# RESEARCH REPORTS

*Reviews of new research by public agencies and private institutions*

## "Energy Future. Report of the Energy Project at the Harvard Business School."

Random House, 201 East 50th St., New York, N.Y. 10022. 353 pp. $12.95
Editors: Robert Stobaugh and Daniel Yergin

Over the next decade, total U.S. energy use from all sources will rise from its current level equal to 37 million barrels of oil a day to the equivalent of 54 million barrels of oil a day.

Relying on increased imports of oil from the Middle East is dangerous and expensive; instead, the United States must exploit its domestic energy supplies, say the authors of this much-debated report from the Harvard Business School's Energy Project.

However, Americans cannot rely on any of the four conventional alternatives—domestic oil, natural gas, coal, and nuclear—to fill the energy gap left by reduced oil imports. None of them "can supply much more energy than they do now," say the authors.

Because most domestic sources of oil and natural gas have already been tapped, the United States will be lucky to maintain production at today's level—the equivalent of 19 million barrels of oil daily. (Current daily *consumption* of oil and gas is up to 27.6 million barrels of oil equivalent.)

"The United States has enough coal," the report's authors say, "for at least the next hundred years." But coal is environmentally troublesome; when burned, it releases harmful amounts of carbon dioxide into the atmosphere. The environmental and health constraints will probably make coal's total contribution to energy supplies the equivalent of 10 million barrels of oil daily by 1985, not the 13.5 million barrels predicted by the Carter administration's 1977 National Energy Plan.

Nuclear power's future is uncertain. Unless procedures to safely store nuclear waste are found, some atomic plants may be forced to shut down by 1983. Yet even if all nuclear plants currently in existence and on order are operating at full capacity within the next 12 years, they will provide a daily equivalent of only 3 million barrels of oil (twice as much as current levels).

The answer to the United States' energy dilemma lies in unconventional sources of power—conservation and solar energy.

Conservation, say the report's authors, is the "key energy source." Such measures as better insulated buildings, more stringent fuel economy standards for automobiles, and the use of industrial waste heat to warm plants could cut U.S. energy consumption by 30 to 40 percent without impeding economic growth.

And widespread application of solar energy techniques—broadly defined to include solar heating, windmills, hydroelectric power, energy from plant matter (biomass), and conversion of sunlight into electricity (photovoltaics)—could provide up to 20 percent of U.S. energy needs over the next 20 years.

Stobaugh and Yergin suggest that the government offer incentives for individuals and businesses to conserve conventional energy and use solar power. They recommend a program of federal reimbursements—60 percent of solar installation costs, 40 percent of industrial conservation investments, and 50 percent of residential and commercial conservation measures—financed by a "windfall tax" on decontrolled domestic oil.

## "National Longitudinal Study: A Capsule Description of Young Adults Four and One-Half Years After High School."

National Center for Education Statistics, Office of the Assistant Secretary for Education, U.S. Department of Health, Education, and Welfare, Washington, D.C. 20201

This study is the third in a series of four national surveys of 20,000 young Americans who graduated from high schools across the nation in 1972. Its purpose is to record "the educational and vocational activities, plans, aspirations, and attitudes of young people after they leave high school."

The report shows some major changes in the relative status of women and minorities. Among whites, for example, 25 percent of the women held "professional or managerial" positions, compared to 24 percent of the men. Sixteen percent of black men held such jobs, 14 percent of black women. The figures for Hispanic men and women were 23 percent and 14 percent, respectively.

By October 1976, 72 percent of the young adults were employed full-time. Most young women (56 percent) worked in clerical and sales positions; most men (42 percent) were employed as "operators, service workers, farmers, and laborers." Sixteen percent of the black women surveyed were out of work, compared to 8 percent of the white and Hispanic women.

Among those from families with low and middle "socioeconomic status (SES)," the report says, "whites were less likely to have attended college than blacks or Hispanics. Only in the high SES group were whites more likely to have attended college."

Among the young adults who did go to college (54 percent of the group), 30 percent graduated on schedule, 26 percent were still in school in October 1976, and 35 percent dropped out. The dropout rate varied by race: 34 percent of the white men left school, 43 percent of the black men, and 57 percent of the Hispanic men. (The report notes that the corresponding figures were almost identical for women.)

