DOCUMENT RESUME

ED 161 352 HE 010 580

AUTHOR Roemer, Robert E.; Schnitz, James E.
TITLE The Effects of a Dual Labor Market in Higher Education. AIR Forum Paper 1978.
PUB DATE 78
NOTE 24p.; Paper presented at the annual Association for Institutional Research Forum (18th, Houston, Texas, May 21-25, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Academic Rank (Professional); Career Ladders; *Career Opportunities; *College Faculty; Demand Occupations; Doctoral Degrees; Doctoral Programs; Graduate Study; *Higher Education; Institutional Research; *Labor Market; Postsecondary Education As a Field of Study; Status; Teacher Placement; *Tenure; Unions
IDENTIFIERS Teacher Retention

ABSTRACT

The nature of a dual labor market in higher education consisting of positions that may lead to tenure and those that do not, is identified. Evidence of recent increases in the proportion of non-tenure track positions is described, this development is interpreted, and implications for higher education are discussed. The paper proceeds in three sections. First, the declining demand for new doctorates in higher education since 1967 and the continuing production of new doctorates into the mid-1970's are detailed. Second, ways in which academic labor market conditions have increasingly led institutions to hire new faculty for non-tenure track positions are described. Finally, dual labor market theory is employed to interpret this development as the creation of primary and secondary tracks in the academic labor market and to assess the qualitative impact of this development on institutions of higher learning. Using the analog of the nineteenth century German university, it is concluded that there is a point at which the proportion of non-tenure track positions in an institution will have a deleterious impact on the scholarly functions of the university. (Author/LBH)

THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

Robert H. Fenske
Arizona State University
(Editor, AIR Forum Publications)

The Effects of a Dual Labor Market in Higher Education

Robert E. Roemer
Assistant Professor of Educational Foundations
The University of Texas at San Antonio
Division of Education
San Antonio, Texas 78285
(512) 691-4412

James E. Schnitz
Assistant Professor of Social Studies Education
The University of Texas at San Antonio
Division of Education
San Antonio, Texas 78285
(512) 691-4412

Abstract

This study identifies the nature of a dual labor market in higher education consisting of positions that may lead to tenure and those that do not. The authors describe evidence of recent increases in the proportion of non-tenure track positions, interpret this development, and assess the implications for higher education. The paper proceeds in three sections. First, the authors detail the declining demand for new doctorates in higher education since 1967 and the continuing production of new doctorates into the mid-1970's. Second, they describe how academic labor market conditions have increasingly led institutions to hire new faculty for non-tenure track positions. Finally, they employ dual labor market theory to interpret this development as the creation of primary and secondary tracks in the academic labor market and to assess the qualitative impact of this development on institutions of higher learning. Using the analog of the nineteenth century German university, they conclude that there is a point at which the proportion of non-tenure track positions in an institution will have a deleterious impact on the scholarly functions of the university.

In the past decade the employment structure in higher education has been shifting. Ever since the widespread establishment of tenure, faculty have been divisible into two groups: those who hold tenure and those who do not. It is also possible to locate among faculty in the latter group a second division: those whose position provides access to tenure and those whose position does not. This latter distinction between tenure track and non-tenure track positions has become a significant category for analyzing the academic labor market. By examining recent shifts in the aggregate academic labor market and in the proportion of non-tenure track positions, it is possible to locate the emergence of a dual labor market in higher education and to assess the implications of this phenomenon for higher education.

The Academic Labor Market

The experience of the Division of Education at the University of Texas at San Antonio (UTSA) illustrates the nature of the market situation. When UTSA first opened its doors to undergraduates as well as graduates in the fall of 1975, the Division of Education had a faculty of thirty-three, all with doctorates and all holding tenure track positions. One year later, in expectation of increasing enrollments, the Division added ten faculty members, two on tenure track and eight on non-tenure track as visiting assistant professors. By December, 1976, in spite of earlier verbal assurances from a lower echelon administrator that prospects for reappointment, including some switches to tenure track slots, were favorable, all eight visiting assistant professors had received notice that the anticipated rise in enrollments had not materialized and that they would not be retained for the 1977-78 academic year. Four faculty members holding tenure track positions left the Division during 1976-77, one for retirement and three for different institutions. For

the fall of 1977, the Division once again hired faculty to fill ten full time equivalent (FTE) positions. Three of these positions were placed at the tenure track level, with two of the three being filled by faculty released at the end of the preceding academic year. Of the remaining seven FTE positions, all at the non-tenure track level, one was filled by a visiting assistant rehired from the preceding academic year, while the other six slots were filled from the available pool of academic labor within the local community, including some part-time faculty and some faculty holding a master's as the highest earned degree.

