Mellon University

**May 19-20, 1986**

Spring Symposium, National Tax Association-Tax Institute of America\*

**June 5-7, 1986**

International Conference, International Association of Energy Economists\*

**June 24-26, 1986**

International Seminar on Macroeconomics, NBER

**June 25-28, 1986**

Summer Meeting, Econometric Society

**July 1-5, 1986**

Annual Conference, Western Economic Association

**July 27-31, 1986**

Annual Meeting, American Agricultural Economics Association\*

**August 14-15, 1986**

Public Sector Unionism, NBER

**August 18-21, 1986**

Annual Meeting, American Statistical Association\*

**August 28-31, 1986**

22nd International Conference, Atlantic Economic Society\*

---

\*Open conference, subject to rules of the sponsoring organization.

---

\*Open conference, subject to rules of the sponsoring organization.

**September 11-12, 1986**  
Brookings Panel on Economic Activity, Brookings Institution

**September 13-17, 1986**  
Annual Meeting, National Association of Business Economists\*

**November 6-8, 1986**  
North American Conference, International Association of Energy Economists\*

**November 9-12, 1986**  
79th Annual Conference, National Tax Association-Tax Institute of America\*

**November 23-25, 1986**  
Annual Meeting, Southern Economic Association\*

**December 28-30, 1986**  
Annual Conference, American Economic Association\*

**March 26-28, 1987**  
Annual Meeting, Midwest Economic Association\*

**August 2-5, 1987**  
Annual Meeting, American Agricultural Economics Association\*

**August 17-20, 1987**  
Annual Meeting, American Statistical Association\*

**September 27-October 1, 1987**  
Annual Meeting, National Association of Business Economists\*

**November 8-11, 1987**  
80th Annual Conference, National Tax Association-Tax Institute of America\*

**November 22-24, 1987**  
Annual Meeting, Southern Economic Association\*

**August 8-11, 1988**  
Annual Meeting, American Statistical Association\*

**September 25-28, 1988**  
81st Annual Conference, National Tax Association-Tax Institute of America\*

**November 20-22, 1988**  
Annual Meeting, Southern Economic Association\*

**August 14-17, 1989**  
Joint Statistical Meetings, American Statistical Association\*

**September 17-20, 1989**  
Annual Meeting, National Association of Business Economists\*

**October 8-11, 1989**  
82nd Annual Conference, National Tax Association-Tax Institute of America\*

**November 19-21, 1989**  
Annual Meeting, Southern Economic Association\*

## Bureau News

### Keynesian and Classical Economics After 50 Years: A Call for Papers

On May 2-3, 1986, NBER will hold a conference in Cambridge on "Keynesian and Classical Economics After 50 Years." The program, organized by Professor Bennett T. McCallum of Carnegie-Mellon University, will consist of seven papers with two formal discussants assigned to each paper.

The conference is designed to mark the 50th anniversary of the publication of J. M. Keynes's *General Theory*. That landmark work in economics began a dispute on the nature and explanation of macroeconomic fluctuations that has yet to be fully resolved. Indeed, the issues are alive today and of critical importance in the formulation of macroeconomic and monetary policy. Consequently, the conference will focus on such topics as: concepts of unemployment; the empirical adequacy of "real business cycle" models; the rationalization of nominal price stickiness; the welfare cost of cyclical fluctuations; and the advantages and disadvantages of classical and Keynesian modes of analysis. While the conference will not be devoted to history of economic thought, nor to "what Keynes really meant," one or two analytical papers serving to clarify the nature of Keynesian analysis might be included. Studies on any topic that is central to the understanding of macroeconomic fluctuations would also be appropriate.

Papers will be selected on the basis of completed manuscripts or abstracts of about 500 words, with preference given to contributions by younger members of the profession. Research on appropriate topics is eligible only if it will not be published before the time of the conference. The deadline for submission of abstracts and papers is January 15, with notification of authors to be completed by February 10. Finished papers must be ready for distribution to conference participants by April 1. NBER will pay the expenses of the conference for those chosen to present papers. Submissions of abstracts and papers should be sent to: Professor Bennett T. McCallum, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138.

\*Open conference, subject to rules of the sponsoring organization.

## Olin Fellows Chosen for 1985-86

With funding from the John M. Olin Foundation, NBER has recently established a program of fellowships in economics. Olin Fellows will come to the Bureau for one year to pursue empirical research. They will be free of all teaching and other university responsibilities during the fellowship year.

From a field of 30 applicants, three Fellows have been chosen for 1985-86: B. Douglas Bernheim, Jonathan S. Leonard, and Joseph Tracy. Bernheim received his B.A. from Harvard University and his Ph.D. from MIT and teaches at Stanford University. During his year at the Bureau, he will study the effects of taxes and government transfers on saving rates.

Leonard, a faculty member at the University of California, Berkeley, received both his B.A. and his Ph.D. from Harvard University. He will explore how recent structural shifts in the economy have changed the cyclical pattern of unemployment and will look at cyclical unemployment among women and minorities.

Tracy, of Yale University, received his B.A. from the University of Missouri and his Ph.D. from the University of Chicago. He will analyze the bargaining process between unions and firms.

Next year there will be six Olin Fellows at the Bureau. Details on the application process appear on this page.

## Six Fellowships Available for 1986-87

John Olin Fellowships in Economics are designed to bring outstanding young economists to NBER's Cambridge office for a year of intensive research on important economic issues. Olin Fellows are free of all teaching and other university responsibilities. Six fellowships are available for the 1986-87 academic year.

The fellowships provide a stipend equal to one's university salary and a limited travel budget to cover moving expenses, travel connected to the research, and participation in scientific meetings. Funds are also available for research assistants, data, and computing costs.

Olin Fellows are selected from economics departments and business schools. To be eligible, you must have a Ph.D., preferably completed within the last five years. Anyone under the age of 35 is eligible. The key criteria for selection are general excellence and promise as an empirical researcher on a subject of potential national importance.

Anyone interested in applying should send a brief curriculum vitae, list of publications, and summary of research plans (not to exceed 1000 words) to: Jane Driscoll, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138.

## NBER Associate Heads for Washington

Don Fullerton, a research associate in NBER's Program in Taxation, was recently named to the post of Deputy Assistant Secretary for Tax Analysis at the Department of the Treasury. On leave from his post as associate professor of economics at the University of Virginia, Fullerton succeeds Charles E. McLure, Jr., at the Treasury. Fullerton is the coauthor, with Charles L. Ballard and John B. Shoven, of the NBER book, *A General Equilibrium Model for Tax Policy Evaluation*, published this year. He and Mervyn A. King also edited NBER's *The Taxation of Income from Capital: A Comparative Study of the United States, the United Kingdom, Sweden, and Germany*, published in 1984.

McLure, also an NBER research associate in taxation, left the Treasury post at the end of July. He has returned to the Hoover Institution at Stanford University where he is a senior fellow. McLure has written extensively on the value-added tax and on unitary taxation.

## The Structure and Impact of International Trade

Members of NBER's Program in International Studies and invited guests met in New York City on June 21 to discuss "Empirical Studies of the Structure and Impact of International Trade." The meeting was organized by Harry (Chip) Bowen of NBER and New York University. The agenda was:

Robert Staiger, Alan V. Deardorff, and Robert Stern, University of Michigan, "The Effects of Protection on the Factor Content of Japanese and American Foreign Trade"

Edward E. Leamer, University of California, Los Angeles, "Paths of Development in the 3x3 General Equilibrium Model"

Robert E. Lipsey, NBER and Queens College, and Irving B. Kravis, NBER and University of Pennsylvania, "The Competitive Position of U.S. Manufacturing Firms"

Colin Lawrence, Columbia University, and Robert Z. Lawrence, Brookings Institution, "The Dispersion in U.S. Manufacturing Wages: An Endgame Interpretation"

General Discussion of further research areas, including trade in services.

In the first paper of the day, Staiger, Deardorff, and Stern examine the effects of protection on the factor content of Japanese and American foreign trade. They introduce data on tariffs and nontariff barriers in the two countries as exogenous changes into the Michigan Computational Model of World Production and Trade. Using the model, they calculate the changes in commodity trade that may be attributed to protection in the two countries. Next they use data on factor requirements in production for eight categories of labor, capital, and two categories of natural resources to calculate the factor contents of the computed changes in trade.

The three authors conclude that Japanese protection tends to distort factor markets in Japan more than U.S. protection distorts U.S. factor markets. In addition, the effects of Japanese protection are more focused and involve a narrower range of factors in Japan than is the case for protection in the United States.

The first part of Leamer's paper presents a simple graphical treatment of a model with three factors and many tradable products. This allows him to discuss the alternative paths of international development that would be expected if the model applied. In a simple general equilibrium model with only two factors of production (for example, capital and labor) a single development path for a country results. All countries with similar capital per worker have the same returns to factors of production and produce the same mix of goods. A model with three factors of production (a 3xn model), on the other hand, allows a multitude of different paths of development. With this enrichment, of course, comes a substantial increase in the degree of complexity.

