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The Politics of Projection: A Critique of Cartter's Analysis

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In a series of articles from 1965 to 1971 (*1*, *2*), Allan M. Cartter has advanced the thesis that American graduate education is oriented toward the systematic overproduction of Ph.D.'s. This overproduction is, he asserts, already evident and, unless policies are altered drastically, is destined to become an acute problem in the early 1980's.

Cartter's thesis, phrased in a progressive tone, has gained widespread acceptance because it is supported by certain demographic data and by the difficulties that some recent recipients of the doctorate have experienced in securing employment. But Cartter's argument can be faulted on a number of critical points. He ignores fundamental social changes already under way within American society, changes that are likely to erode the very bases of his projections. Moreover, his implicit assumptions about the future relations among politics, the economy, and education are open to serious question. Our intention is to point out the serious weaknesses in Cartter's analysis and to demonstrate that it represents a highly unreliable point of departure for policy-making in graduate education.

The Essentials of Cartter's Argument

The serious imbalance between supply and demand of Ph.D.'s is, according to Cartter, occasioned by the continuation of outdated expansionist policies, particularly on the part of state planning agencies, which have overlooked the markedly changed conditions that will surround higher education in the 1970's and 1980's. The basic pattern, one that has already begun to undermine present policy, is a decrease in the rate of growth of the college-age population (18 to 21) in the decade between 1968 and 1978 and an absolute decline in its numbers during the decade to follow. Thus, Cartter concludes, at the very time that the need for new faculty in higher education is declining, the number of Ph.D. degrees granted is continuing to increase. This trend will lead to a situation wherein "only about one doctorate in four will find suitable academic employment, and in the 1980's it could be less than one in ten" (*1*, p. 136).

Cartter contends that neither higher rates of college enrollment nor maximum hiring levels will correct the imbalance. Although he does not believe that either of these developments is likely, he concludes emphatically that (*1*, p. 137):

> Even if all junior colleges were converted to 4-year colleges, every high school graduate went to college, and every new college teacher hired in the future possessed the Ph.D., by 1980 a smaller percentage of doctoral degree recipients would be likely to find academic positions than has been true for the preceding 25 years.

Furthermore, the nonacademic employment sector will be incapable of absorbing the surplus of Ph.D.'s who will graduate in the years to come.

In light of his pessimistic conclusions, Cartter suggests certain means for dealing with the oversupply of Ph.D.'s. Professional associations should establish manpower study commissions with a view toward monitoring the production of doctorates within the disciplines related to their professions; colleges and universities should consider both restricting graduate programs and opening up more positions for younger Ph.D.'s through earlier retirement of faculty and changed tenure procedures; and, what is perhaps most important, the federal government should assure a certain level of support for "national universities" or for selected departments within various disciplines. These national universities would become the major centers for graduate education.

The Impact of Cartter's Argument

Although Cartter expresses concern that his argument will be ignored or its policy implications deferred, an accumulating body of evidence suggests that Cartter's views have already begun to inform policy considerations. Cer-

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tainly the policy orientation of Wolfle and Kidd (*3*) toward graduate education is predicated upon acceptance of the essential features of Cartter's argument.

More specifically, the faculties of many universities are giving serious attention to the goals and practices of graduate education; they are formulating policies that take into account the recent experience of unplaced or "underplaced" doctoral recipients. Although Cartter recognizes the fact that certain universities have reduced their graduate enrollments, he still maintains that the die has been cast for the output of Ph.D.'s through 1975. However, he fails to acknowledge that various institutions, including some of the largest graduate centers, have initiated policies and implemented decisions that affect not only long-range production rates, but immediate ones as well. In addition, government agencies, both state and national, have begun to incorporate the notion of Ph.D. surpluses into their funding of present or projected programs (*4*). Apparently these patterns of reaction are already having important consequences upon graduate education, especially upon enrollment in graduate schools (*5*).

In addition, as Cartter suggests, some professional associations seem to have accepted his definition of the situation as the basis for their reactions to the current conditions (*6*). A number have begun to warn their members of the dire consequences of the overproduction of doctorates. They have also begun to devote attention to the types and distribution of doctorates that should be granted.