A three-year period is hardly sufficient to establish an historical trend; yet, if events at other institutions of higher education parallel those at UTSA, then the implications for academia are sobering. Not only has the Division of Education reduced the percentage of tenure track faculty assigned to instructional duties from 100% to approximately 77% in just three years, but in the past two years 75% of its new faculty has been hired for non-tenure track slots. As of spring semester, 1978, the University had a 70:30 tenure to non-tenure ratio. Flexibility of University options seems to be the salient characteristic of current hiring practices; and the "unique" skills of the Ph. D. seem to command less and less response on the job market as the number of degree-qualified candidates increases relative to the number of positions open.

Determining the exact nature of the current market is a difficult task. To some degree our qualitative knowledge of the disparity between the jobs available and the number of applicants is more complete and accurate than the statistical descriptions that can be generated. We are all acquainted with the humiliating and discouraging scenes at meetings of professional societies where there is a mad pursuit after the few available positions

(see Coughlin, 1977). This has become part of the lore which prepares a graduate student for entry into the academic labor market. But two major obstacles hamper the effort to make this lore statistically precise. First, the various studies available on the academic labor market, issued both by professional organizations and governmental agencies, use differing definitions for categorizing data. Even within the same series of reports changes in categorical definitions and the creations of new categories obstructs longitudinal comparisons. The National Science Foundation, for example, began in 1974 to use a separate category for faculty employed in two-year colleges. However, since that had not been done in previous years, the earlier statistics actually inflate the number of positions that would typically be part of a new Ph. D.'s preferred job market. Second, data from earlier reports undergo changes in subsequent reports. Looking again at the National Science Foundation, that agency reported in 1975 that 297,103 scientists and engineers were employed in higher education. In the 1976 report, the figure was revised downward to 280,635, a change of 5.6% (Annual Reports, 1975-77; Cartter, 1976, pp. 111-115).

All of this notwithstanding, a generally accurate description of the changed labor market in higher education can be developed. Between 1957 and 1967, higher education was in a growth period. During that decade, enrollments increased at an average rate of 7.75% a year, while funding for research grew in real dollars at an average of 10% a year. Under these circumstances, the demand for new doctorates rose rapidly, easily outstripping supply. But, beginning in 1967, the growth rate declined. Enrollments increased at a moderate rate of about 4% annually, while funded research remained almost constant in real dollars. Yet the production of new Ph. D.'s continued to grow in response to the earlier demand. From 1967 to 1973 the

doctorates awarded grew by 70%, while from 1968 to 1974 new graduate school enrollments grew by 34%. The supply of Ph. D.'s was now adequate to a demand which no longer existed (Cartter, 1976, pp. 20-21; Trivett, 1977, pp. 16-17).

Table 1 illustrates the nature of supply and demand disparities in the academic labor market. The table presents the total demand for professional employment of scientists and engineers at institutions of higher education which offer a bachelor of science degree or above. "Scientist" is a broadly interpreted category which includes all social scientists and historians and excludes only those in the humanities, business, accounting, the health professions, and education. Clearly, academic supply and demand are not in balance. Although there was still a shortage of doctorates in 1967, an oversupply was established by 1969 and became quite pronounced by 1973. Indeed, Table 1 understates the degree of excess supply. First, not all positions for scientists and engineers were filled at the doctoral level. Hence, the supply of Ph. D.'s for the available positions may be greater than that reflected in the table. Second, the replacement rate was assumed to be 2%, but the actual replacement rate was slightly less, effectively exaggerating demand (Cartter, 1976, p. 121). Third, for a new Ph. D. who ambitioned going into higher education as a teacher rather than as a researcher or administrator, Table 1 is entirely too sanguine about the possibilities for employment. A more realistic description of placement opportunities can be obtained by focusing on the demand for doctoral scientists and engineers in instructional positions only. Looking only at 1973 as an example, and taking into account actual replacement rates and job growth rates, nearly eight times as many Ph. D.'s were produced as could be absorbed in the market for instructional purposes in higher education (National Science Foundation, 1975, Table B-22; Cartter, 1976 p. 121).