The second part of Leamer's paper analyzes data on gross output at the three-digit ISIC level for 39 countries. The data indicate a ladder of development beginning with the production of such goods as apparel and leather. An abundance of land, hypothesized to alter the ladder of development, appears to have the kind of effect suggested by the 3x3 model but does not have the dramatic effect suggested by the 3xn model.

Lipsey and Kravis's paper distinguishes between the competitive position of U.S. firms and that of the United States and other countries as geographical locations for production. While the U.S. share of world exports of manufactured goods fell more than 40 percent between 1957 and 1977, the share of exports of all U.S. firms regardless of location declined much less, and the share of U.S. multinational enterprises actually increased.

The comparative advantage of U.S. multinational firms, as measured by the industry distribution of their exports from all locations, changed very little between

1966 and 1977. At the same time, there were large shifts in the comparative advantage of the parent firms in the United States, their overseas affiliates, and foreign firms. The changes for the U.S. parents and their affiliates reflected differences among industries in the extent to which export production shares moved from the United States to the affiliates' host countries. The shift took place in all the industry groups but was largest for metals and chemicals and smallest for transport equipment.

The rise in the share of world exports accounted for by U.S. multinational firms and the decline in the share of the United States as a geographical location suggest that deficiencies in American industrial or technological leadership are unlikely to be the cause of the changed position of the United States. Rather, other influences that determine price and cost, such as productivity, wage setting, taxation, domestic inflation, and exchange rates, may have contributed to the change.

In their paper, the Lawrences present a model of union wage determination in an industry with immobile, long-lived capital. Conventional accounts of wage determination have failed to explain rising union wage premiums in the United States over the 1970s. Despite weak profitability, weak demand, and a loss of international competitiveness, the rise in relative wages of workers in the U.S. steel and automobile industries has been particularly surprising.

The Lawrences' paper argues that disturbances that reduce desired investment and lower the elasticity of demand for labor may raise union wages. They test a specific application of the theory—the endgame—to explain wage behavior in the U.S. steel industry. They then test a more general version—the slowgame—in a cross-sectional analysis of wage determination in 57 manufacturing countries.

In addition to the authors, the following NBER associates participated in the day's discussions: NBER Executive Director Geoffrey Carliner; Susan Collins, Harvard University; Gene M. Grossman, Princeton University; David G. Hartman, Data Resources Inc.; and J. David Richardson, University of Wisconsin. Also attending were: C. Michael Aho, Council on Foreign Relations; Robert Feenstra, Columbia University; John Mutti, University of Wyoming; Thomas Pugell and Ingo Walter, New York University; Alan Rapoport, National Science Foundation; Howard Rosen, Institute for International Economics; and Gregory Schoepfle, U.S. Department of Labor.

## Macroeconomists Hold Summer Meeting

About 50 members and guests of NBER's Program in Economic Fluctuations met in Cambridge on July 26

to discuss their recent research. The agenda, organized by Lawrence H. Summers of Harvard University and Julio J. Rotemberg of MIT, included five papers:

Robert Topel, NBER and University of Chicago, and Laurence Weiss, University of California, San Diego, "Sectoral Uncertainty and Unemployment"

Discussant: Lawrence F. Katz, University of California, Berkeley

Linda Bell, Harvard University, and Richard B. Freeman, NBER and Harvard University, "Does a Flexible Industry Wage Structure Increase Employment? The U.S. Experience"

Discussant: Robert E. Hall, NBER and Stanford University

Dennis W. Carlton, NBER and University of Chicago, "Rigidity of Prices"

Discussant: Olivier J. Blanchard, NBER and MIT

James M. Poterba, NBER and MIT, Julio J. Rotemberg, and Lawrence H. Summers, "A Tax-Based Test for Nominal Rigidities"

Discussant: Christopher A. Sims, NBER and University of Minnesota

B. Douglas Bernheim, NBER and Stanford University, and Kyle Bagwell, Stanford University, "Is Everything Neutral?"

Discussant: N. Gregory Mankiw, NBER and Harvard University

In the first paper, Topel and Weiss present a model to explain the rise in the unemployment rate during the 1970s and early 1980s. The higher unemployment, they argue, was more heavily concentrated among young people with less labor market experience and schooling than older workers. In their model, individuals with less experience and higher training costs optimally will postpone taking a job if they are more uncertain about the future than about current relative wages across sectors. When training in one sector is costly and of little use for employment in another sector, it is optimal for individuals to delay this training until they learn more about which sector will provide the best jobs. Higher sectoral uncertainty, therefore, leads to lower aggregate employment. This implies a higher unemployment rate if the individuals who postpone employment are in the labor force. Topel and Weiss provide evidence that uncertainty about the relative amounts of future employment across industries was higher after 1974 than in 1948-74. They also provide evidence that uncertainty about the relative performances of stocks across industries was greater in the post-1974 period. They argue that these two types of evidence support their conclusion that higher sectoral uncertainty leads to a lower employment rate.

Bell and Freeman examine the relationship between aggregate employment and the flexibility of relative wages across sectors. They first show that the dispersion of wages across U.S. industries has risen dramatically since 1970, and that this change has not occurred in other OECD countries. They interpret this increase in dispersion as indicative of greater U.S. wage flexibil-

ity. Next, they ask whether the differences in wages across industries can be explained by industry-specific factors. Using data on a large number of U.S. industries from 1970 to 1982, they empirically support the claim that industry wage differentials in the United States are related to industry-specific conditions. In contrast to previous studies, their paper shows that changes in wages are positively related to changes in productivity. They also find a simple negative correlation between changes in employment and changes in real wages. These two findings together are inconsistent with a competitive model of industry labor markets if shocks are primarily productivity shocks. Finally, Bell and Freeman find no evidence that the increase in wage dispersion across industries in the United States during 1970-82 was a factor in the increased employment that the United States has experienced since 1970 relative to other OECD nations.

Carlton's paper studies the degree of price rigidity in the economy. He examines data on individual transaction prices for certain manufacturing products, rather than aggregate price indexes used in most previous research. Using data collected by Stigler and Kindahl for a ten-year period of low overall inflation, 1957-66, Carlton finds that prices to individual buyers often remain unchanged for a long time; that is, there is significant price rigidity in many industries. Carlton finds no evidence, however, that prices are any more rigid downward than upward. Second, he finds a positive relationship between the length of time between price changes and the (absolute) size of the price change. Third, there is little correlation of price changes across different buyers of similar commodities. Finally, Carlton finds that the more concentrated the industry, the greater is the amount of price rigidity. He interprets these results as strong evidence that price is not the sole mechanism for allocating goods; alternative allocation mechanisms (nonprice rationing) are also important and merit further study.

Poterba, Rotemberg, and Summers take a different approach to testing for price rigidity. Using aggregate U.S. and U.K. data, they examine shifts between direct (for example, income) and indirect (for example, sales) taxes. Under the classical view that prices are completely flexible, a revenue-neutral change in the incidence of taxation from consumers to producers would lead immediately to an offsetting change in wages and prices, leaving output unchanged. The Keynesian view, on the other hand, implies that output would be affected in the short run, reflecting rigidities in wages and prices. The three authors estimate reduced-form equations for prices, wages, and output and then test whether information about the mix of direct and indirect taxes improves the explanatory power of these equations. Using these estimates, they also simulate the response over time of prices, wages, and output to a change in tax mix. They find that the tax mix variable is highly significant in their equations. The simulations indicate that there are economically significant movements in output in response to a change in the tax mix. They therefore strongly reject the classical view of price

flexibility and point instead to the potential importance of nominal rigidities.

Finally, Bernheim and Bagwell challenge the relevance of Barro's (1974) proof of Ricardian equivalence in the presence of operative transfers between generations. They start with the observation that families are formed by joining two individuals who come from different parents (marriage). They show that, under Barro's assumption that transfers between parents and children are operative, it will be virtually certain that any two people alive at a given time will be linked by a common descendant. This means that one can construct a chain of operative transfers (through future generations) that links any two individuals in an economy. When this occurs, the set of equilibriums for the economy is unaffected by any tax or transfer policy (including distorting and redistributive taxation) that the government imposes. There exists an equilibrium after the policy change that replicates the original equilibrium, except that the intergenerational transfers adjust to offset the policy. Rather than virtually dismiss the entire field of public finance (and much of price theory as well) as wrong, Bernheim and Bagwell argue that the assumptions required for Barro's Ricardian equivalence result are invalid, and therefore that Ricardian equivalence should not be expected to hold.

Stephen P. Zeldes, NBER and the Wharton School of the University of Pennsylvania, acted as "rapporteur" for the meeting and assisted in the preparation of this report. The next meeting of the economic fluctuations group was held in Cambridge in October.