Indeed, Cartter indicates that we should not only restrict the number of doctorates but also control the quality of them. Already his suggestion that we "avoid the worst pitfalls" of overproduction through governmental subvention of a limited number of graduate programs has gained considerable support. The problem, to which Cartter addressed himself on an earlier occasion, is how to identify quality institutions and departments. Implicit in the policy for restricting graduate programs is the notion that limited funds would be spent most expeditiously on those institutions wherein high quality is already judged to exist. By implication, although Cartter does not discuss the issue, this policy would lead to the support of a relatively small number of low-risk students who are carefully selected by these prestigious institutions.

Although colleges and universities, professional associations, government agencies, and students (even politically radical ones) seem to have accepted Cartter's projections and conclusions as inevitable, we contend that a variety of data indicate that it is Cartter's own projections, and their likely consequences, that pose the most significant problem for higher education in America. Before policy-makers rush headlong into formulating programs based upon Cartter's thesis, they should examine carefully the infrastructure of his argument as well as the consequences that its acceptance will entail.

Assumptions Underlying Cartter's Argument

Although Cartter is critical of those planners who have acted as though the most valid forecast were a duplicate of today, his projections are predicated on the general assumption that structural conditions within the society—notably within the political, economic, and educational realms—will continue essentially unchanged over the next two decades. These conditions are not regarded as absolutely stable, but the changes that occur are assumed to be only small-scale modifications of existing trends. For example, Cartter assumes that a 1 percent annual increase in the number of 18 year olds graduating from high school and entering college is the principal way in which the population of higher education will change. Within the limits of this kind of social change, the basic structure and composition of the stratification system, higher education, and the economy are accepted as givens.

Cartter's fundamental assumption is that the demand for future faculty members with the Ph.D. degree will continue to be determined almost exclusively by the number and percentage of 18-year-old high school graduates who enter and remain in college. He assumes that the age composition of undergraduate student bodies will remain relatively constant in the years ahead.

Related to this is the acceptance of the present student-teacher ratio as a given. The ratio of approximately 20 : 1 is regarded as the proper standard for evaluating the future demand of college teachers.

Cartter's projections also include the assumption that the percentage of doctoral faculty in higher education will not change appreciably. The present distribution of 65 percent doctorate holders in universities, 44 percent in 4-year colleges, and 15 percent in junior colleges could increase to a maximum of 70 percent for the entire system, but even this would not significantly alter the imbalance between supply and demand. In fact, Cartter suggests that the probable shift of enrollment toward lower-division education could reduce the percentage of new doctoral faculty required to maintain quality in the total system.

The aforementioned assumptions highlight Cartter's image of contemporary higher education. They undergird his projections and structure his interpretations and conclusions. A clear understanding of these assumptions is essential not only for interpreting Cartter's projections, but for perceiving his image of the normal educational condition. Cartter seems to assume that present patterns border on the limits of normalcy, for he speaks of the "more normal" pre-Sputnik era. In effect, he confers upon the present system the character of normalcy, so that marked changes must be treated as abnormal. Cartter's assumptions not only predispose him to take the present educational system for granted, but imply that it is fundamentally good.

When one makes projections about the supply and demand of holders of doctoral degrees, one must also make assumptions about the nature and operation of the economic order. In this regard, Cartter assumes that the nonacademic market will be incapable of absorbing the surplus of doctorate holders. Although the nonacademic sector will employ a larger percentage of new doctorates than will universities and colleges within the coming decade, the anticipated 5 percent annual increase in research and development (R & D) positions—the traditional source of nonacademic employment for scientists—will be well below the level of expansion required for full employment of persons with doctorates in the sciences. (Cartter believes that a 9 percent per annum growth would be needed to absorb these new Ph.D.'s.) Therefore, even if there were changes in employment patterns, Cartter surmises that they would not be of sufficient magnitude to offset the increasing supply of Ph.D.'s.

In other respects as well, Cartter seems to assume that the economy will continue to operate much as it has in

the past. The growth rate of the economy will be about 4 percent annually, and the percentage of national income allocated to higher education will closely parallel that of the past few decades (a period of moderate economic growth, in contrast to the high expansion rates of 1956 to 1966). In short, Cartter assumes that the economy will function during the years covered by his projections in a conventional, orthodox fashion.

