INTELLECTUAL COMPETENCE AND THE CIRCULATION OF ELITES: THE CRISIS OF THE LATE TWENTIETH CENTURY

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FORWARD

Within the broader framework of the IIASA project "Comparative Analysis of Economic Structure and Growth" a series of studies concerned with contemporary labor market developments in advanced economies and of labor force consequences of and implications for structural economic change has been undertaken. These studies are motivated especially by the observation that, despite significant differences in many dimensions, advanced economies confront a number of similar realities. Perhaps one of the most fundamental of these common realities is that, almost without exception, these economies have entered or are entering periods of very low rates of labor force growth. Especially in light of the preceding period of relatively rapid growth, this transition to lower growth creates the possibility of major disequilibria. The present paper provides an overview of postwar labor market developments and of future prospects. Subsequent papers will provide more detailed analyses of particular facets of these developments and prospects.

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PREFACE

This paper constitutes a draft, introductory chapter of a planned monograph on labor market developments in advanced economies in the last half of the Twentieth Century. As such, it provides only an interpretive overview of developments in a highly stylized manner. A number of crucial arguments are only suggested or briefly outlined, only limited evidence is presented or referenced, and no attempt is made to "prove" important hypotheses. In particular, this general portrayal will not apply equally to developments in all countries, and even when the general characterization applies, differences in intensity and timing may well be significant. These nuances and qualifications will be more fully developed in the detailed chapters of the monograph.

The conceptual origins of this analysis deserve at least brief reference. Vilfredo Pareto's name, clearly, is securely enshrined in contemporary neoclassical economics. However, since first reading those works of Pareto's available in English two decades ago, I have felt that, notwithstanding the significance of "Pareto optimality," coequal prominence should be awarded to the Paretian concept of the "circulation of elites." Moreover, although Paretian economics is rarely considered to be related in any functional way to Joseph Schumpeter's economic dynamics, and especially to the Schumpeterian concept of "creative destruction," I immediately felt that the two in fact were concerned with closely related facets of the same process. While that relationship is only suggested in this paper, it provided the conceptual core to the formulation developed here. The forthcoming monograph will develop the relationship between "creative destruction" and the "circulation of elites" more explicitly.

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My appreciation of the significant similarities which I perceive in developments in both East and West originated at a February 1983 conference on "Higher Education and Employment in the USSR and the Federal Republic of Germany," and I am particularly indebted to Ulrich Teichler, director of the Wissenschaftliches Zentrum für Berufs- und Hochschulforschung of the Gesamthochschule Kassel, sponsor (with the International Institute for Educational Planning, UNESCO, Paris) of the conference, who made possible my attendance. The appreciation of East-West similarities was reinforced in the course of a December 1983 Task Force Meeting on Strategic and Long-Term Planning in Innovation Management, held in Budapest, Hungary, and cosponsored by the IIASA project on innovation management, the Hungarian Committee for Applied Systems Analysis and the Ganz Electric Works, and I must acknowledge my appreciation to Vadim Goncharov and Tibor Asboth for their invitation to this meeting.

My earliest thinking along the lines developed in this paper benefited from the encouragement and criticism of Dietrich Goldschmidt of the Max Planck Institut für Bildungsforschung, Berlin. Further stimulus was provided by Adair L. Waldenberg over a decade of close association. W. Lewis Hyde and the late Derek de Solla Price provided a constant source of invaluable advice and criticism, influencing my thinking in ways that even I do not fully appreciate.

The development and refinement of this analysis has benefited greatly from conversations with a number of IIASA colleages, especially Wolfgang Schöpp, Marian Lescinsky, Anatoli Smyshlyaev, Ernö Zalai and John Tilton. IIASA may well be unique in providing, simultaneously, access to the breadth of experience necessary to provisionally test hypotheses of the type developed here and the freedom to pursue such exploratory analyses.

S.P.D.

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In virtually all societies positions occupied by individuals differ in the authority and responsibility exercised and in rewards received. Ranked according to their associated degrees of authority, responsibility and reward, positions in any regime (system, organization or order) constitute a *de jure* or *de facto* hierarchy. With reference to these hierarchies, two cardinal developments characterize the period from the second world war through, roughly, 1970. First, instrumental, meritocratic criteria for entry into and advancement within significant hierarchies progressively displaced (although may well not have eliminated) noninstrumental social, cultural and political criteria. Second, in most societies the demand for persons to fill positions in the upper tiers of the established hierarchies increased (temporarilly) at rates significantly greater than the rate of population and labor force growth.