Table 1

Supply and Demand for Scientists and Engineers in Higher Education, 1967-1975

Year	Full-time Scientists and Engineers[a]	Demand[b]	Doctorates[c]	Ratio Doctorates/ Demand
1967	154,522	29,311	23,083	.79
1969	167,743	19,534	28,677	1.47
1971	185,559	24,704	35,912	1.45
1973	192,103	14,032	39,867	2.84
1975	199,345	14,960	39,223	2.62

[a]Includes scientists and engineers employed full-time at universities and colleges that offer degrees in sciences or engineering. Excludes two-year institutions and institutions that offer no degree in science and engineering. Source: Manpower Resources for Scientific Activities at Universities and Colleges, January, 1976, National Science Foundation (Washington, D.C.: U.S. Government Printing Office, 1976), Table B-4.

[b]Includes the increase in positions from the previous year listed plus an estimate of replacement needs due to death, retirement, or outflow. This is assumed to be 2% of the total number of positions.

[c]Doctorates in Science and Engineering. Source: Projections of Education Statistics to 1985-86, National Center for Educational Statistics, (U.S. Government Printing Office, Washington, D.C., 1977), Table 20.

These market conditions are clearly reflected in the job expectations of graduate students. Trivett (1977) reported that in 1968 only 3.1% of new Ph. D.'s in economics were without specific employment prospects when they received their degrees. By 1973 the figure had doubled to 6.4%. The prospects were even worse in other fields: the percentage of new chemistry Ph. D.'s without specific employment prospects almost quadrupled over the same period, while the percentage of new English Ph. D.'s without specific employment prospects increased five and one-half times, reaching a high of 21.5% (p. 18). Professional associations also reported the frustrations of graduate students seeking employment. The American Historical Association (AHA) indicated in 1973 that only 17% of new Ph. D.'s and 13.8% of doctoral candidates had succeeded in finding placements for the coming fall (American Historical Association, 1973, p. 11). The Modern Language Association (MLA) reported in 1973 that only 52.2% of new Ph. D.'s in English had found employment, while in 1975 a meagre 22% of both new Ph. D.'s and Ph. D.'s from previous years who had failed to obtain academic appointments managed to find regular, tenure-accruing positions (Modern Language Association of America, 1975, pp. 2-4). Mathematics, too, experienced similar market weaknesses, including an unemployment rate for new Ph. D.'s in 1973 of 11.2% and in 1975 of 15.8% (Notices of the American Mathematical Society, Annual Survey of New Doctorates). Yet, as late as 1967, the American Council on Education published a report (Brown, The Mobile Professors) identifying a shortage of qualified faculty in higher education and recommending, among other actions, that institutions make up faculty shortages by hiring non-Ph. D.'s where only Ph. D.'s had previously been acceptable.

The sharp turnaround in the academic labor market since 1967 is inherent in the acceleration principle used by economists as part of business cycle

theory. This principle holds that the stock of capital, in this instance professors, depends on the level of income or production, in this instance student enrollments. Additions to the stock of capital occur only when income or production increases. Hence, prosperity may end not because income or production has decreased, but because the rate of growth of income or production has slowed or completely stabilized. When enrollments began to increase in 1957, net investment in new professors actually increased at an accelerated rate greater than the 7.75% enrollment growth rate. When the growth rate declined beginning in 1967, the demand for net investment in new professors also declined at an accelerated rate. Consider the years 1971 and 1973 on Table 1. Between those two years the number of full-time scientists and engineers employed in higher education grew 3.5%. But that growth was 7% smaller than the growth in the previous biennium. At a result, the demand for new faculty fell by more than 43%.

Tenure Track and Non-tenure Track Appointments

The academic labor market problem was recognized as early as 1972 when the Carnegie Commission on Higher Education issued a report and recommendations titled The More Effective Use of Resources: An Imperative for Higher Education. In the body of the document, the Commission noted the declining growth rate of enrollments and its concomitant impact on demand for new Ph. D.'s and recommended increased institutional flexibility in meeting student needs when the hiring of new professors became economically infeasible (pp. 111-117). But the problem of creating flexibility was complicated by the increase in the proportion of tenured faculty. Kemerer and Baldridge (1975) reported 47% of all college and university faculty members on tenure in 1969 (p. 46), while the National Center for Educational Statistics (1977) reported 60% on tenure by the 1976-77 academic year. The Carnegie Commission (1973, p. 2) stated

that given current tenuring trends, 80% of all faculty would be on tenure by 1985. If student enrollments became constant in the aggregate, but not in specific programs, then the tenuring-in process could impose severe restrictions on the responsiveness of institutions to student demand for specific courses and programs.