The premise of relative economic stability is manifested most clearly in Cartter's statements concerning the occupational structure. He assumes that traditional R & D positions will continue to be the principal source of nonacademic employment for Ph.D.'s. The emphasis is in keeping with the attention that Cartter directs to natural scientists, for these are the persons who have been most widely employed in traditional R & D programs.

But nowhere does Cartter acknowledge that fundamental changes have occurred in the economic structure of the country and that these changes are affecting, and will continue to affect, the educational system. Moreover, a key, unstated premise in Cartter's article (*1*) is that the relation between the educational sector and the economic sector and between these two and the political realm will be similar to what it has been during the past several decades. Thus Cartter seems to assume that educational planners can (and should) only develop policies that adjust to the economic and political conditions over which they have little or no effective control.

Reevaluating Cartter's Assumptions Concerning American Society

We have observed that Cartter rests much of his argument upon rather limited demographic considerations. The shift in the age group 18 to 21 is the most crucial variable in his analysis of the supply and demand of doctoral holders. Unfortunately, Cartter, as well as those policy-makers who have accepted his views uncritically, has not examined his demographic projections within the context of the broader societal changes that have been under way for some time and that seem destined to play a major role in structuring the nature of higher education during the next decade or so. Certain trends in the socioeconomic sphere, in status arrangements, and in education cast serious doubts upon some of Cartter's most pessimistic assertions.

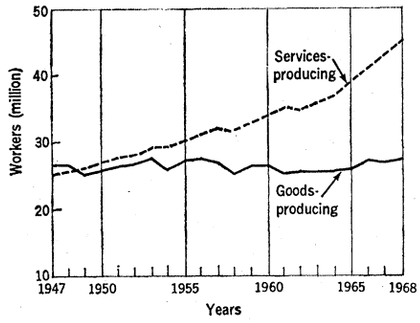

Fig. 1. Comparison of occupational positions in the goods-producing and services-producing sectors. [Adapted from (*7*, p. 12)]

In order to assess the future needs of graduate education, we must first examine the fundamental changes that have occurred, and are likely to continue to occur, in the American economy. Beginning in about the mid-1950's, white-collar workers came, for the first time, to outnumber blue-collar workers (*7*, pp. 11–19). This change in the labor force has been associated with the growing dominance of the service over the manufacturing sector (*8*). Although the actual number of people in the goods-producing industries has remained relatively stable over the past several decades, a marked increase in employment has occurred in the services-producing sector (Fig. 1).

Although what is meant by "services" or "the service sector" is debatable, it is apparent that, in relative terms, manufacturing has experienced a definite decline. The service sector—much of which is closely associated with expansion of the educational complex—has become the dominant force in the American economy.

The service sector has now reached a point of primacy where its own particular characteristics and their implications for education must be carefully weighed by policy-makers (*9*). The shift of the national manpower base from the manufacturing to the service sector means that the kinds of personnel required for the new economy will be markedly different from those required in the past. A dominant characteristic of the service sector has been a reliance upon advanced education and knowledge in the performance of particular service roles.

One particular service category—that addressed to social problems in the postindustrial society—seems destined to expand greatly. Problems relating to health care and the environment are of such magnitude that they seem likely to force a shift in national priorities, even over the objections of entrenched political and economic interests. The current efforts of Congress to increase manpower in the health services are symptomatic of what we can expect during the 1970's (*10*). This means that there will be a heightened demand for persons with advanced degrees in this area.

In addition, if we can judge by social changes during the past few decades, we can anticipate a continued growth of bureaucracies on the federal, state, and local levels (*11*). These bureaucracies have the potential for absorbing far more persons with advanced degrees than Cartter and his supporters appear to realize.