The first of these developments, the movement from nonmeritocratic to meritocratic criteria, was the result primarily of the growing importance of instrumental capabilities (ability, knowledge and expertise) in ever wider spheres of social and economic activity, and, to a lesser extent, of the necessity of legitimating differences in social status (as reflected in differential authority, responsibility and rewards) in the face of an increasingly egalitarian, democratic social and political ethos.[1] However, this development also had the consequence of greatly increasing the proportion of the population for which meritocratic achievement was a significant individual objective, a measure of self-worth and source of selfjustification. Concomitantly, it created the expectation that meritocratic achievement would be *and would continue to be* recognized and rewarded by society.[2]

[1]While increased reliance on meritocratic criteria for the assignment of individuals to positions of high authority, responsibility and reward represented in part a response to an egalitarian social ethos, there was also a significant element of conflict between the meritocratic and the egalitarian ethos. This conflict had several sources, among the most important of which were (1) an egalitarian belief that differentials in authority, responsibility and rewards were essentially unjustified *per se* (a view characteristic of "populist" movements in the United States), and (2) recognition that, at least in the "short run" (possibly measured in generations), meritocracy would preserve existing differences in status associated with, e.g., race and class, simply because of differences in the rate and efficiency of parental investments in the capabilities of children. While the first was reflected in (generally frustrated) attempts to erradicate or deny differences in authority, responsibility and reward (as, e.g., in the "cultural revolution" in China), the second was reflected (a) in the provision of differential access of persons from specific class backgrounds (e.g., peasants, workers, racial minorities) to nonfamily investments in meritocratically-rewarded capabilities (education and training) and (b) in compensatory, reparatory recognition of such factors as class and race in the application of meritocratic criteria. Interestingly, however, at least in the United States, while reparatory nonmeritocratic (actually, extrameritocratic, in that the ultimate legitimacy of meritocratic criteria was not rejected) criteria were frequently utilized and accepted with reference to access to lower-level positions (and the acquisition of the competencies required for these), intrusions on meritocratic selection were commonly rejected with reference to high level positions. This difference in the perceived acceptability of nonmeritocratic criteria is clearly indicated in the U.S. Supreme Court's decisions in the Weber and Bakke cases, the first of which involved preferential access of blacks to a joint company-union training program, the second similarly preferential access to a state medical school. These cases, and their implications, are discussed in Stephen P. Dresch, "Race 'Reparations': The Upper Classes Win Again" (originally entitled "Bakke *contra* Weber: Social Class and Racial Policy"), *Christian Science Monitor* (November 6, 1979).

[2]The degree to which belief in meritocratic selection and commitment to meritocratic achievement was universalized clearly differed from society to society. Also, belief that selection would be meritocratic did not necessarily imply a commitment to meritocratic achievement, or *vice versa*. Thus, nonmeritocratic, affective (e.g., social, political, racial)

The second development, the rapid expansion of demand for personnel at the upper tiers of the significant social hierarchies, reflected such factors as the postwar acceleration of technological and economic development, the realization of which had been retarded over the preceeding period of depression and war, and consequences of the war and of pre- and post-war political developments which served to decimate the stocks of highly capable labor inherited from the past and effectively available in the present.[3] The resultant surge in demand for technically highly-qualified labor created an environment within which meritocratic expectations, initially, could be fulfilled. Thus, in the early phase the shift toward meritocratic criteria may have outweighed the effect of the

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criteria continued to play more or less important roles in all societies, while values other than meritocratic achievement (e.g., class identification) influenced individual behavior. For present purposes, however, it is simply argued that in both dimensions the meritocratic influence became significantly greater in the postwar period.