As the Carnegie Commission (1972) points out, it would be desirable to reallocate faculty resources at will, requiring, for instance, a professor of anthropology to teach sociology courses if anthropology enrollments declined below a supportable funding level. However, as Brown (1975, pp. 63-66) suggested, the very nature of the professoriate calls for specialized knowledge, creating limited substitutability both within and among disciplines. Shifting faculty out of under-enrolled areas and into over-enrolled areas might prove quite impossible if the under-enrolled specialty is physics and the over-enrolled specialty is American history. If the underemployed faculty member is on tenure, though, the institution may be hampered in attempting to employ fully its academic resources in a period of tight budgetary constraints.

Several institutional responses were suggested by the Carnegie Commission, such as finding non-teaching assignments for underemployed faculty or even attempting to relocate faculty members at other institutions. However, the Commission also felt that

> during the first half of the 1970's when enrollment will continue to increase at an appreciable rate, colleges and universities may want to consider meeting needs for increased faculty, at least to some degree, by appointing part-time faculty members and other types of temporary faculty personnel. Thus they will be able to meet the stationary enrollment period of the 1980's with relatively fewer tenured faculty than if they create new career positions in the coming years (1972, p. 113).

Additional recommendations included recapturing vacated positions for central reassignment and encouraging early retirement. It is the recommended non-tenure track hiring practice, though, which carries the greatest implication for the current academic labor market.

Have institutions of higher education, either through design or through market mechanism pressures, implemented the Carnegie Commission's suggestion to hire non-tenure track faculty? The UTSA experience cited above provides some subjective evidence that they may have. Some quantitative evidence also exists, and although the data are not conclusive, they are strongly suggestive that institutions of higher education have, indeed, decided to create flexibility in resource allocation by hiring non-tenure track faculty.

Beginning in 1975, the American Political Science Association (APSA) added the category of temporary position to its annual report on placements of political scientists, a category meant to include all positions that did not lead to consideration for tenure. Fully 30% of the academic positions filled by political scientists in 1975 were part of this new category; in 1976 the figure rose slightly to 32%; and in 1977 it fell slightly to 29% (Mann, 1978, p. 28). The AHA reported 37.4% of all placements for 1976-77 as temporary (American Historical Association Newsletter, 1978, p. 2), while the Association of Departments of English indicated a 30.3% non-tenure track appointment rate for the same academic year (ADE Bulletin, 1978, p. 1). The American Mathematical Society reported a dramatic rise in faculty mobility between the academic years 1974-75 and 1975-76, locating an increase of 50% in the number of doctorates and non-doctorates changing academic positions. As the authors of the report note, "Presumably this fact reflects the large number of temporary positions." (Anderson and Fleming, 1977, p. 101).

It is instructive to compare these reports of the current state of the academic labor market to Brown's perception of the market in 1967 (op. cit.). First, Brown correctly viewed the academic labor market not as a single market, but as many markets differentiated on numerous characteristics, including rank, salary, academic specialty, the type of institution doing the hiring, and geographic location. But at no time did Brown indicate a need to differentiate the job market along a tenure track/non-tenure track dimension. The very fact that professional associations are beginning to keep records on temporary employment in higher education indicates not only a shift in the amount of demand for academic labor, but also a shift in the types of appointments offered by institutions. Second, although Brown does not differentiate between tenure track and non-tenure track positions, he does identify 19% of all new Ph. D.'s from his sample as holding one-year appointments (p. 44). He attributes this figure to a shortage of qualified personnel and to "a noticeable tendency to be less particular as the days approach September" (p. 19) rather than to a reluctance to commit institutional resources to a tenure track position. Contrast Brown's findings with the 30% non-tenure track employment figure beginning to appear in the literature, and it seems fair to infer that a major shift has occurred in the academic labor market.