We can also expect continued social pressures for professionalization of many occupations in the service sector (*12*). The result will be to increase the number of persons over age 21 attending colleges and universities. Although some persons have challenged the idea that credentials are essential for the performance of certain tasks in modern society, current trends point to a continued demand for professional education. The demands for professionalization of various health occupations are clear enough, and there exist pressures for upgrading the skills of some kinds of secretaries. There is also growing demand for college-level training for prison guards and policemen. Patrick Murphy, commissioner of the police department in New York City, recently went on record as advocating that a college degree be a prerequisite for promotion within the police force (*13*).

Members of an occupational group often seek higher status and legitimacy through increased education. But far more than status considerations are involved in the pressures for higher education. The "knowledge explosion" has made it necessary for many persons in the labor force to return to college and acquire more technical background or, in some instances, to become familiar with knowledge outside their own areas of specialization. In addition, the knowledge explosion, encompassing as it does both the service and manufacturing sectors, calls for the retraining of persons with college degrees who have lost their jobs through either automation or structural changes in the economy. The plight of unemployed aerospace engineers is symptomatic of a new social phenomenon. The aforementioned pat-

terns all indicate that the age group 18 to 21 is hardly a useful category on which to base projections concerning the need for higher education in the future (*14*).

More generally, the socioeconomic changes that have taken place during the past few decades are of such a nature that the service sector, including the educational system, must expand if unemployment is not to become a serious social issue. Cartter has not placed his analysis of the overproduction of Ph.D.'s into this broader social context. With continuing automation, the manufacturing sector cannot absorb all of those persons who will enter the labor market in the years ahead. The educational sector, however, can train personnel for positions in the service economy, as well as provide meaningful employment for persons in the future (*15*). If the United States is to move away from an economy based upon national defense, the need to expand the service sector will be even more acute.

In short, the shifting distribution of national manpower from the production of goods to the performance of services has broad implications for graduate education generally and for the issue of overproduction of doctorates specifically. On the one hand, the service sector increasingly needs persons with extensive education; larger numbers of people of various ages who desire employment must attain advanced degrees. On the other hand, the nature of the service sector is such that it can absorb a larger number of highly trained personnel, many of them with doctorates.

Still other socioeconomic changes have a direct bearing upon the future of higher education. Some of them have been under way for several decades; others are of more recent origin. The changing relation of work and leisure is one significant phenomenon. There is a marked trend toward increased leisure time for many sectors of the population, and this is likely to continue unless we return to a less industrialized type of society.

Three patterns with respect to increased leisure time are worthy of special attention. First is the trend toward a shorter work week (*16*). Although this movement may have slowed in recent years, there is still a tendency in this direction for subgroups in the society. Second is the effort to institutionalize a 4-day 40-hour week, or some variant thereof (*17*). Third is prolongation of the "youth culture," with its emphasis upon leisure, into the 20's, perhaps to age 30. This last-mentioned trend, combined with earlier retirement at a time when people are living longer, means that persons have more leisure time both when they are younger and when they are older.

This movement toward more leisure time raises serious questions about Cartter's use of the age group 18 to 21 as the basis for forecasting the size of enrollment in higher education in the decades to come. Cartter does not consider the possibility that increased leisure time will make it feasible for persons in the labor force to attend colleges and universities, and he ignores the possibility of utilizing education, notably higher education, as a means for improving the quality of life for many Americans. Although some members of American society question formal education as a panacea for social ills, it is nonetheless surprising that Cartter does not recognize the significant function of education in providing persons over age 21 with greater meaning in life. Higher education has more than an instrumental value in a highly affluent, industrialized society.

Cartter not only overlooks the growth of the service economy, the expansion of leisure, and the use of higher education as a means for improving the quality of life, but he fails to take full account of efforts to implement the ideal of equal opportunity to and through education. Although social scientists have documented the failures to achieve equal opportunity, they have also recognized the persistent demands on the part of many groups for greater egalitarianism through education.

Cartter does recognize that "there are potential students seeking access to career opportunities who, in good conscience, cannot be turned away" (*1*, p. 137). These include women, the underrepresented ethnic minorities, veterans from Vietnam, and so on. But even here he tends to conceive of these persons only as graduate students (*1*, p. 137): "the less rosy job prospects upon completion of a Ph.D. will discourage some potential entrants, but there is likely to be a several years' lag." Cartter minimizes the demands of these people for undergraduate education and the desire of women and disadvantaged persons over age 21 for education on a part-time or full-time basis. He does not recognize the increasing demands for college education for adults, not only within the disadvantaged minorities, but also within the advantaged majority. The open admissions policy of the City University of New York is one indicator of the ongoing pressures upon colleges and universities to deal effectively with society's commitment to the egalitarian ideal of educational opportunities (and even educational advancement) for all.