## Reprints Available

The following NBER Reprints, intended for nonprofit education and research purposes, are now available. (Previous issues of the *NBER Reporter* list titles 1-617 and contain abstracts of the Working Papers cited below.)

These reprints are free of charge to corporate associates and other sponsors of the National Bureau. For all others there is a charge of \$2.00 per reprint to defray the costs of production, postage, and handling. Advance payment is required on orders totaling less than \$10.00. Reprints must be requested by number, in writing, from: Reprint Series, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138.

618. "General Equilibrium Computations of the Marginal Welfare Costs of Taxes in the United States," by Charles L. Ballard, John B. Shoven, and John Whalley, 1985 (NBER Working Paper No. 1043)

619. "The Effect of Partial Retirement on the Wage Profiles of Older Workers," by Alan L. Gustman and Thomas L. Steinmeier, 1985 (NBER Working Paper No. 1000)

620. "Expectations, Life Expectancy, and Economic Behavior," by Daniel S. Hamermesh, 1985 (NBER Working Paper No. 835)

621. "Intergenerational and International Trade," by Rudiger Dornbusch, 1985 (NBER Working Paper No. 792)

622. "Tax Analysis in an Oligopoly Model," by Michael L. Katz and Harvey S. Rosen, 1985 (NBER Working Paper No. 1088)

623. "Financial Intermediation in the United States," by Benjamin M. Friedman, 1985 (NBER Working Paper No. 1451)

624. "Capital Structure Change and Decreases in Stockholders' Wealth: A Cross-Sectional Study of Convertible Security Calls," by Wayne H. Mikkelsen, 1985 (NBER Working Paper No. 1137)

625. "Contingent Claims Valuation of Corporate Liabilities: Theory and Empirical Tests," by E. Philip Jones, Scott P. Mason, and Eric Rosenfeld, 1985 (NBER Working Paper No. 1143)

626. "Direct and Indirect Effects of Regulation: A New Look at OSHA's Impact," by Ann P. Bartel and Lacy Glenn Thomas, 1985 (NBER Working Paper No. 953)

627. "On Patents, R and D, and the Stock Market Rate of Return," by Ariel Pakes, 1985 (NBER Working Paper No. 786)

628. "Portfolio Choice and the Debt-to-Income Relationship," by Benjamin M. Friedman, 1985 (NBER Working Paper No. 1545)

629. "Housing Subsidies: Effects on Housing Decisions, Efficiency, and Equity," by Harvey S. Rosen, 1985 (NBER Working Paper No. 1161)

630. "Currency Inconvertibility, Portfolio Balance, and Relative Prices," by Jorge Braga de Macedo, 1984 (NBER Working Paper No. 1087)

631. "Tariffs as Insurance: Optimal Commercial Policy When Domestic Markets Are Incomplete," by Jonathan Eaton and Gene M. Grossman, 1985 (NBER Working Paper No. 797)

632. "Recent Perspectives in and on Macroeconomics," by Benjamin M. Friedman 1985 (NBER Working Paper No. 1208)

633. "Effects of Regulation on Utility Financing: Theory and Evidence," by Robert A. Taggart, Jr., 1985 (NBER Working Paper No. 866)

634. "Exchange Rate Unions as an Alternative to Flexible Rates: The Effects of Real and Monetary Disturbances," by Richard C. Marston, 1984 (NBER Working Paper No. 705)

635. "Openness, Relative Prices, and Macro-Policies," by Joshua Aizenman, 1985 (NBER Working Paper No. 1233)

636. "Optimal and Time-Consistent Exchange Rate Management in an Overlapping-Generations Economy," by Jonathan Eaton, 1985 (NBER Working Paper No. 1196)
637. "Optimal Wage Indexation, Foreign Exchange Intervention, and Monetary Policy," by Joshua Aizenman and Jacob A. Frenkel, 1985 (NBER Working Paper No. 1329)
638. "The Conduct of Domestic Monetary Policy," by Robert J. Gordon, 1985 (NBER Working Paper No. 1221)
639. "Notches," by Alan S. Blinder and Harvey S. Rosen, 1985 (NBER Working Paper No. 1416)
640. "Unemployment Rate Dynamics and Persistent Unemployment under Rational Expectations," by Michael R. Darby, John C. Haltiwanger, and Mark W. Plant, 1985 (NBER Working Paper No. 1558)
641. "Accounting for the Decline in Union Membership, 1950-80," by William T. Dickens and Jonathan S. Leonard, 1985 (NBER Working Paper No. 1275)
642. "Inventories, Stock-Outs, and Production Smoothing," by Andrew B. Abel, 1985 (NBER Working Paper No. 1563)
643. "Recent Work on Business Cycles in Historical Perspective: A Review of Theories and Evidence," by Victor Zarnowitz, 1985 (NBER Working Paper No. 1503)
644. "Technical Problems in Social Experimentation: Cost versus Ease of Analysis," by Jerry A. Hausman and David A. Wise, 1985 (NBER Working Paper No. 1061)
645. "Monetary Policy in the Large Open Economy," by Michael R. Darby, 1985 (NBER Working Paper No. 1127)

## Technical Papers Series

The following study in the NBER Technical Working Papers series is now available (see previous issues of the *NBER Reporter* for other titles). Like NBER Working Papers, these studies may be obtained by sending \$2.00 per paper to: Technical Working Papers, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Prepayment is required for all orders under \$10.00.

50. "Estimation and Hypothesis Testing with Restricted Spectral Density Matrices: An Application to Uncovered Interest Parity," by Danny Quah and Takatoshi Ito, August 1985

## Bureau Books

### Volume on Growth Cycles Is Released

*Monitoring Growth Cycles in Market-Oriented Countries: Developing and Using International Economic Indicators*, by Philip A. Klein and Geoffrey H. Moore, is available from Ballinger Publishers as a cost of \$35.00. This work expands upon Moore's pioneering research on leading indicators and analysis of business cycles. In this volume, Klein and Moore detail the performance of various economic indicators and plot the business cycles of ten major western nations during the post-World War II period. What results is a coherent picture of short-run growth trends throughout the free-market world.

Klein is a professor of economics at Pennsylvania State University. Moore, an NBER director who serves on the Bureau's Business Cycle Dating Committee, is director of the Center for International Business Cycle Research at Columbia University.

This book should be ordered directly from Ballinger Publishing at 54 Church Street, Cambridge, MA 02138.

The following volume may be ordered directly from the University of Chicago Press, Order Department, 11030 South Langley Avenue, Chicago, IL 60628. Academic discounts of 10 percent for individual volumes and 20 percent for standing orders for all NBER books published by the University of Chicago Press are available to university faculty; orders must be sent on university stationery.

### Latest Income and Wealth Volume Arrives

*Horizontal Equity, Uncertainty, and Economic Well-Being*, the most recent of NBER's conference volumes in the Income and Wealth Series, is available now from the University of Chicago Press. It is priced at \$55.00.

This volume, edited by Martin David and Timothy M. Smeeding, reports the proceedings of a December 1983 conference that dealt with improvements in the

measurement of economic well-being. The papers treat such topics as the subjective evaluation of economic well-being, the measurement and effect of contingent resources (such as pensions, wealth, health, and the environment), and economic behavior as it relates to inflation, divorce, and retirement. The book should be of particular interest to economic statisticians and policy analysts interested in how economic well-being affects both behavior and policy.

David is an economics professor at the University of Wisconsin. Smeeding is professor of economics at the University of Utah.

---

## Current Working Papers

---

Individual copies of NBER Working Papers are available free of charge to corporate associates and other supporters of the National Bureau. Others can receive copies of the Working Papers by sending \$2.00 per copy to Working Papers, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please make checks payable to the National Bureau of Economic Research, Inc.

*Journal of Economic Literature* (JEL) subject codes, when available, are listed after the date of the Working Paper. Abstracts of all Working Papers issued since July 1985 are presented below. For previous Working Papers, see past issues of the *NBER Reporter*. The Working Papers are intended to make results of NBER research available to other economists in preliminary form to encourage discussion and suggestions for revision before final publication. Working Papers are not reviewed by the Board of Directors of NBER.

### Domestic Violence: A Nonrandom Affair

**Helen V. Tauchen, Ann D. Witte, and Sharon K. Long**  
Working Paper No. 1665  
July 1985  
JEL No. 916

In this paper, we develop and estimate a model of violence between men and women who are linked romantically. We view physical violence both as a source of direct gratification and as an instrument for controlling the victim's behavior.

Our empirical results suggest that increases in the assailant's (in this case, the male's) income lead to more violence; increases in the proportion of the year that he is employed serve to decrease violence. Further, the employment effect is larger than the income effect.