College graduates working full-time earned an average annual salary of $9,500. Engineers led the class with salaries of $13,200. At the bottom were those who had majored in the humanities or fine arts ($8,200 a year). The report includes no salary figures for those who did not attend college.

Only 20 percent of the women who went on to graduate school enrolled in "professional degree programs"—e.g., law, medicine, dentistry—compared to 43 percent of the men. Women outnumbered men by more than 3 to 1 in education graduate programs and by over 13 to 1 in health services.

By October 1976, 41 percent of the black women and 33 percent of the black men had "ever married." The figures for white women and men were 55 and 36 percent, respectively, and for Hispanic women and men, 60 percent and 47 percent.

Some unexpected findings: 22 percent of the Hispanic men and women, 22 percent of the black men, and 27 percent of the black women said their race gave them an "advantage" in school or college.

On the other side, only 12 percent of the Hispanic men, 13 percent of the Hispanic women, 18 percent of the black men, and 20 percent of the black women thought they had been "treated unfairly because of their race." (About 3 percent of the whites claimed discrimination in education; 7 percent said their race was an advantage.)

Relatively few women or men believed that they had been treated unfairly in getting a good education because of their sex (8 percent of the blacks and Hispanics, 3 percent of the whites). And the respondents who said they had been treated unfairly "were equally divided by sex."

Women, more than men, said they were given a "special advantage" because of their sex.

The tendency of minorities, more than whites, to say that sex was either an advantage or a liability, the report theorizes, may be attributed to the fact that for "blacks and Hispanics, it is difficult in certain situations to separate a sex advantage or disadvantage from what may actually be a race advantage or disadvantage."

## "Restrictions on Business Mobility. A Study in Political Rhetoric and Economic Reality."

American Enterprise Institute for Public Policy Research, 1150 17th St. N.W., Washington, D.C. 20036. 61 pp. $3.25
Author: Richard B. McKenzie

In the U.S. Congress and in the Ohio and New Jersey state legislatures, laws have been proposed to penalize large manufacturers who shift operations to another state. Yet current worries that a large-scale business migration is underway from the Northern industrial "Snowbelt" to the Southern "Sunbelt" are unfounded, writes McKenzie, an economist at Clemson University.

Under the proposed National Employment Priorities Act of 1977, the U.S. Secretary of Labor could deny a "runaway plant" investment tax credits, accelerated depreciation allowances, and deductions for expenses incurred by the move. The proposed Ohio law could require "a business that relocates to pay employees left behind severance pay equal to one week's pay for each year of service"; payments would also be made to compensate for the community's increase in unemployment.

Advocates of such laws ignore the facts, says McKenzie. Business moves accounted for only 1.5 percent of job losses in the Northern states in 1969–72 (98.5 percent of employment loss "was caused by the death or contraction of existing firms"). And "only 1.2 percent of the South's employment gain was the result of in-migration of businesses" during the same period.

Employment is rising nationwide. It

went up 18 percent in the North Central region from 1972 to 1978, 16 percent in the Northeast. In the South and West, employment gains were 17 percent and 15 percent, respectively. Numerically, manufacturing jobs lost in the North have been offset by new positions in the expanding Northern service industries (for example, education, finance, insurance, and medical care).

Moreover, differences among regional per capita incomes are gradually diminishing. In 1929, for example, Mid-Atlantic per capita income was 129 percent higher than in the Southeast; in 1977, it was only 23 percent higher. "Given the convergence in regional standards of living," McKenzie writes, "the long-term movement of industry is likely to be less dramatic in the future than it has been in the past."

Restricting business mobility will hamper national economic growth, argues McKenzie. Businesses will no longer be able to cut production costs by moving to a region where taxes are lower and raw materials are close at hand. Unions will increase their demands (making production more expensive) when "the immediate threat of job loss is taken away." But wages will not rise; more people will compete for secure jobs at firms forced to stay put.

Finally, "because businesses will not be able to 'vote with their feet,'" McKenzie concludes, the power of state and local governments to raise taxes or lower the quality of public services will increase.

## "Small Futures. Children, Inequality, and the Limits of Liberal Reform."

Harcourt Brace Jovanovich, 757 Third Ave., New York, N.Y. 10017. 258 pp. $12.95
Author: Richard H. deLone, for the Carnegie Council on Children

Over the last 150 years, liberal American reformers have tried to correct the economic inequalities between rich and poor by providing equal opportunities to children, especially children born to poor parents. Such efforts have failed, argues deLone in this egalitarian critique, because they have done little to relieve the immediate "penalties" of poverty.