The "equality revolution" is occurring within the context of educators' attempts, as in the *Report on Higher Education* (*18*), to reevaluate the changing nature of a college education. Whereas the traditional system, to which Cartter implicitly subscribes, has been based upon the assumption that the college experience is preparation for adult life, the emerging view, and to some extent the emerging practice in higher education, is in the direction of education as a continuing experience for individuals of all ages. Such patterns as open admissions, the broadening scope and acceptability of part-time work, the extension of off-campus study projects, and the development of regional testing centers are just some of the changes that represent new ways of going to college. Still other new programs, based on experience and independent study, seem to be in the offing. With these changes, persons traditionally thought of as beyond the normal college age will likely constitute a sizable portion of student bodies in the foreseeable future, either as first-time students, students who have interrupted their education for various reasons, or as returning students who find additional work necessary or desirable. This development, in conjunction with related trends, will have, even in the face of such efforts as 3-year college programs, the effect of diminishing the proportion of 18- to 21-year-olds in the college population (*19*).

While no one of the aforementioned changes in the economy, in leisure time, or in higher education itself would necessarily affect the present imbalance between the supply and demand of doctorates, their cumulative effects could readily, and are likely to, negate Cartter's oversimplified thesis.

Methodologists have every reason to question the kind of study carried out by Cartter. One reason is that his projected changes, based primarily upon certain demographic data, occur within a broader sociocultural and institutional matrix. Although data on sociocultural patterns are often qualitative in nature, or supported indirectly by quantitative indicators, they are no less significant than those utilized by Cartter.

Implications

We agree with Cartter that American graduate education today is facing a crisis as a result of the decrease in the number of persons in the age group 18 to 21 and the marked increase in the number of Ph.D.'s. However, our prescription for resolving the impending crisis diverges markedly from Cartter's.

Essentially, he would restrict graduate programs, modify tenure and retirement policies for professors, and direct available resources to a limited number of universities. Yet, inasmuch as Cartter has failed to take into account major social changes already under way in American society, his suggested resolution of the impending educational crisis is likely to exacerbate rather than alleviate the problem.

Cartter does not come to terms with the nature of the service sector or with the related issue of converting the economy from a wartime to a peacetime footing. He calls for Americans to return to an era when there were more blue-collar than white-collar workers (the pre-Sputnik period). But if American society is to sustain a relatively high level of employment, a marked expansion rather than a leveling off of the service sector is required, and this expansion necessitates a concomitant growth in higher education, both on the undergraduate and graduate levels. Although any expansion of the service sector will require an expansion of vocational education, this cannot be at the expense of higher education—if for no other reason than that we can anticipate continued professionalization in many service occupations, notably those now listed in the paraprofessional category (*20*).

Cartter clearly fails to recognize the political dysfunctions of his rather elitist educational commitment. Any program to underwrite a set of national universities or national departments is at cross-purposes with the tendencies toward democratization and competition within American society (*21*), including efforts to equalize federal aid to the states. Although some form of stratification within higher education will most likely persist in the decades ahead, powerful political forces for greater egalitarianism in higher education are at work. If educators fail to take account of these political realities when they speak of creating national universities, they will only accentuate the current problems of legitimacy for higher education.

More generally, many advocates of higher education have been unaware of the growing tensions and disjunctures in the traditional alignment among the political, economic, and educational spheres. Educators have become a significant political force in American society. We are experiencing the emergence of an educational-industrial or an educational-service complex (*22*). This trend suggests that educators can play a positive, and not merely a passive, role in the construction of the future social order (*23*).