Our results also suggest that the effect of a change in the female's employment or income depends heavily on her economic status relative to the male's. Finally, we find that improvements in the female's opportunities outside of the relationship significantly reduce the level of violence.

### A Theory of Dual Labor Markets with Application to Industrial Policy, Discrimination, and Keynesian Unemployment

**Jeremy I. Bulow and Lawrence H. Summers**  
Working Paper No. 1666  
July 1985

This paper develops a model of dual labor markets based on employers' needs to motivate workers. In order to elicit effort from their workers, employers may find it optimal to pay more than the going wage. This fundamentally changes the character of labor markets. We apply the model to a wide range of labor market phenomena. It provides a coherent framework for understanding the claims of industrial policy advocates and can provide the basis for a theory of involuntary unemployment and for a theory of occupational segregation and discrimination that will not be eroded by market forces.

### Regulated Price Discrimination and Quality: The Implications of Medicaid Reimbursement Policy for the Nursing Home Industry

**Paul J. Gertler**  
Working Paper No. 1667  
July 1985  
JEL No. 913

Nursing homes simultaneously participate in a regulated and an unregulated market, and they are required to supply the same quality of service to both markets. Specifically, nursing homes compete for patients who finance their care privately and for patients whose care is financed by the government's Medicaid program. The government reimburses nursing homes at set fees for the care of Medicaid patients, whereas nursing homes charge "private pay" patients what the market will bear. Quality of care is therefore determined by

competition in the "private pay" patient market. The greater the size of the "private pay" market relative to the Medicaid market, the higher is quality.

I find that Medicaid policymakers face a trade-off between patients' access to care and quality: increasing the Medicaid reimbursement rate causes nursing homes to reduce quality, to increase the "private pay" price, and to admit more Medicaid patients and fewer "private pay" patients. Hence, in the nursing home industry, higher prices are associated with lower levels of quality.

In addition, nursing homes improve the quality of care more if the reimbursement rate is set through cost-plus pricing than if it is set by flat-rate pricing. All of the patients are better off under cost-plus pricing, while the nursing homes earn higher profits under flat-rate pricing. Total governmental expenditures on Medicaid are the same under both reimbursement methods.

## **Prizes and Incentives in Elimination Tournaments**

**Sherwin Rosen**

Working Paper No. 1668

July 1985

JEL Nos. 026, 821

This paper considers the role of rewards for maintaining performance incentives in multistage, sequential games of survival. The sequential structure is a statistical design for selecting and ranking contestants. It promotes survival of the fittest and saves sampling costs by eliminating weaker contenders early.

My analysis begins with the case in which competitors' talents are common knowledge and is then extended to cases in which talents are unknown. I show that extra weight must be placed on top-ranking prizes in order to maintain the performance incentives of survivors at all stages of the game. The extra weight at the top induces competitors to aspire to higher goals independent of past achievements.

In career games, workers in the early stages have many rungs to climb on the hierarchical ladder; this plays an important role in maintaining their enthusiasm for continuing. The higher one has climbed, though, the fewer rungs there are left to attain. If top prizes are not large enough, then those who have succeeded in obtaining high ranks will rest on their laurels and barely attempt to climb higher. Elevating the top prizes makes the ladder appear taller for the higher-ranking contestants and in the limit makes it appear of unbounded height: no matter how high one has climbed, it looks as if there is always the same distance to climb. Concentrating prize money on the top ranks eliminates the "no tomorrow" aspects of competition in the final stages.

## **The Changing Behavior of the Term Structure of Interest Rates**

**N. Gregory Mankiw and Jeffrey A. Miron**

Working Paper No. 1669

July 1985

JEL Nos. 130, 310

This paper reexamines the expectations theory of the term structure using data at the short end of the maturity spectrum. We find that prior to the founding of the Federal Reserve System in 1915, the spread between long rates and short rates had substantial predictive power for the path of interest rates. After 1915, however, the spread contained much less predictive power. We then show that after the founding of the Fed, but not before, the short rate is approximately a random walk. This fact, coupled with even slight variation in the term premium, can explain the observed change in 1915 in the performance of the expectations theory. We suggest that the random walk character of the short rate may be attributable to the Federal Reserve's commitment to stabilizing interest rates.

## **Testing Dual Labor Market Theory: A Reconsideration of the Evidence**

**William T. Dickens and Kevin Lang**

Working Paper No. 1670

July 1985

This paper extends our earlier analysis of dual market theory. We use a technique that estimates a probability of being in the primary sector for each worker on the basis of his or her characteristics. We then use this information to determine the occupational and industrial composition of the sectors. Our results strongly support the dual labor market theory.

In studies by other authors, workers were "assigned" to the primary or secondary sector on the basis of the industry or occupation in which they were employed and on educated guesses about the industries or occupations that make up the two sectors. We find that those studies, which produced mixed and inconclusive results, had serious problems of misclassification. In the cases we examined, at least half of all full-time, prime-age male workers in the secondary sector probably belong in the primary sector. Past studies that most supported dual market theory had the least severe problems of misclassification.

## **Bargaining Unit, Union, Industry, and Locational Correlates of Union Support in Certification and Decertification Elections**

**William T. Dickens, Douglas R. Wholey,**  
and **James C. Robinson**  
Working Paper No. 1671  
July 1985

This paper investigates the correlates of union success in National Labor Relations Board certification and decertification elections. The analysis includes a wide variety of attributes on bargaining unit, union, industry, and location, many of which have not been considered in previous studies.

The variables that are statistically significant with respect to voting in certification elections are: the size of the unit; employer consent to the definition of the bargaining unit; the length of campaigns; union organizing effort; union dues; union wages; nonunion wage variance; the industry unemployment rate and percentage of black workers; and, the concentration of jobs among a few employers in a geographic area.

We estimate the same specification for decertification elections. Statistically significant variables associated with voting are: unit size, length of campaign, and the nonunion wage variance.

The magnitude of the estimated coefficients suggests that only unit size and union organizing effort affect outcomes in more than a small percentage of all certification elections. Estimated correlations for voting in decertification elections are not accurate enough to allow such a judgment.

Finally, comparing the regression results for certifications and decertifications shows that the process of how workers vote is very different in the two types of elections.

## **Using Survey Data to Test Some Standard Propositions Regarding Exchange Rate Expectations**

**Jeffrey A. Frankel and Kenneth Froot**  
Working Paper No. 1672  
July 1985  
JEL No. 431

Survey data provide a measure of exchange rate expectations that is superior to the commonly used forward exchange rate in that they do not include a risk premium. We use survey data and the technique of bootstrapping to test a number of interesting propositions. We reject static or random walk expectations for

both nominal and real exchange rates. We also find that expected depreciation is large. Furthermore, there is statistically significant unconditional bias; during the 1981-85 "strong dollar period," the market persistently overestimated depreciation of the dollar.

Expected depreciation is also variable, contrary to some recent claims. The expected future spot rate can be viewed as inelastic with respect to the contemporaneous spot rate, in that it also puts weight on other variables: the lagged expected spot rate (as in adaptive expectations), the lagged actual spot rate (distributed lag expectations), or a long-run equilibrium rate (regressive expectations). In one important case, the relatively low weight that investors' expectations put on the contemporaneous spot rate constitutes a statistical rejection of rational expectations: we find that prediction errors are correlated with expected depreciation, so that investors would do better if they always fractionally reduced the magnitude of expected depreciation. This is the same result found by Bilson, Fama, and many others, except that it can no longer be attributed to a risk premium.

## **Sovereign Debt as a Contingent Claim: Excusable Default, Repudiation, and Reputation**

**Herschel I. Grossman and John B. Van Huyck**  
Working Paper No. 1673  
July 1985  
JEL No. 321

History suggests the following stylized facts about default on sovereign debt: (1) defaults are associated with identifiably bad states of the world; (2) defaults are usually partial, rather than complete; and (3) sovereign states usually are able to borrow again soon after a default.

Motivated by these facts, this paper analyzes a reputational equilibrium in a model that interprets sovereign debts as contingent claims that finance investments and facilitate shifting of risk.

Loans are a useful device to facilitate shifting of risk because they permit the prepayment of indemnities. Nevertheless, because the power to abrogate commitments without having to answer to a higher enforcement authority is an essential aspect of sovereignty, a decision by a sovereign to validate lender expectations about debt servicing depends on the sovereign's concern for its reputation for trustworthiness. Such a reputation is valuable because it provides continued access to loans. A key aspect of our analysis is that lenders differentiate excusable default, which is associated with implicitly understood contingencies, from unjustifiable repudiation.

In the reputational equilibrium, the short-run benefits from repudiation are smaller than the long-run costs from losing a reputation for trustworthiness. Thus, although sovereigns sometimes excusably default, they never repudiate their debts. The reputational equilibrium can involve efficient shifting of risk and efficient investment or it can involve a binding lending ceiling that limits shifting of risk and can also restrict investment. The factors that tend to produce a binding lending ceiling include a high time discount rate for the sovereign, low risk aversion for the sovereign, and a low net return from the sovereign's investments.