The Dual Labor Market System

The existence of tenure and non-tenure track positions in higher education suggests the applicability of dual labor market theory to the academic labor situation. The theory of a dual labor market was used by some economists in the mid-sixties and early seventies to explain the inability of some social groups to exit from occupational levels associated with low socio-economic status (Piore, 1969; Piore, 1970; Piore, 1971; Baron and Hymer, 1971;

Doeringer and Piore, 1971; Gordon, 1972; Harrison, 1972; Reich, Gordon and Edwards, 1972; and Hendon and Shanahan, 1976). The theory was developed as a challenge to the dominant assumption of some anti-poverty programs that if the human capital of the poor was increased, the poor would be able to climb the occupational ladder. Dual labor market theory held this outcome to be precluded by identifying a systematic stratification of the labor market into primary and secondary sectors. The primary labor market is characterized by high wages, good working conditions, employment stability and job security, due process in the administration of work rules, and opportunity for advancement. The secondary labor market is characterized by low wages, poor working conditions, considerable variability in employment stability, harsh and often arbitrary discipline, and little opportunity for advancement (Piore, 1971, p. 91). The most salient distinction between the two markets is the discrepancy in job stability and security. The primary labor market offers stable employment in jobs that are connected to both a wage and a promotional ladder. These advantages are absent in the secondary labor market.

Though the fit is not perfect, present employment opportunities in higher education correspond in several ways to a dual labor market. Non-tenure track positions, when compared to tenure track positions, display certain secondary labor market characteristics. First, these positions provide unstable employment as part of their structural nature. Such appointments are either terminated at a specified date or are renewable contingent on factors beyond the control of the employer, such as enrollments or philanthropic benificence. Second, although harsh and arbitrary treatment is not immediately apparent in non-tenure track positions, the occasion for such treatment is provided when no justification is needed for termination. Third, poor working conditions may prevail if non-tenure track appointments lead to more onerous instructional

loads, less time for research or less correspondence between instructional assignments and research interests than do tenure track appointments. Fourth, the very fact that the positions are labeled non-tenure track precludes advancement. Promotion and tenure can be obtained only by leaving the non-tenure track position, not by progressing within the job itself. Finally, and perhaps most disturbing, once a part of the secondary non-tenure track market, it becomes increasingly difficulty for a faculty member to find primary labor market employment. Both achieved and ascribed characteristics can be used to allocate individuals on a permanent basis to one of the labor markets. The achieved characteristics here are those forms of worker behavior and personality traits developed through the interaction of worker and job that serve to socialize the worker into one of the labor markets and simultaneously to prevent his entry into a labor market that demands a different type of socialization (Gordon, 1972, p. 50). The non-tenure track professor may find the assigned instructional load onerous to the point of inhibiting research; and the absence of publications on a vita may prohibit mobility into a tenure track position.

If the employment situation in higher education is viewed as a dual labor market, then certain implications can be examined. Some degree of faculty mobility has always been present, and, up to a certain point, the excellence of neither the institution nor the professor's work demands stability of employment. With the exception of research that demands specialized facilities, the work of teaching and research can be accomplished nearly as well by temporary as by permanent employees. If some increased instability of employment in higher education does not seriously hamper the work of the institution, then the reputational cost of increasing the proportion of non-tenure track positions remains low. The advantages are high. The administration

increases its budgetary flexibility, faculty on tenure track who do not yet have tenure improve their position within the institution by the creation of a lower status, non-competitive faculty group, and faculty on tenure may receive greater salary increases due to the low wages paid to non-tenure track faculty. Conditions argue for an expansion of the secondary labor market.

Such an expansion would not be without consequences. Observe the German university of the nineteenth century, which also used a dual labor market system. The teaching staff of the German university at that time was divided into two classes: the full professors, who had all rights of full membership in the university and received an income from the state; and the Privatdozenten, who were not on the payroll of the university and had no university governance rights, but who did have the right to lecture and receive fees from students who attended their lectures. The working conditions for the two groups were drastically different; the full professors held secure, lucrative positions, while the Privatdozenten, with only minimal financial support, faced a long period---nine or ten years was not unusual---waiting for an appointment to a chair (Ringer, 1969, p. 54). Yet an appointment might never come, since the number of Privatdozenten was far greater than the number of chairs available. In short, the Privatdozenten were members of the proletariat: they were more or less without rights; they were under great pressure to do good work as scientists and teachers; they had no scarcity value since they were numerous relative to the demand for their services; and they had no control over their own governance since the university was run by the full professors (Busch, 1963, p. 327).