[3] In fact, three very different phenomena were operative in the expansion of demand for persons to occupy the upper tiers of the various social hierarchies. First, and most importantly, those hierarchies which had traditionally been characterized by a large number of high relative to low status positions expanded relative to those hierarchies characterized by relatively narrow upper tiers; in the case of the U.S., and measuring the relative size of the upper tier by the proportion of a sector's labor force which is highly educated, this is demonstrated in Stephen P. Dresch, "Demography, Technology and Higher Education: Toward a Formal Model of Educational Adaptation," *Journal of Political Economy* (May 1975), in which it is shown that over 70 percent of the increase in the highly educated share of the labor force which occurred between 1929 and 1969 can be accounted for by shifts from sectors in which the highly educated had been relatively unrepresented into those in which the highly educated had been heavily represented, with the bulk of these shifts occurring between 1948 and 1969. Second, the upper tiers of most hierarchies expanded relative to the lower tiers, reflecting technological developments; in the U.S. this accounts for about 30 percent of the 1929-1969 increase in the highly educated share of the labor force and was entirely concentrated in the post-1948 period. Parenthetically, it should be noted that the war itself may well have contributed quite directly to the postwar technological surge, in that war-time exigencies greatly accelerated the rate of technological advance and also that these exigencies created conditions under which resistance to innovation and its diffusion were greatly reduced; thus, the immediate postwar period not only witnessed the realization of one to two decades of delayed prewar development but may also have experienced developments which would have occurred only slowly over the postwar period had the war not forced the process of development. Third, as noted, the war, pre- and post-war political developments and associated international migrations had served, for a number of countries, to greatly erode the stock of incumbents in high level positions or to create extremely high rates of attrition (voluntary and/or involuntary), while the latter (high attrition) would have occurred in any event as a result of relatively low pre-war growth of most of these hierarchies, reflecting low or negative rates of economic, labor-force and/or population growth over much of the inter-war period, resulting in age distributions in which the relatively old (and rapidly disappearing) were disproportionately represented.

disproportionate growth of demand for persons to fill high-level positions, with the result that relative competence at all levels of these hierarchies actually increased as less capable premeritocratic incumbents were replaced by meritocratically selected successors.

However, with the continued expansion of these hierarchies, and especially of their upper tiers, at rates greater than those at which the number of persons competing for these positions increased, the level of competence and ability required to reach any level in any hierarchy declined markedly, as did the ages of incumbents at each level.[4] The most able and competent young entrants quickly reached very high levels, but even the relatively incompetent were able to advance to positions significantly higher than those which they would have been able to secure had the number of high-level positions expanded only at the rate at which the cohort of aspirants expanded.[5] Thus, over much of this 20 to

[4]The critical point here is that, for any group (e.g., age cohort), competence and ability are not uniform across members of the group. By implication, if selection is meritocratic, then an increase in the proportion selected must necessarily result in a decline in competence and ability of the marginal (last) individual selected. With reference to the decline in age, a somewhat more complex argument is imbedded. Specifically, it is assumed that the competencies and abilities valued in positions of authority and responsibility require not only "innate" (predetermined, but not necessarily genetically predetermined) capabilities but also those capabilities acquired through investment (e.g., in education and training) and that efficiency in human capital investment activities is a positive function of innate capabilities. Two consequences follow. First, as innate capabilities decline (at the margin), it will not be efficient to fully compensate by increasing human capital investment. Second, because the return to such investment will depend upon the expected duration of labor force participation, the level of investment which is optimal for a younger individual will exceed that which is optimal for an equally innately able older individual. Thus, as competencies of younger individuals decline, this may lead to increased levels of investment in older individuals, but the marginal younger individual at any hierarchical level will always be less able and will embody greater investment than the marginal older individual at that level. As a result, while the rapid growth of demand for persons to occupy the upper tiers of the various social hierarchies may have led to increased recruitment of older individuals, the predominant source was provided by the relatively young, notwithstanding the decline in competence at the margin.

[5]The differential between the very high rate of growth of demand for persons to occupy hight-level positions and the rate of growth of supply of younger labor force entrants was severely exacerbated by the very low and frequently negative rate of growth of the entrant cohort, reflecting fertility declines and related phenomena (e.g., restrictions on immigration) in the inter-war period. Thus, for example, the 18 year-old cohort in the United States contracted at a rate of about 0.5 percent per year between 1940 and 1960.

30 year period occupants of high-level positions became both younger and less able and competent.