## **Dynamic R and D Competition**

**Gene M. Grossman and Carl Shapiro**  
Working Paper No. 1674  
August 1985  
JEL No. 621

In this paper, we study a simple, two-stage, stochastic patent race involving two firms. We examine the behavior of the participants as they gain the lead or fall behind and find that the leader engages in R and D more intensively than the follower. Both firms intensify their efforts if the follower catches up with the leader.

We also analyze: (1) the attractiveness of licensing, whereby the leader shares his results with the follower; (2) a policy of issuing patents for intermediate research results; and (3) the effects of joint research ventures, whereby the firms coordinate their initial research efforts and share their results.

## **Stopping Hyperinflation: Lessons from the German Inflation Experience of the 1920s**

**Rudiger Dornbusch**  
Working Paper No. 1675  
August 1985

The special role of money in the hyperinflation process, and particularly in its stabilization phase, has been reconsidered in an essay by Sargent. His message is that credible fiscal stabilization is the sine qua non of stopping inflation. This is definitely not viewed as being in conflict with the monetary hypothesis, but it does represent a shift of emphasis.

I draw attention to a third aspect of the hyperinflation process and the stabilization: exchange rate and interest rate policy. Even though a government may

propose all of the right measures for budget stabilization or control of money creation, it must still make these measures credible and be able to actually achieve them. I argue that exchange rate and interest rate policy in the transition have traditionally helped to establish that credibility by a de facto stabilization. I make that point by discussing the events of the German hyperinflation. In that case, stabilization was a much more diffuse, accidental matter than a reading of the classics reveals; exchange rate policy played a key role. Very high interest rates in the face of a sharply appreciating, free market exchange rate wiped out adverse speculation and thus helped to establish stabilization. The real exchange rate appreciated sharply in the final stage and persisted at an appreciated level well into the post-stabilization phase. This is the reverse of real depreciation in the capital flight phase.

## **Are Devaluations Contractionary?**

**Sebastian Edwards**  
Working Paper No. 1676  
August 1985  
JEL Nos. 400, 430

Recently a number of authors have criticized the role of devaluations in traditional stabilization programs. They argue that, contrary to the traditional view, devaluations are contractionary and generate a decline in aggregate output. In spite of the renewed theoretical interest in the possible contractionary effects of devaluations, the empirical evidence on the subject has been quite sketchy. In this paper, I extend the Khan and Knight (1981) model to address empirically the issue of contractionary devaluations. The extended model considers the effect of money surprises, fiscal factors, changes in terms of trade, and devaluations on the level of real output. Using a variance components procedure on data for 12 developing countries, I find some support for the short-run contractionary devaluation hypothesis. In the short run, a devaluation seems to generate a decline in aggregate output. Also, after one year a devaluation will have an expansionary effect on output. The evidence suggests that in the long run, devaluations will have no effect on output.

## **Unions, Pension Wealth, and Age-Compensation Profiles**

**Steven G. Allen and Robert L. Clark**  
Working Paper No. 1677  
August 1985

This paper examines the effect of unions on both the magnitude and the distribution of pension benefits.

Our empirical results show that beneficiaries in collectively bargained plans receive larger benefits when they retire and larger increases in their benefits after they retire; they also retire at an earlier age than beneficiaries in other pension plans. As a result, the pension wealth of union beneficiaries is 50 to 109 percent greater than that of nonunion beneficiaries.

Just as wage differentials within and across establishments are smaller among union workers, benefit differentials within and across cohorts of retirees are smaller among union beneficiaries. This results from the smaller weight given to average salary in determining initial benefits and the larger percentage increases given to those who have been retired the longest. The more compressed benefit structure under unionism causes the union-nonunion compensation (wages plus pension contributions) differential to decline more quickly than the union-nonunion wage differential over the life cycle.

## **Monetary Policy Regime Shifts and the Unusual Behavior of Real Interest Rates**

**John Huizinga and Frederic S. Mishkin**

Working Paper No. 1678

August 1985

JEL Nos. 310, 130

The climb in real interest rates to unprecedented levels in the post-World War II period is a striking phenomenon of the early 1980s. In order to understand this phenomenon, this paper investigates the nature and timing of shifts in the real rate process to determine if the recent unusual behavior of real rates is associated with changes in monetary policy regimes. We find not only that there were significant shifts in the stochastic process of real interest rates in October 1979 and October 1982 when the Federal Reserve altered its behavior but also that these dates were the most likely break-points in the real rate process. When we analyze another change in the monetary policy regime quite similar to that of October 1979—the sharp rises in the discount rate in 1920—we reach a similar conclusion. There is a striking correspondence between the change in the monetary policy regime and the shift in the real rate process.

Other studies have examined competing explanations for the recent unusual behavior of real interest rates—for example, budget deficits or favorable changes in business taxation. Although these competing explanations have met with mixed success, our evidence lends substantial support to the view that changes in the monetary policy regime have been and continue to be an important source of shifts in the behavior of real interest rates.

## **Horizontal Equity: Measures in Search of a Principle**

**Louis Kaplow**

Working Paper No. 1679

August 1985

JEL No. 323

Horizontal equity—the command that equals be treated equally—has received increased attention, particularly in attempts to measure the desirability of tax reform proposals. This paper questions whether the normative foundations for horizontal equity justify the indexes and approaches that generally have been adopted. It suggests that past attempts to implement horizontal equity are inconsistent with its supposed foundations and that more thorough examination of the concept raises serious doubts as to whether any alternative interpretation of horizontal equity reasonably consistent with common understanding of the concept can be justified.

## **Gibson's Paradox and the Gold Standard**

**Robert B. Barsky and Lawrence H. Summers**

Working Paper No. 1680

August 1985

This paper provides a new explanation for Gibson's Paradox—the observation that the price level and the nominal interest rate were positively correlated over long periods of economic history. We explain this phenomenon in terms of the fundamental workings of a gold standard. Under a gold standard, the price level is the reciprocal of the real price of gold. Because gold is a durable asset, its relative price is systematically affected by fluctuations in the real productivity of capital that also determine real interest rates.

Our resolution of Gibson's Paradox seems more satisfactory than previous hypotheses. It explains why the paradox applied to real as well as to nominal rates of return, its coincidence with the gold standard period, and the comovement of interest rates, prices, and the stock of monetary gold during the gold standard period. Empirical evidence using contemporary data on gold prices and real interest rates supports our theory.

## **A Pigouvian Rule for the Optimum Provision of Public Goods**

**Mervyn A. King**

Working Paper No. 1681

August 1985

JEL Nos. 022, 024, 321

I present an integrated treatment of optimal taxation and public expenditure based on the dual relationship between the prices of private goods and the quantities of public goods. In this paper, I derive analogs of Roy's identity and the Slutsky equation for the case of public goods. I then show that the optimal provision of public goods and the level of taxation are dual problems. The conditions for provision of optimum public goods can be expressed as a modification of the Samuelson conditions with extra terms representing: (1) the distortionary effect of taxes on the willingness to pay for the public goods, and (2) distributional effects. The former captures Pigou's notion of the indirect damage caused by the need to finance public expenditure out of distortionary taxes; we call this the "Pigou term." In certain cases, there emerges a very simple benefit-cost ratio for public projects that is equivalent to measuring benefits as if they were taxed.

## **The Cost of Annuities: Implications for Saving Behavior and Bequests**

**Benjamin M. Friedman and Mark Warshawsky**

Working Paper No. 1682

August 1985

JEL No. 311

The fact that most of the elderly in the United States choose to maintain a flat age-wealth profile, rather than to buy individual life annuities, contradicts the central implications of the standard life-cycle model of consumption and saving. This paper lends support to an explanation of this phenomenon based either on the cost of annuities, especially including the element of that cost caused by adverse selection, or on the interaction of that cost and an intentional bequest motive.

Expected yields offered on individual life annuities in the United States are lower by some 4-6 percent, or 2½-4½ percent after allowing for adverse selection, than yields on alternative long-term, fixed-income investments. Simulations of an extended model of life-cycle saving and portfolio behavior, explicitly allowing for uncertain lifetimes and Social Security, show that yield differentials in this range can account for the observed behavior during the early years of retirement, even in the absence of a bequest motive. By contrast, at older ages the combination of yield differentials in this range and a positive bequest motive is necessary for the observed behavior.

## **Annuity Prices and Saving Behavior in the United States**

**Benjamin M. Friedman and Mark Warshawsky**

Working Paper No. 1683

August 1985

JEL No. 311

The observed reluctance of most individuals in the United States to buy individual life annuities, and the concomitant approximately flat average age-wealth profile, sharply contradict the standard life-cycle model of consumption-saving behavior. This paper lends support to an explanation for this phenomenon based on the interaction of an intentional bequest motive and annuity prices that are not actuarially fair.