Reformers assume "that adulthood is too late to do much to influence development," deLone writes, so their programs—Horace Mann's common schools, the settlement houses of the late 19th century, the 1960s' Great Society programs—concentrate on the young.

Yet in 1976, 10.1 million children (15.8 percent of all American children) under 18 were members of families below the national poverty line ($5,815 for a nonfarm family of four). Only 20 percent of American males "exceed the status of their fathers through individual effort and competition," deLone says; the *distribution* of income and wealth has been "virtually frozen" since World War II, even as average family income has sharply increased. Poverty, he argues, must be seen as a "relative" condition and remedied by greater economic equality.

Most current welfare programs inadvertently harm children. Aid to Families with Dependent Children benefits, for example, are reduced if a member of the welfare family earns over $30 a month; benefits are taken away (in some states) if a man heads the household. Poverty is a stigma in American society—"some children whose main 'problem' is poverty are misclassified as having emotional or mental disorders," deLone writes.

He argues that socioeconomic equality must be created directly, "not indirectly through children." He calls for federal programs to ensure full employment, investment in poverty-stricken areas, and "affirmative action" hiring. Washington should do away with welfare programs and redistribute wealth. His goal: "a decent minimum income," namely, one-half the nation's median family income, or $7,480 for a family of four in 1976.

To pay for all this (cost: about $16 billion), deLone says, government should tax all income—earned and unearned—at a flat 50 percent rate. Each household should be given a tax credit for every family member—$1,400 for children, $2,800 for adults. Contending that the government would save money (by ridding itself of welfare programs) and that families with annual incomes up to $24,000 would pay less in taxes than they do currently, deLone concludes: "Cost is not the real issue. Economic justice in a liberal society is."

## "The Decline of the Best? An Analysis of the Relationships Between Declining Enrollments, Ph.D. Production, and Research."

Discussion Paper Series, Kennedy School of Government, Harvard University, 79 Boylston St., Cambridge, Mass. 02138
Author: Robert E. Klitgaard

Educators fear that a declining birth rate will reduce not only enrollments but also the number of teaching posts at U.S. colleges and universities. The result, many say, will be a decline in research and scholarship, as a "Lost Generation" of potential teachers and researchers seeks employment outside academia.

Yet Klitgaard, associate professor of public policy at Harvard's Kennedy School of Government, finds grounds for optimism.

Enrollment patterns are not easily predicted; in the future, a larger percentage of 18-year-olds may decide to attend college "because of the greater importance of higher education in an increasingly 'service-oriented' economy." U.S. enrollments may also be boosted as more older people return to college part-time and by the growing influx of foreign students (their number doubled to 203,000 from 1966 to 1976).

The effect of any academic cutbacks would probably vary by discipline, observes Klitgaard. For example, from 1960 to 1974, 54.4 percent of the people with doctoral degrees in chemistry worked in business and industry; only 28.1 percent taught. On the other hand, 87.6 percent of the humanities Ph.D.s (with degrees in English, philosophy, fine arts) were employed at colleges or universities.

Grim campus job prospects will not daunt the most gifted students, whatever their field, he says. According to one Harvard admissions officer, "the very best students are those that just love the subject, even if they are going to starve."

And reducing the number of jobs should not affect the quality of research. In many fields of science, for example, "the top 2 percent of researchers produce 25 percent of the research, and their output is also of higher quality."

Some university administrators have suggested that a decline in the number of positions available to young, untenured scholars would have a dampening affect on the rate and quality of research. The reason: Young researchers are more productive. Not true, says Klitgaard.

"Scientists are slightly more productive during their forties" than any other time of their lives; in fact, the productivity of scientists over 60 is about equal to that of researchers under 35.

So far, it has been impossible to identify in advance students who will go on to perform brilliant research. There is no correlation between a student's scores on the Graduate Record Examination (required for admission to most graduate schools) and the quality of his research after receiving a Ph.D. "It will be hard for graduate schools to keep up the numbers of the very best potential scholars if enrollments go down," Klitgaard concludes, "unless proportionately more of the very able [students] still apply."

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