Admittedly there are structural constraints, including the taxpayer revolt, upon the choice of alternative futures for higher education. Nonetheless, the failure by educators to take a more active role in defining the future social order could, for instance, make a transition from a war-oriented to a peace-oriented economy more, rather than less, difficult (*24*). The choice among alternative futures for higher education and various interrelated social structures is not preordained (*25*). There exists a range of possibilities, and it is politically feasible for educators to play a role in creating a more viable and meaningful way of life. Such cannot be accomplished if we assume, as Cartter does, that the traditional relations among economics, politics, and education remain unchanged.

If higher education is to come to terms with changing social conditions—the growing service economy, the increased amount of leisure time, and so on—there must be a shift in the nature of graduate studies. Within the university, especially within the natural sciences, there must be a redefinition of the kinds of training and research that will be compatible with a service economy and extended adult education. The form of graduate education will have to diverge considerably from that in the pre-Sputnik as well as in the immediate post-Sputnik periods.

The orientation of higher education may especially need to diverge from what it has been in the post-Sputnik era. More attention must be given to alternative educational programs that come to terms with the emerging issue of quality of life—not only during youth, but throughout adulthood. The concept of national universities would foster a standardization of educational practices that is incompatible with the diversity and decentralization which seem to accompany the rise of an affluent service economy.

In this connection, it is unfortunate that Cartter has chosen to accept the traditional image of education as immutable. His assumptions concerning the ideal proportion of Ph.D.'s in colleges and an ideal student-teacher ratio of 20 to 1 mean that educators are locked into a structure that may not be sufficiently flexible to cope with drastically changing social conditions. Only through smaller classes may it be possible to initiate and sustain certain kinds of educational programs (*26*). Certainly, alternatives must be explored if higher education is to deal effectively with the issue of quality of life instead of emphasizing the training of persons to match specific occupations within the society.

In sum, Cartter's thesis of the overproduction of Ph.D.'s and his proposed response to this condition shift attention from the basic issues and problems in graduate education, which demand a reordering of national priorities, to issues that are solvable within the present political framework. Our thesis is that the problem Cartter has defined is one of political allocation of resources and is not one of too many people with too much education. It is a condition that leaders of higher education should aggressively counter. It is not a condition that we should rush to justify intellectually.

Another misplaced emphasis results from the complaints of Cartter, as well as others (*27*), about the appropriateness of the Ph.D. for teaching in 4-year or 2-year colleges. This argument, a most unusual one, suggests that holders of the Ph.D., most of whom are primarily teachers, are inadequate instructors for junior college students. If true, there may be problems with the nature of many Ph.D. programs it does not mean that students cannot profit from being taught by persons with doctorates. Cartter's analysis once again has shifted attention from the important task of evaluating and restructuring doctoral programs to that of accepting and legitimatizing the constraints placed upon graduate education.

Cartter's thesis deserves far more critical attention than it has received. We have sought to demonstrate that Cartter's inattention to major sociocultural changes now under way in American society and his traditional conception of

higher education will lead policy-makers to accept a definition of the situation that will aggravate current social issues rather than alleviate them. Cartter's projections, although carefully supported by a limited range of data, are predicated upon highly tenuous assumptions. His projections, if accepted uncritically, will have unfortunate political consequences for higher education and for the society at large.