Premiums charged for individual life annuities in the United States include a load factor of 32-48¢ per dollar, or 18-33¢ per dollar after allowing for adverse selection, in comparison to actuarially fair annuity values. Load factors of this size are not out of line with those on other familiar (and almost universally purchased) insurance products. Simulations of an extended model of life-cycle saving and portfolio behavior, allowing explicitly for uncertain lifetimes and Social Security show that the load factor charged would have to be far larger than this to account for the observed behavior in the absence of a bequest motive. By contrast, the combination of a load factor in this range and a positive bequest motive can explain the observed behavior for some plausible values of the assumed underlying parameters. Moreover, if this combination of factors is leading elderly individuals to avoid purchasing life annuities, it implies a typical bequest that is fairly large in comparison to their consumption.

## **Hidden Stimuli to Capital Formation: Debt and the Incomplete Adjustment of Financial Returns**

**Robert S. Chirinko and Stephen R. King**

Working Paper No. 1684

August 1985

JEL Nos. 130, 320

There is a common belief that the disappointing economic performance of the 1970s can be attributed in good part to the interaction of tax rules, inflation, and capital formation. In this paper, we reassess the relationships among inflation, the tax code, and investment incentives because previous results have been based on tenuous assumptions whose impact has not been appreciated fully. We also question the appropriateness of the conventional formulation of user cost

and derive an alternative measure taking explicit account of the role of debt—acquisition, retirement, and net-of-tax interest payments—and the equityholders' ownership of the firm. Our numerical results show that previously reported disincentives for acquiring capital goods in general, and against longer-lived capital in particular, are attenuated and in a number of cases reversed under various sets of assumptions. We highlight differences in results stemming from the conventional and modified user costs and illustrate them by comparing the U.S. Treasury's tax reform proposals under its two formulations.

### **Productivity Growth in Manufacturing during Early Industrialization: Evidence from the American Northeast, 1820 to 1860**

**Kenneth L. Sokoloff**  
Working Paper No. 1685  
August 1985

This paper reports estimates of labor and total factor productivity for 13 manufacturing industries in the Northeast from 1820 to 1860. I find that although the highly mechanized and capital-intensive industries, such as cotton and wool textiles, realized somewhat more rapid progress than the others, even those other industries experienced major advances. This appears to support the conclusion that the manufacturing sector in the Northeast was quite dynamic during this stage of industrialization. Much of its early productivity growth may be explained by changes in production processes that did not require mechanization or substantial increases in capital intensity. This suggests, as has been argued by a number of recent studies, that developments such as increased division and intensity of labor within firms and other relatively subtle alterations in technique, perhaps stimulated by the expansion of markets, may have played important roles in explaining the progress that was achieved.

### **Is Increased Price Flexibility Stabilizing?**

**J. Bradford DeLong and Lawrence H. Summers**  
Working Paper No. 1686  
August 1985

This paper uses Taylor's model of overlapping contracts to show that increased wage and price flexibility can easily be destabilizing. This result arises because of the Mundell effect. While lower prices increase output, the expectation of falling prices decreases output. Simulations based on realistic parameter values suggest that increases in price flexibility might well increase the cyclical variability of output in the United States.

### **A Reappraisal of Recent Tests of the Permanent Income Hypothesis**

**Charles R. Nelson**  
Working Paper No. 1687  
August 1985

Hall (1978) showed that the permanent income hypothesis implies that consumption follows a random walk and cannot be predicted by past income. Reexamination of Hall's data results in rejecting the random walk hypothesis in favor of the hypothesis of positively autocorrelated changes. Evidently this is the result of Hall's choice of a quadratic utility function. A logarithmic utility function implies a random walk in the log of consumption; this is supported by the data.

Hall reported that past income had a negative but insignificant relationship to consumption. Changes in the log of income, however, do have a positive predictive relationship to changes in the log of consumption. The adjustment of consumption to income seems to be spread over two quarters.

Flavin's (1981) test of the theory is formally equivalent to Hall's except for assuming stationarity around a time trend. Mankiw and Shapiro (1984) have pointed out that detrending may lead to rejection of the theory when it is in fact correct. For Hall's data, detrending may reverse the sign of the coefficient on past income. The Mankiw-Shapiro analysis predicts the magnitude of the coefficient under the permanent income hypothesis.

### **The Economics of Reproduction-Related Health Care**

**Victor R. Fuchs and Leslie Perreault**  
Working Paper No. 1688  
August 1985  
JEL No. 913

This paper presents the first systematic estimates of the direct financial costs of reproduction-related health services. In 1982, Americans spent approximately \$17.7 billion for contraception, abortion, treatment of infertility, obstetrical care, and infant care. This represented 5.5 percent of total health care spending and was equal to \$327 per woman of reproductive age (15–44). Obstetrical care accounted for almost half of the reproduction-related expenditures, and infant care accounted for more than one-third. The paper discusses the demographic, technological, economic, and sociopolitical factors that determine these expenditures. It also considers related public policy issues regarding legal status, sources of funding, and allocation of resources.

## **The Pricing of Bonds and Bank Loans in International Markets: An Empirical Analysis of Developing Countries' Foreign Borrowing**

**Sebastian Edwards**

Working Paper No. 1689

August 1985

JEL Nos. 400, 440, 430

This paper compares the pricing of bank loans and bonds in international markets. From data on LDC debtors, the results indicate that the country risk premium in both markets has responded to some of the variables suggested by the theory. However, the way in which these variables affect the risk premium differs across these markets. I also use data on LDC bond yields in the secondary market for 1980-85 to analyze the way in which this market reacted to and anticipated the debt crisis.

## **Choice under Uncertainty: A Model of Applications for the Social Security Disability Insurance Program**

**Janice Halpern and Jerry A. Hausman**

Working Paper No. 1690

August 1985

JEL No. 323

Not all people with health problems are disabled. Some individuals with severe physical or mental impairments, such as blindness or limb amputation, continue to hold jobs and generally function satisfactorily. However, they constitute a group of potentially disabled individuals who might apply for and qualify for Disability Insurance or some other disability-related benefits if they were to lose their jobs or to decide that employment offered an inadequate financial or nonpecuniary reward. Thus, disability, or a health-related inability to work, is more than a medical problem. It involves motivational and attitudinal factors.

We specify a model of the application process as choice under uncertainty about approval of an application for Disability Insurance. We specify the possible outcomes to the choice process of an individual in which the probability of acceptance for Disability Insurance is a key consideration. We then estimate a joint model of labor supply and application to the Disability Insurance program based on the 1972 survey. We compare our results to the observed time-series applications process since 1976. Last, we estimate the sensitivity of the application process to the probability of acceptance and the level of benefits.

## **Subsidies, Quality, and Regulation in the Nursing Home Industry**

**Paul J. Gertler**

Working Paper No. 1691

August 1985

JEL No. 913

This paper analyzes the impact of Medicaid patient subsidy and Certificate of Need (CON) cost containment programs on nursing homes. The analysis is complicated by the fact that both proprietary and "not-for-profit" nursing homes exist, and by the problem that quality cannot be observed directly.

Medicaid pays for the care of the financially indigent by directly reimbursing nursing homes at a predetermined rate. As a result, nursing homes can discriminate with price between patients who finance their care privately and those whose care is financed by Medicaid. Nevertheless, nursing homes are required to provide the same quality to both types of patients.

Typically, Medicaid reimbursement rates are set by a cost-plus method, under which the reimbursement per patient is equal to average cost plus some return referred to as the Medicaid "plus" factor. Our results show that Medicaid policymakers face a trade-off between quality and the access of the poor to nursing home care. Specifically, we find that increases in the Medicaid "plus" factor cause nursing homes to reduce quality and substitute Medicaid patients for "private pay" patients. These quality differences can be quite large. In fact, in our sample, we find that homes that receive high Medicaid "plus" factors provide hundreds of thousands of dollars less in goods and services than homes that receive average Medicaid "plus" factors, *ceteris paribus*.

CON attempts to control nursing home expenditures by limiting the supply of beds through capacity constraints and entry barriers. Our analysis shows that CON policymakers are forced to trade off containing the size of the industry (and therefore total Medicaid payments) against quality and access of the poor to nursing home care. Specifically, we find that the capacity constraints and the reduced competition from the entry barriers lead to lower quality and fewer Medicaid patients receiving care.

## **Capital Mobility in the World Economy: Theory and Measurement**

**Maurice Obstfeld**

Working Paper No. 1692

August 1985

JEL No. 431

This paper critically assesses some recent empirical evidence on the extent of international capital mobili-

ty. Its major conclusion is that while much of this evidence is difficult to interpret unambiguously, it is consistent with a world economy in which the degree of capital mobility is high and increasing. I discuss two main approaches to the measurement of capital mobility. The first (traditional) approach is based on comparing expected yields on assets located in different countries. The second (and more novel) approach is based on comparing national saving rates and domestic investment rates.