This dual labor market eventually contributed to the decline of the German university from the intellectual hegemony it held in the middle of the

nineteenth century. Over the years the secondary market was expanded at a far greater rate than professorial chairs, and the Privatdozenten were given increased responsibilities for teaching. The unwillingness of the full professors to enlarge their ranks, a power inherent in their governance structure, stemmed from a desire to avoid diluting their status. The ministries of education were satisfied with the self-imposed restriction on professorial chairs, since increasing the number of full professors would have meant increasing the cost of instruction. But this decision sapped the vitality of the German university. Since every major subject area was represented by one full professor, the ranks of full professors could be expanded only if new disciplines were recognized or if old disciplines were differentiated and expanded. Rather than take advantage of new intellectual opportunities, though, the full professors preferred to protect their status by restricting their numbers. As a result, intellectual innovation, especially in the fields of applied and social sciences, took place outside of the university as new disciplines failed to receive support from a professoriate more interested in maintaining power and status than in the cultivation of new knowledge (Ben-David, 1971, pp. 108-138).

In contrast, the structure of American institutions of higher education has made expansion and differentiation of disciplines advantageous to the academician. Organized by departments rather than by chairs, faculty have achieved increased power and status by expanding their departments and adding to their ranks through differentiating subspecialties. In fact, institutional importance is placed on this process since new features in the intellectual landscape can be spotted from a variety of disciplinary perspectives. Under this arrangement, academic expansion serves the interests of the faculty.

However, the creation of a dual labor market in higher education may

generate some disadvantages for tenure track faculty in academic growth. If a dual labor market establishes substantial status differentials between faculty in the two market tracks, then the creation of new academic fields, by increasing the number of tenure track faculty, would decrease the status of tenure. The effort to gain academic recognition for intellectual innovation, a contributing factor to the growth of American higher education, could be deflected by internal conflicts over status, power, position, and security between the two tracks. Thus, for American higher education, an adjustment in the labor market which would alter the interest in growth may be a revolutionary, and at the same time retrogressive, development.

Increasing the proportion of non-tenure track positions adds to the status of tenure track positions; the more scarce tenure track positions are, the more enviable they become and the more competition for them becomes intensified if the pool of applicants remains large. Since both employers and the incumbents of tenure track positions have interests that are served by limiting the growth of tenure track positions, in the creation of a dual labor market a countervailing force to continued academic growth and development has been introduced into the university. The steady growth of collective bargaining units on campus from 11 in 1966 to 430 in 1975 (Kemerer and Baldridge, 1975, p. 1) may be indicative of this situation, corresponding closely to the period of declining enrollments during which the dual labor market was created. As Ladd and Lipset (1973) observed:

> the rapid spread of unionization has pressed to reduce meritocracy even further as a basis for differentiation within the professoriate itself. Organizations of academics oppose merit increases and seek to reduce the ability of the universities to emphasize competitive judgments about scholarly excellence as a basis for granting or refusing tenure.

> It may be argued that faculty unionization is part of an effort by the mass of academe to lessen the domination of a relatively small group of distinguished scholars.... A combination of factors...have given academics who are less privileged and less involved in research the opportunity to challenge the main direction of much of higher education (p. 104).

If the German university experience holds any validity for the contemporary situation, then developments in the dual labor market may impact significantly on the future eminence of the American university.

References

ADE Bulletin. February, 1978, No. 56.

American Association of University Professors Committee Z. No Progress This Year: Report on the Economic Status of the Profession, 1976-77. Washington, D.C.: The Association, 1977.

American Historical Association. AHA Newsletter. March, 1978, 16, 2.

American Historical Association. Professional Register. May, 1973, 2, 11.

Anderson, R. D., & Fleming, W. H. Fall, 1976 Part of the Survey of Four-Year Colleges and Universities. Notices of the American Mathematical Society, February, 1977, 24.

American Mathematical Society. Notices of the American Mathematical Society, December, 1973, 367-371.

Astin, Helen S. Employment Prospects for Graduates with Advanced Degrees. UCLA Educator, Spring, 1977, 19, 32-40.

Baron, Harold M., & Hymer, Bennett. The Dynamics of the Dual Labor Market. In Problems in Political Economy. 94-101.

Ben-David, Joseph. The Scientist's Role in Society: A Comparative Study. Englewood Cliffs, Prentice-Hall, 1971.

Busch, Alexander. The Vicissitudes of the Privatdozent: Breakdown and Adaptation in the Recruitment of the German University Teacher. Minerva, Spring, 1963, I.

Carnegie Commission on Higher Education. Governance of Higher Education. New York: McGraw-Hill Book Company, 1973.

