'Tis the season for learning

The Race Between Education and Technology. By Claudia Goldin and Lawrence F. Katz. Cambridge, MA, Harvard University Press, 2008, 488 pp., $39.95/hardback; $19.95/paperback.

This major work by two Harvard University economists argues that wealth creation in the United States was a direct result of the education of the masses of its citizens. They propose that the first 75 years of the 20th century could in fact be called a "human capital" period, in which most of today's productive technologies were created and successfully applied, leading to progressively higher standards of living. During the last quarter of the century and stretching into the 21st century, however, the U.S. began to lag behind other countries in a number of measures of educational achievement. The authors contend that this lag, in combination with the ease of international transfer of technology to lower cost countries, challenges America's ability to compete in the world market.

The case for investing in human capital is well developed and persuasive in this book. The evolution and spread of high schools are what the authors term "the virtues" that led to economic success. The virtues are 1) ample funding of public education through high school 2) decentralization, with ever more numerous school districts 3) separation of church and state, promoting an educational experience common to all American youth 4) gender neutrality and 5) a measure of permissiveness in making up for failed grades or missed schooling opportunities. These virtues, the authors contend, contrasted positively with the more elite systems of European countries, where tests were usually imposed at an early age that mandated placing youngsters on divergent and often inferior educational tracks.

Known in the early 20th century as the High School Movement, "Americans pioneered the modern secondary school…(and) tailored it for the masses." As early as 1920 a high school or college education was expected in 25 percent of all jobs, largely owing to the rapidly increasing need for white-collar workers. Successive cohorts of students benefited from educational attainment exceeding that of their parents. Since 1980, however, the "human capital stock of the work force" has grown more slowly, reflecting "the slower rate of increase of educational attainment for post-1950 cohorts." Some uncertainty about the continued viability of the "virtues" also colors the last parts of the authors' relevant discussion, given such matters as the contentiousness over unequal financing of school districts, for example.

But the authors' chief concern remains the slowing of mass college education in relation to the need they postulate for a forward-racing technology. This concern is strongly motivated by worry about the widening inequality gap in the distribution of income since the 1970s and its regressive social and economic implications. During the 1947–1973 period family incomes rose rapidly; the distribution of income tended to favor those at the bottom while retarding growth at the top. After the mid-1970s, income generally grew more slowly for most Americans but at a much faster clip in the top quintiles (or deciles). Moreover, the link between the advance in productivity—output per hour worked—and family income weakened; in fact, real median family incomes fell well behind gains in productivity. Thus, "the benefits of economic growth are now far less equally shared than in the past."

The authors trace the changes in the distribution of income to a growing inequality of earnings in the labor market. The labor market includes high-paid corporate executives, of course, but also middle- and low-income workers and unemployed persons looking for paid work. The authors present detailed analyses of the widening distribution of wage/salary incomes, not only between different skill groups but also within the same occupational, skill, and experience groups. This gap is truly an unprecedented phenomenon which requires much further research and explanation.

The authors' discussion of the rise in the college/high school premium is instructive. This premium more than doubled between the 1980s and the early 2000s, indicating strong rising returns to education. The four reasons thought to underlie this development are 1) intensified computerization, leading to a demand for highly-skilled and educated workers (although the authors disagree somewhat on the extent of the demand), 2) globalization and international trade, leading to outsourcing of labor-intensive jobs to lower wage countries and, simultaneously, putting downward pressure on the wages of lesser educated workers in the United States, 3) slowing growth in educational levels of post-1950 cohorts, causing a demand-supply imbalance in favor of educated workers and, 4) the weakened bargaining power of trade unions.

The authors feel that these reasons are an implicit rejection of the widespread belief that the demand for more educated workers has been linked solely to the skill-biased technology associated with computerization—a topic they discuss at some length. They feel that the proponents of this explanation ignore the historical evidence. True, we still witness technological change today, but these changes are quite ordinary in comparison to those experienced during the first decades of the 20th century. As a result of the "electric motor spread," for example, manufacturing horsepower in the form of purchased electricity rose from 9 percent in 1909 to 53 percent in 1929. Numerous new consumer goods—such as appliances, vacuum cleaners, radios, and automobiles—emerged in the market between 1900 and 1925, bearing witness to the productivity advances and the skill and education of the workers designing and fabricating them. In terms of today's skill-based technological change, the authors contend that "the era of computerization has brought little that is new;" in fact, they allude to certain reductions in skill bias which they call "deskilling." They cite "the substitution of office machinery for skill" as contributing to the "compression" of clerical workers' wages. Many other examples might be mentioned in which computerization simplified tasks, requiring little skill from the worker performing it (retail checkout comes to mind). Task simplification has become a core characteristic of work organization; it has become a condition of economies of scale, which long ago spread from manufacturing to service industries. Good for productivity, perhaps, but not so good for stimulating new ideas and inventions.

The case the authors make for improving the skill and education of the work force as key elements of economic growth, founded on a wealth of data, is well made. Their case for the need of a much enlarged college or university attendance, however, would have been stronger had they related it to the deeply unequal distribution of gains from advancing productivity. This is no small factor in depriving middle and lower class families of the means to finance their children's tertiary education.

The ability of the United States to further equalize educational opportunities can hardly be questioned; the United States still exceeds 19 other advanced countries in this measure, by 13 percent on average. The United States also ranks first among 24 countries in an index of business research and innovation, the adoption of new technology patents, and interaction between business and science. Notwithstanding the current recession, America possesses the wealth and accumulated knowledge to afford the advanced education urged by this valuable and informative work, and should pursue it. □

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