## **The Impact of the Runaway Office on Union Certification Elections in Clerical Units**

**Beatrice J. Freiberg and William T. Dickens**

Working Paper No. 1693

August 1985

JEL No. 831

The law prohibits firms from moving jobs in attempt to avoid unionization. Still, many employees feel that joining a union may cost them their jobs. This paper asks how that fear affects clerical workers' voting in union certification elections. For this analysis, we collected and analyzed two data sets and developed three measures of the firms' ability to relocate office work.

We found that workers in offices that seemed easy to relocate were more likely than other workers to report that fear of job loss was important in their voting decision. Those who voted against the union were the most likely to report that fear of job loss was a significant consideration. Further, workers in offices that could most easily be relocated had 7-30 percent lower probability of voting for the union than those who were in less mobile jobs.

## **Real Interest and Consumption**

**Robert E. Hall**

Working Paper No. 1694

August 1985

JEL Nos. 131, 921

The elasticity of intertemporal substitution is one of the important determinants of how saving and consumption respond to the real interest rate. That elasticity can be measured by the response of the rate of change of consumption to changes in the expected real interest rate. A detailed study of data for the twentieth-century United States shows no strong evidence that the elasticity of intertemporal substitution is positive. I show that earlier studies finding substantially positive elasticities suffer from a bias related to the timing of instrumental variables.

## **Affordability and the Value of Seller Financing**

**Donald R. Haurin and Patric H. Hendershott**

Working Paper No. 1695

September 1985

JEL No. 313

The typical method of valuing seller financing is to calculate a discount—the present value of the savings in aftertax interest because of creative financing—and to include this variable along with other characteristics of the purchased house in a hedonic price equation that explains the price actually paid for the house. The result of this equation is a set of marginal prices that correspond to each characteristic of the house, including the quantity (discount) of creative finance that accompanies the house. The central question usually asked is whether the discount is fully capitalized in the value of the house—that is, whether the price of creative finance is unity. In our view, one should not ask what the price of creative finance is, because this price, like that of other housing attributes, is likely to depend upon conditions of supply and demand. We develop and estimate a model that incorporates this dependency.

## **Aggregate Supply and Demand Factors in OECD Unemployment: An Update**

**Michael Bruno**

Working Paper No. 1696

September 1985

This paper analyzes the change in unemployment in 12 OECD countries over 1970-83 in terms of underlying shifts in aggregate supply and demand. I revise and extend earlier evidence on wage gaps (given by Bruno and Sachs). For most European countries, wage gaps are being reduced in the 1980s. However, the average absolute levels of the gaps, when weighted by country size, are still sizable. Thus, a "classical" element of unemployment remains. Most of the large additional increase in unemployment after 1980 (as well as the profit squeeze and the investment slowdown) is ascribed to the contractionary stance of macropolicy in Europe, rather than the subsequent expansion and sharp fall of unemployment in the United States. The large U.S. deficit coupled with monetary restraint and the resulting dollar appreciation also account for the sharp difference in the behavior of import prices in the United States and Europe. This in turn may explain the considerably slower deceleration of inflation in Europe and the reluctance to expand activity more rapidly.

## **Lending with Costly Enforcement of Repayment and Potential Fraud**

**Jonathan Eaton**

Working Paper No. 1697

September 1985

JEL No. 314

If contracts are costlessly enforceable, then insolvency is the only reason for nonrepayment of loans. While some models have examined the borrower's incentive to repay, they have typically assumed that the penalty suffered by a debtor in default is imposed automatically and without cost to the lender. If invoking a penalty is in fact costly, then Pareto-improving loans may be dynamically inconsistent. This is not because of the absence of a sufficiently harsh penalty for default but rather because the lender has no incentive to actually implement the penalty in the event of a default. In such situations, infinitely lived institutions can emerge as banking intermediaries between lenders and borrowers. These institutions, repeatedly involved in lending, have an incentive to enforce contracts that individual lenders lack. Consequently, they can sustain more lending. For their reputations as enforcers of contracts to have value requires that banks earn strictly positive profits. Maintaining the value of bank equity also provides an incentive for bank owners to invest deposits rather than to use these funds fraudulently. Because of the supernormal profits that banks must earn, an equilibrium that is sustained by bank reputation will not replicate an equilibrium in which loan repayment is automatically guaranteed.

## **An Analysis of the Stabilizing and Welfare Effects of Intervention in Spot and Futures Markets**

**Robert B. Campbell and Stephen J. Turnovsky**

Working Paper No. 1698

September 1985

JEL No. 131

This paper analyzes the effects of three alternative rules on the long-run distributions of both the spot and futures prices in a single commodity market. The key behavioral relationships are derived from the optimizing behavior of producers and speculators. The rules considered are: (1) leaning against the wind in the spot market; (2) utility-maximizing speculative behavior by the stabilization authority in the futures market; and (3) leaning against the wind in the futures market. Since the underlying model is sufficiently complex to preclude analytical solutions, the analysis makes extensive use of simulation methods. As a general proposition, we find that intervention in the futures market is not as

effective in stabilizing either the spot price or the futures price as is intervention in the spot market. Indeed the third rule, while stabilizing the futures price, may actually destabilize the spot price. Furthermore, the analogous type of rule undertaken in the spot market will always stabilize the futures price to a greater degree than it does the spot price. We also discuss the welfare implications of these rules. Our analysis shows how these can generate rather different distributions of welfare gains, including the overall benefits.

## **Monetary and Fiscal Policy under Perfect Foresight: A Symmetric Two-Country Analysis**

**Stephen J. Turnovsky**

Working Paper No. 1699

September 1985

JEL No. 431

This paper analyzes the effects of anticipated and unanticipated domestic monetary and fiscal expansions on both the domestic and foreign economies. The analysis is based on symmetric behavior, which is not only a reasonable first approximation but also offers significant analytical advantages. Specifically, it enables the dynamics of the system to be decoupled into averages and differences of relevant variables. Not only does this render the analysis tractable, but it also helps provide economic insight. One striking impact is that the differences, but not the averages, respond to announcements. I discuss at length the consequences of this for the dynamic adjustments of the two economies to the various disturbances.

## **On the Nature and Estimation of Age, Period, and Cohort Effects in Demographic Data**

**David E. Bloom**

Working Paper No. 1700

September 1985

JEL No. 840

This paper develops a general procedure for estimating age, period, and cohort effects in demographic data. The procedure involves mathematically structuring the effect of cross-cohort changes in the timing and level of a vital event on period rates of occurrence of the event. I illustrate and test the procedure with data on the rates of first births of American women. Overall, the empirical results support the procedure. The results also provide evidence that period effects are highly age-specific and that the size of cohort effects may be substantially overestimated by models that fail to allow for the age specificity of period effects.

## **Marriage Patterns in the United States**

**David E. Bloom and Neil G. Bennett**

Working Paper No. 1701

September 1985

JEL No. 840

This paper analyzes marriage patterns among cohorts in the United States to determine whether declining rates of first marriage are the result of changes in the timing of marriage, the incidence of marriage, or both. Parametric models, which are well suited to the analysis of censored or truncated data, are fitted separately to information on age at first marriage. We use three data sets that were collected independently and at different times. We also estimate extended versions of the models in which the parameters of the model distributions are allowed to depend on social and economic variables. The results provide evidence that the incidence of first marriage is declining and that there is only a slight tendency for women to delay marriage. In addition, education is the most important correlate of decisions about the timing of first marriage whereas race is the most important correlate of decisions about its incidence.

## **The Behavior of Interest Rates and Real Exchange Rates during a Liberalization Episode: The Case of Chile, 1973-83**

**Sebastian Edwards**

Working Paper No. 1702

September 1985

This paper analyzes the behavior of some key variables during the recent economic liberalization reform attempted in Chile. The paper concentrates on the behavior of the real exchange rate and on nominal and real interest rates during 1977-83. I argue that as a consequence of the liberalization of the capital account in Chile in 1979-81, there were dramatic inflows of financial capital. These capital inflows generated an important increase in expenditure and a lower relative price of tradables to nontradables or real appreciation. Moreover, I argue that the liberalization of the capital account, not the adoption of a preannounced rate of devaluation, generated the dramatic real appreciation of the Chilean currency between 1979 and 1981. I also present a model to analyze interest rate behavior in a semiopen economy and apply it to the case of Chile. The results suggest that during this period interest rates responded both to open-economy and closed-economy factors. Among the former, the increase in the expected rate of devaluation was particularly important.