Carnegie Commission on Higher Education. The More Effective Use of Resources. New York: McGraw-Hill Book Company, 1972.

Cartter, Allan M. Ph. D.'s and the Academic Labor Market. New York: McGraw-Hill Book Company, 1976.

Christopherson, Derman. The University at Work. London: SCM Press Ltd, 1973.

Commission on Academic Tenure in Higher Education. Faculty Tenure. San Francisco: Jossey-Bass Publishers, 1973.

Coughlin, Ellen K. Assigning the Blame for the Bleak Job Market. Chronicle of Higher Education, January 10, 1977, 13.

Doeringer, Peter B., & Piore, Michael J. Internal Labor Markets and Manpower Analysis. Lexington: D. C. Heath, 1971.

Flexner, Abraham. Universities: American, English, German. New York: Oxford University Press, 1930.

Gordon, David M. Theories of Poverty and Underemployment. Lexington: D. C. Heath, 1972.

Harrison, Bennet. Education, Training, and the Urban Ghetto. Baltimore: The Johns Hopkins Press, 1972.

Hughes, Clarence R., Underbrink, Robert L., & Gordon, Charles O. Collective Negotiations in Higher Education. Carlinville, Illinois: Blackburn College Press, 1973.

Joughin, Louis. Academic Freedom and Tenure. Madison: The University of Wisconsin Press, 1969.

Kemerer, Frank R., & Baldridge, J. Victor. Unions on Campus. San Francisco: Jossey-Bass Publishers, 1975.

Ladd, Everett Carll, Jr., & Lipset, Seymour Martin. Professors, Unions, and American Higher Education. Washington, D. C.: American Enterprise Institute for Public Policy Research, 1973.

Mann, Thomas E. Placement of Political Scientists in 1976. PS, Fall, 1976, 412-414.

Mann, Thomas E. Placement of Political Scientists in 1977. PS, Winter, 1978, 11.

Modern Language Association of America. A Guide for Job Candidates and Department Chairmen in English and Foreign Languages. New York: 1975, 2-4.

Modern Language Association of America. 1973 JIL Survey Report. New York: 1973, 1-4.

National Center for Educational Statistics. Number of Employees in Institutions of Higher Education, Fall, 1972. Washington, D. C.: U. S. Government Printing Office, 1976.

National Center for Educational Statistics. Projections of Education Statistics to 1985-86. Washington, D. C.: U. S. Government Printing Office, 1977.

National Center for Educational Statistics. Salaries, Tenure, and Fringe Benefits. Washington, D. C.: U. S. Government Printing Office, annual reports.

National Science Foundation. Characteristics of Doctoral Scientists and Engineers in the United States, 1973. Washington, D. C.: U. S. Government Printing Office, 1975.

Piore, Michael J. The Dual Labor Market: Theory and Implications. In Gordon, David M. (Ed.), Problems in Political Economy: An Urban Perspective. Lexington, D. C. Heath, 1971, 90-94.

Piore, Michael J. Jobs and Training. In Beer, Samuel H., & Barringer, Richard E. (Eds.), The State and the Poor. Cambridge: Winthrop Publishers, 1970, 53-83.

Piore, Michael J. On-the-job Training in the Dual Labor Market. In Weber, Arnold R. (Ed.), Public-Private Manpower Policies. Madison: Industrial Relations Research Association, 1969, 101-132.

Reich, Michael, Gordon, David M., & Edwards, Richard C. A Theory of Labor Market Segmentation. In Somers, Gerald G. (Ed.), Proceedings of the Twenty-fifth Anniversary Meeting. Toronto: Industrial Relations Research Association, 1972, 269-276.

Ringer, Fritz K. The Decline of the German Mandarins: The German Academic Community, 1890-1933. Cambridge: Harvard University Press, 1969.

Siffin, William J. Portents and Prospects: Graduate Study and the Profession. PS, Winter, 1977, 10, 10.

Smith, Bardwell L., et. al. The Tenure Debate. San Francisco: Jossey-Bass Inc., Publishers, 1973.

Trivett, David A. Graduate Education in the 70's. ERIC/Higher Education Research Report No. 7, Washington, D. C.: Association for Higher Education, 1977.

Williams, Gareth, Blackstone, Tessa, & Metcalf, David. The Academic Labour Market. Amsterdam: Elsevier Scientific Publishing Company, 1974.