References and Notes

1. A. M. Cartter, *Science* **172**, 132 (1971).
2. Our discussion is based upon Cartter's data and interpretations as set forth in (*1*). However, we have read his other recent writings: for example, *Educ. Rec.* **51**, 333 (Fall 1970); *Amer. Sci.* **50**, 178 (April 1971); *Amer. Econ. Rev.* **61**, 305 (May 1971).
3. D. Wolfle and C. V. Kidd, *Science* **173**, 784 (1971).
4. One dramatic action has been taken by the State of New York: "A one-year moratorium on the approval of new Ph.D. programs at all universities in the state was announced today by Ewald B. Nyquist, the State Education Commissioner" (M. A. Farber, *New York Times*, 25 September 1971, p. 1). In January 1972, the Texas Coordinating Board cited the overproduction of Ph.D.'s as one reason for failing to approve certain doctoral programs.
5. "Because of a poor job market for Ph.D. recipients and reductions in federal support for research and graduate education, the rapid growth of graduate-school enrollment over the past few years has slowed to almost a standstill this year" [P. W. Semas, *Chron. Higher Educ.* **6**, 1 (December 1971).]
6. At the annual convention of the American Sociological Association in 1971, a pessimistic appraisal of the job market was used as a basis for discussion of the future of Ph.D. programs and of the job market in sociology (K. Finsterbusch, "Current job market for new Ph.D.'s in sociology," mimeographed). Finsterbusch, a member of the association's staff in Washington, D.C., draws heavily upon Cartter's interpretations. Concern with the job market is also prevalent in some other associations. For example, the American Anthropological Association [*Newsletter* **12**, 3 (October 1971)], terms the viewpoint of Wolfle and Kidd (*3*) "must reading." The association has authorized a manpower study. In addition, articles in *American Mathematical Monthly* and the *Notices* of the American Mathematical Society in 1970 and 1971 discuss the job market in that field. [See, for example, R. D. Anderson, *Amer. Math. Mon.* **77**, 626 (June–July 197 → W. L. Duren, Jr., *ibid.*, p. 641; R. D. Anderson, W. L. Duren, Jr., J. W. Jewett, C. R. Phelps, G. S. Young, *Notices* **18**, 486 (April 1971); R. D. Anderson, *ibid.* **18**, 1021 (November 1971).] This society has also established a committee on employment and educational policy. So too, a committee on manpower needs in microbiology has been constituted.
7. U.S. Department of Labor, *Occupational Outlook Handbook* (Bureau of Labor Statistics, Bull. No. 1650 Government Printing Office, Washington, D.C., 1970).
8. V. R. Fuchs, *The Service Economy* (National Bureau of Economic Research, New York, 1968).
9. "Creating more jobs is an Administration priority, and yet, while all the numbers show a relative decline in manufacturing and goods-producing jobs, the planners continue to act as if the nation's economic future will be decided on the assembly lines" [M. Rappeport, *Washington Mon.* **3**, 52 (January 1972)].
10. U.S. Senate, Committee on Labor and Public Welfare, subcommittee on health, *Hearings on Health Manpower Legislation, 1971* (92nd Congr., 1st sess., 1971).
11. For data on the increase in state, local, and federal government employees during the period 1947 to 1969, see S. W. Stahl, *Mon. Rev.* [Federal Reserve Bank of Kansas City] (March 1970), p. 3.
12. We use the term "profession" in a rather broad sense, to encompass more than the traditional professions. A discussion of the issues involved in professionalization can be found in W. E. Moore, *The Professions: Roles and Rules* (Russell Sage Foundation, New York, 1970).
13. M. Arnold, *New York Times*, 10 October 1971, p. E-10.
14. Cartter does not recognize that even today there appears to be a sizable number of persons over 21 attending colleges and universities in the United States. See G. G. Parker, *The Enrollment Explosion* (School and Society Books, New York, 1971). Parker observes that in 1969–70 the enrollment of part-time students increased only slightly less than that of full-time students, and he assumes that part-time students are, on the whole, older than full-time students. That a large number of part-time students attend universities is also documented by G. H. Wade, *Fall Enrollment in Higher Education: 1970*, Department of Health, Education, and Welfare Publ. No. (OE) 72-23 (Government Printing Office, Washington, D.C., 1971). Actually, data indicate that the age range of undergraduates widened during the period 1940 to 1970 [Carnegie Commission on Higher Education, *New Students and New Places* (McGraw-Hill, New York, 1971), pp. 13–15].
15. The role of colleges and universities in keeping persons off the job market and thereby reducing unemployment is seldom discussed by spokespersons for higher education. Such a phenomenon has been mentioned by R. J. Kibbee, chancellor, the City University of New York (see excerpts from one of his addresses in the *New York Times*, 28 July 1971, p. 39).