## **Growth and External Debt under Risk of Debt Repudiation**

**Daniel Cohen and Jeffrey D. Sachs**

Working Paper No. 1703

September 1985

JEL Nos. 431, 441

We analyze the pattern of growth of a nation that borrows abroad and has the option of repudiating its foreign debt. We show that the equilibrium strategy of competitive lenders is to make the growth of the foreign debt contingent on the growth of the borrowing country. We give a closed-form solution to a linear version of our model. The economy, in that case, follows a two-stage pattern of growth. During the first stage, the debt grows more rapidly than the economy. During the second stage, both the debt and the economy grow at the same rate, and more slowly than in the first stage. During this second stage, the total interest due on the debt is never entirely repaid; only an amount proportional to the difference between the rate of interest and the rate of growth of the economy is repaid each period.

## **The Ineffectiveness of Effective Tax Rates on Business Investment**

**Robert S. Chirinko**

Working Paper No. 1704

September 1985

JEL Nos. 130, 320

In his Fisher-Schultz Lecture, Feldstein examined the effects of nonneutral tax rules on business investment by estimating three econometric models. He concluded that "the rising rate of inflation has, because of the structure of existing U.S. tax rules, substantially discouraged investment in the past 15 years." In a detailed examination of Feldstein's Effective Tax Rate model and in a less extensive review of his other formulations (Neoclassical and Return-Over-Cost models), there emerge a number of important and independent criticisms. My results from examining all three models strongly suggest that taxes have *not* adversely affected capital formation during the recent episode of inflation. This conclusion is consistent with the relatively robust levels of net investment between 1965 and 1981 that are actually shown in the newly benchmarked National Income data.

## **Interest Rates, Money Supply Announcements, and Monetary Base Announcements**

**John Huizinga and Leonardo Leiderman**  
Working Paper No. 1705  
September 1985  
JEL No. 310

This paper presents a new set of empirical regularities on the link between interest rates, money supply announcements, and monetary base announcements. Among the main findings are: (1) unexpected increases in the announced monetary base have a significantly positive effect on interest rates from October 1979 to October 1982; (2) although unexpected money supply and monetary base announcements have the same impact on interest rates, they have different implications for the future behavior of the money supply and monetary base; and (3) the significant response of longer-term interest rates to unexpected monetary announcements is reflecting a response of current and expected future short-term announcements—that is, term-structure premiums are not altered by these announcements.

## **On the Age at Leaving Home in the Early Nineteenth Century: Evidence from the Lives of New England Manufacturers**

**David W. Galenson**  
Working Paper No. 1706  
September 1985  
JEL No. 042

Much recent research focuses on decisions, such as when to marry and have children, that affected family composition in the past. This paper considers another such decision that has been relatively neglected: at what age should children leave their parental home? Observations drawn from a collection of biographies of successful New England manufacturers, most of whom left their parents' homes in the first half of the nineteenth century, indicate that their age at departure was usually in the late teens or early twenties, with a median of age 18 years. Multivariate analysis suggests that the age at which these men left home varied directly with family income or wealth and inversely with the opportunity cost of their staying at home. Sons whose fathers had died tended to leave home earlier than the others, as did those whose first job away from home was in the employ of a relative. Those whose families invested more in their formal education appear to have stayed home longer.

## **Tax Reform and Financial Markets**

**Patric H. Hendershott**  
Working Paper No. 1707  
September 1985  
JEL No. 313

Four proposals for tax reform have been advanced in recent years: Bradley-Gephardt, Kemp-Kasten, Treasury, and the administration plan. These plans could have a significant impact on financial markets. Reductions in investment incentives and marginal tax rates would tend to lower before-tax interest rates; lower taxes on existing corporate capital would tend to increase stock prices. Resulting changes in the composition of investment between real estate and other assets and in desired loan-to-value ratios would alter the pattern of security issues. This paper compares and contrasts the likely effects of each of the four reform proposals on interest rates (taxable and tax-exempt), security flows, and stock prices.

## **Tax Reform, Interest Rates, and Capital Allocation**

**Patric H. Hendershott**  
Working Paper No. 1708  
September 1985  
JEL No. 323

In this paper I derive the impact of four major tax reform proposals—Bradley-Gephardt, Kemp-Kasten, Treasury I, and Treasury II—on the level of interest rates and the allocation of the American capital stock. The capital stock is allocated among seven types of nonresidential capital, rental housing, and owner-occupied housing held by households in five different income classes. I also deduce the inflation neutrality of the four plans.

## **Taxation and the Size and Composition of the Capital Stock: An Asset Price Approach**

**Lawrence H. Summers**  
Working Paper No. 1709  
September 1985

This paper develops an asset price approach to the analysis of capital taxation. The costs of adjusting capital stocks cause tax changes to have important impacts on the valuation of existing capital. The recapitalizations associated with tax reforms represent an important aspect of their incidence. I study these effects within the context of an empirically calibrated general equilibrium model. The model extends previous work by treating explicitly the process of adjustment following tax reforms, treating the relationship between tax rules and interest rates in detail, and examining the dif-

ferential incidence effects of corporate tax reductions and investment incentives.

## **Issues in National Savings Policy**

**Lawrence H. Summers**  
Working Paper No. 1710  
September 1985

This paper reviews a number of issues relating to the policy goal of increasing national savings. The first section considers the measurement and definition of national savings. It presents comparisons of current U.S. savings rates with those of other countries and with the past U.S. experience. The second section considers possible avenues through which public policy can increase national savings. While most discussion has centered on the effects of changes in the rate of return received by savers, this is far from the only channel through which policy can affect savings. I conclude that changes in public savings or dissaving through budget surpluses or deficits are the most potent and reliable policy tool for altering the savings rate. The third section of the paper examines a crucial question about savings policy. Where will extra savings go? Both empirical estimates and simulations of econometric models suggest that a surprisingly small share of induced extra savings will find their way into increased investment in plant and equipment. A major effect of increased savings would be to reduce capital inflows and to improve American competitiveness.

## **Poverty in America: Is Welfare the Answer or the Problem?**

**David T. Ellwood and Lawrence H. Summers**  
Working Paper No. 1711  
October 1985

This paper reviews current policies for fighting poverty and explores their impact. We begin by reviewing trends of the recent past in poverty, spending to combat poverty, and economic performance. It is apparent immediately that economic performance is the dominant determinant of the measured poverty rate over the past two decades. Government assistance programs have expanded greatly over this period. However, the growth in cash assistance was too modest to have had major effects, and the sizable growth in in-kind benefits could not reduce measured poverty since such benefits are not counted as income. Next we focus on three groups: the disabled, female heads of family, and unemployed black youth. We find little evidence that government deserves the blame for the problems of each group and suggest that the broad outlines of current policies are defensible on economic grounds.

## **Inflation, Tariffs, and Tax Enforcement Costs**

**Joshua Aizenman**  
Working Paper No. 1712  
October 1985  
JEL No. 400

This paper analyzes how the optimal level of tariffs and inflation taxes depends on the costs of tax collection and enforcement. I focus on a small, open economy. The existence of costs in collecting taxes and enforcing tax rules can justify policies of tariffs and inflation taxes as the optimal devices for raising revenue. This paper suggests that a greater government demand for revenue will increase the use of inflation and tariffs as devices for raising revenue. The analysis derives elasticity rules that tie optimal tariff and inflation rates to the costs of tax collection.

## **A Problem of Financial Market Equilibrium When the Timing of Tax Payments Is Indeterminate**

**David F. Bradford**  
Working Paper No. 1713  
October 1985

If firms are indifferent about the timing of dividends, then the government's cash flow from taxes on dividends is indeterminate. In an earlier paper, I showed that variations in tax receipts from this source would have no real effects in the context of a world without uncertainty. The extension of the analysis to a world of risk involves new elements that may be of some general interest. In particular, the conditions for neutrality seem less likely to be fulfilled in a practical context.

## **Does Deductibility Influence Local Taxation?**

**Robert P. Inman**  
Working Paper No. 1714  
October 1985

Recent proposals to reform the U.S. tax code all contain significant changes in the current provision allowing for the deductibility of state and local taxes.

This paper examines the effect of deductibility on the revenue decisions of the largest U.S. cities. The analysis of eight different reforms concludes: (1) total taxes change very little in the long run, falling by 13 percent at most and even rising slightly for many cities; (2) fees and license revenue (predominantly a tax on firms) generally fall, in some cases by 30 percent or more; (3) the net effect on total revenues (taxes plus fees) is generally small, never declining by more than 12 percent even with full loss of deductibility; and (4) policies to offset losses of city revenue are effective in neutralizing the negative effects of deductibility reform.

# **NBER Reporter**

---

Nonprofit Org.  
U.S. Postage  
Paid  
Boston, MA  
Permit No. 55932

---

National Bureau of Economic Research, Inc.  
1050 Massachusetts Avenue  
Cambridge, Massachusetts 02138  
(617) 868-3900

Address Correction Requested

---