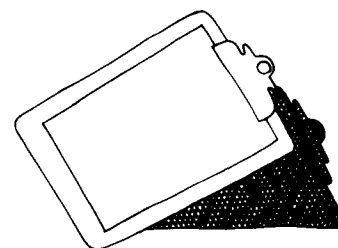# Research Notes

Benchmark unemployment

In *Estimating Benchmark Unemployment for the 1980's,* John E. Connaughton and Roger A. Madsen (both of the University of North Carolina-Charlotte) present a method for determining the level of "benchmark unemployment"—frictional and structural unemployment—in the 1980's.

The authors trace the evolution of the concept of benchmark (that is, noncyclical) unemployment from President Kennedy's Council of Economic Advisors, who proposed a 4-percent benchmark in 1961, through the Nixon Administration advisors (5 percent), to the Carter Administration advisors who, using novel weighting procedures, suggested a 4.9-percent benchmark. The authors cite other and usually higher benchmarks proposed, including those of the Reagan Administration advisors.

Connaughton and Madsen point out that most analysts agree that benchmark unemployment has risen over time. These analysts attribute the rise to several factors, but particularly emphasize the effect of the change in the labor force because of increased proportions of women and teenage workers who have higher unemployment rates than prime age men (25 to 54 years).

Connaughton and Madsen propose a model for determining benchmark unemployment that includes the ratio of the demographic mix of workers, the ratio of prices to unit labor costs, the noninstitutional population 16 years and over, annualized real Gross National Product, lagged unemployment of the civilian labor force, and a randomly distributed unexplained residual. The authors also specify the following factors to estimate the demographic mix: average years of completed schooling of females, the ratio of manufacturing employment to total employment, the proportion of adult females with spouse present, the noninstitutional civilian labor force, and again, an unexplained residual. A rationale is provided for the selection of each factor of each equation.

The authors estimate that benchmark unemployment at the threshold of the 1980's was 6.7 percent, a rise of 2.7 percentage points since the Kennedy advisors suggested 4 percent in 1961. The authors caution that: "The findings which suggest that the benchmark rate

has increased from 4.0 percent in 1961 to 6.7 percent in 1981 in no way imply that 6.7 percent is an acceptable rate of unemployment. The 6.7 percent represents the unemployment rate, or benchmark rate, below which the economy can be expected to feel significant inflationary pressure caused by labor market tightness. To reduce unemployment below 6.7 percent without inflationary pressure, micro rather than macro policies must be followed to increase productivity and labor market efficiency."

This paper was presented at the 95th annual (winter 1982) meeting of the American Economic Association.
—Robert Fisher, *MLR.*

The R&D - productivity link

The well-documented slowdown in the growth of the U.S. productivity over the last decade was accompanied by dampened growth in company-financed research and development. In *R&D and Declining Productivity Growth,* F.M. Scherer, professor of economics at Swarthmore College, examines the link between the two factors.

Corporate research and development is a profit-seeking activity, but its returns are apparent only after a considerable lag. Citing an earlier study, the author says that David Ravenscraft and Scherer found that peak returns generally accrue 4 to 6 years after R&D spending takes place. Effects of the lag may be seen in R&D activity patterns over the last decade: during the early 1970's, firms responded to depressed returns to R&D by cutting back their R&D spending relative to sales, and concentrating on relatively high-yield projects. When healthy returns on this leaner portfolio of R&D projects began to materialize during the second half of the decade, firms were encouraged to expand their R&D activities, with the result that real growth in R&D spending has been about 5.7 percent per year since 1979.

Assessing the importance of R&D in productivity growth is difficult because the benefits of an innovation tend to be greater for society as a whole than for the innovating industry, the author observes. About three-fourths of all company-financed industrial R&D is oriented toward the creation of products which are sold to other industries, often at prices which have been driven down by competition from other innovating firms. To the extent that industries which purchase new products share in the benefits of the selling industry's R&D, the true productivity contribution of innovators is understated.

Scherer has used a matrix structure to measure the interindustry technology flows which arose from 1974 R&D expenditures. On the basis of these results, regressions were constructed to estimate the marginal productivity of the economy's R&D capital stock over the last two decades. In almost all cases, the marginal productivity of R&D for the society as a whole was found to have been higher during 1973–78 than during the more bullish 1964–69 period, in apparent contrast to the situation for individual firms and industries. Scherer estimates that the previously noted contraction in corporate R&D expenditures during the early to mid-1970's has cost the economy at least .20 to .28 percentage point of the productivity growth that would have resulted if spending had continued to increase at rates posted during the 1960's. And because of the characteristic lag between R&D investments and returns, the effects of the falloff in R&D activity are likely to be felt for several years to come.

Scherer offers two scenarios which might account for the stagnation of R&D growth during the last decade. In the first, R&D spending is cut back because firms have fewer innovation opportunities or because the markets for their innovations are crowded with similar products. In the second, the decline in R&D results from an increasing divergence between its private and social returns brought about by intensified research competition or more rapid imitation of new products.

To date, there is some evidence to support each interpretation of the slowdown in R&D activity. But, says Scherer, definitive conclusions about, and prescriptions for, the problem will not be possible until U.S. statistical series related to productivity and to technology flows are considerably improved.

This paper was presented at the winter 1982 meetings of the American Economic Association and is scheduled to appear in the Proceedings of those meetings. —Mary K. Rieg, MLR.

Military spending

In Economic Consequences of Military Spending, Faye Duchin of the Institute of Economic Analysis, New York University, examines the impact of military spending on employment in the United States and on the world economy if such spending is increased or decreased.

Statistical data are presented which show the proportion of total employment generated by military spending in 1968 (the peak year for military spending in Vietnam) and in 1979, and the industry and occupational composition of employment created by military spending in 1968 and 1977.

In analyzing the effect of military spending on the world economy, the author presents several alternative scenarios of hypothetical increases and decreases in military spending. The base scenario uses the recent trends in military spending to project into the future. Scenario 1 reduces military spending in all regions below that of the base in each year from 1981 to 2000, resulting, nonetheless, in real increases in military expenditures over the 20-year period. In this scenario, a portion of the "savings" (from the reduced military spending) is transferred from rich developed regions to the poorest, least-developed regions in the form of economic aid. In scenario 2, the real military expenditures are continually reduced and the entire "savings" are transferred to the poorest regions.

Personal consumption to the year 2000 for each scenario is projected for the world, the developed countries, and the four poorest regions ("arid" Africa, "low-income" Asia, "resource-poor" Latin America, and "tropical" Africa) which, according to the scenarios, would receive the additional aid.

This paper was presented at the 95th annual (winter 1982) meeting of the American Economic Association. —Anna H. Hill, MLR.