16. J. Kreps, *Lifetime Allocation of Work and Leisure*, Social Security Administration research report No. 22 (Government Printing Office, Washington, D.C., 1968); G. H. Moore and J. N. Hedges, *Mon. Labor Rev.* (February 1971), p. 3, reprint 2714.
17. See, for example, R. Poor, Ed., *4 days, 40 hours* (Bursk and Poor, Cambridge, Mass., 1970). Numerous accounts in newspapers have suggested that this pattern is spreading, although there are questions about the extent of its diffusion.
18. Department of Health, Education, and Welfare, *Report on Higher Education* (Government Printing Office, Washington, D.C., 1971). This report is markedly different in tone than the work of Cartter and his colleagues. Those who drafted this report recognize the possibility that higher education can and should be revised in order to meet changing social conditions.
19. Cartter does not recognize that many students who begin college drop out and then return. This pattern also indicates that the age group 18 to 21 is an inadequate base for projecting future enrollments in higher education. For a brief summary of the data on college students who drop out and return, see J. W. Trent and L. L. Medsker, *Beyond High School* (Jossey-Bass, San Francisco, 1968), pp. 74–85.
20. The current government policy is to stress vocational training. See, for example, C. Bartlett, *Houston Chronicle*, 21 December 1971, Sect. 4, p. 6, and such mimeographed handouts of the U.S. Office of Education as "Career education" (Washington, D.C., 29 July 1971). In this literature there is no recognition of the basic shift in the occupational structure, the expansion of leisure time, and so on. The proponents of the present program assume that a lockstep system of education from first grade through college can effectively be developed. They do not even acknowledge the fact that among many college youths there is a growing uncertainty about the kind of occupation they should enter. D. Drew, in carrying out a study for the American Council on Education, notes that from 1966 to 1971 there was a significant rise, from 4.3 to 11.3 percent, in the number of students who were undecided about their futures (*Austin American*, 10 January 1972, p. 15).
21. See, for example, O. White, Jr., and G. Sjoberg, in *Politics in the Post-Welfare State*, M. D. Hancock and G. Sjoberg, Eds. (Columbia Univ. Press, New York, 1972), pp. 11–35.
22. The potentialities for an education lobby were symbolized by the coalition of about 80 groups that emerged in 1970 (D. E. Rosenbaum, *New York Times*, 26 January 1970, p. 1). For a general discussion of the potential power of higher education, see J. E. Lord and R. D. Spero, *J. Higher Educ.* **41**, 116 (February 1970). Also, "It can be argued that what is emerging in the professional-managerial-technical group is a new class with the numbers, knowledge, and money required to assert itself and dominate society" [F. G. Dutton, *Changing Sources of Power* (McGraw-Hill, New York, 1971), p. 152]. Although this group is not homogeneous and thus will not agree on many issues, we should not, as Cartter does, ignore the shifting nature of the political structure in the United States. The current reaction against higher education is a reversible social phenomenon.
23. Efforts by universities to redefine their goals and to encompass a broader spectrum of the populace are illustrated by the *Report of the President's Committee on the Future University of Massachusetts* (Office of the President, Boston, Mass., 1971). One of the proposals in this report is that the University of Massachusetts actively recruit older students p. 32). The tendency of colleges and universities to broaden their horizons has been noted, for example, by F. Bowles, *Minerva* **5**, 227 (Winter 1967).
24. Defense spending is apparently once more on the rise: see First National City Bank [New York], *Mon. Econ. Lett.* (January 1972), p. 11. This is occurring at a time when education, including higher education, finds it difficult to make ends meet (*New York Times*, annual education review, Sect. E, 10 January 1972). The articles in the *Times* indicate that educators have accepted their relative deprivation at a time when military spending may be increasing.
25. Although some of the Carnegie Commission's reports reflect an acceptance of current educational arrangements, others indicate that changes should and can be instituted. See, for example, Carnegie Commission on Higher Education, *Less Time, More Options* (McGraw-Hill, New York, 1971).
26. On the basis of research with the Wesley Community Agency in San Antonio, Texas, during the 1960's, it became quite apparent to G.S. that, if a social order is to institute basic changes in the values and beliefs of persons who function outside the societal mainstream, vast amounts of time, effort, and money will have to be expended. One reason for the failure of most action programs, including efforts to educate the disadvantaged, is that officials assume that changes can be wrought quickly. This assumption is not in keeping with the available data.
27. J. J. Connolly, *Educ. Rev.* **52**, 267 (Summer 1971).