While the declines in the abilities and competencies of persons in high-level positions might well be considered a cost of this pattern of development, characterized by the rapid expansion of the upper tiers of important social hierarchies, this cost was at least partially offset by the concomitant shift to more meritocratic selection. Moreover, for established orders the rapid growth of high-level positions and increasing meritocracy in selection together had the compensatory benefit of offering expanding opportunities to those of high and even mediocre ability. This fact had important stability implications. The efforts of even marginally talented, capable individuals were fully absorbed within established (often newly-established) orders, insuring that these talents and capabilities would not be utilized in opposition to or to undermine the established order. Thus, it can be argued that, if declines in levels of ability and competence at progressively higher levels reduced the efficiency of these systems, these declines in efficiency were probably more than offset, for purposes of preserving the *status quo*, by the reductions in instability resulting from (and/or in resources necessary to neutralize the covert or overt opposition of) talented individuals deprived of opportunities within existing hierarchies.

Parenthetically, it can be observed that, while this pattern of development may have involved net benefits from the vantage point of existing regimes, it may well have entailed net costs from a broader social vantage point. Although society may also benefit from the increased stability of significant hierarchies,[6] the capacity of existing

[6]Given established institutional arrangements, the degree to which society benefits will depend heavily on the resources available to existing hierarchies to defend themselves

hierarchies to absorb talent may also serve to constrain the expression of that talent. Thus, major innovations, which are frequently (and arguably necessarily) inconsistent with the perpetuation of an unchanged internal and external structure of existing hierarchies, may be retarded or foreclosed if large fractions of the abilities and competencies required for innovation are instead fully devoted to the maintenance of the existing order. Stated somewhat differently, to the degree to which advances involve a Schumpeterian process of "creative destruction," the rate of advance will be retarded by the capacity of threatened institutions to absorb (and coopt) potentially disruptive talent.[7]

This adverse impact of the rapid expansion of demand for talent was magnified by its very uneven incidence. Thus, declines in competence were not experienced uniformly in all spheres and sectors of activity. Three exceptions deserve particular note. First, historically protected occupations enjoying monopoly privileges (e.g., medicine in the United States), to which access had traditionally been rationed to a significant extent on nonmeritocratic grounds (i.e., on grounds of wealth and class), shifted quickly to meritocratic rationing on grounds of ability and effective competence. Responding to social changes which, while not eliminating monopoly privileges, dictated that these be distributed on

against external (from the vantage point of the hierarchies) threats, in that this will largely determine the degree to which the activities of "disenfranchised" talent are devoted to socially noncreative (as opposed to creative) destruction, as will be discussed. The degree of perceived social benefit will also depend upon the weights attached to the values of various parties in society.

[7] The adverse consequences of the increasingly exhaustive absorption of talent within existing hierarchies for the rate of innovation and dynamic advance may well be mitigated or magnified by the nature of the relationships between different social hierarchies. Thus, direct or indirect competition between "coequal" hierarchies may induce an internal organization and orientation conducive to innovation, simply in the interest of the preservation or strengthening of the hierarchy *vis-a-vis* its competitors. In contrast, noncompeting, mutually supporting and reinforcing hierarchies may be especially prone to the internal neutralization and sterilization of talent and minimization of innovation.

socially noninvidious, "egalitarian" bases, this development served to siphon increasing proportions of the very highly capable away from other (generally more productive) sectors and activities.[8]

Second, those activities directly financed by and of high priority to the state were able to bid the highly competent away from other sectors. In addition to direct government employment (civilian and military), this was especially the case in areas of science deemed to be critical to national security. Thus, international political developments, specifically, the commencement of the Cold War, contributed in a particularly destabilizing manner, exacerbating shortages of highly competent labor which would have occurred in any event. Whether the effect of this channeling of a rising fraction of the highly talented into scientific and technological activities which contributed to military capabilities was adverse from a nonmilitary perspective is, of course, open to question. On the one hand, as in the case of World War II, military considerations may have accelerated technological developments with significant civilian applications, in effect mobilizing talent which would otherwise have been relatively unexploited (or, at least, less effectively exploited).[9] On

[8]To a significant extent the embracing of meritocratic criteria for access to monopoly privileges in the protected professions represented only a nominal development, undertaken to conform only in appearance and ideology to the social demand for egalitarian access and to preserve monopoly protections. Thus, the need to adequately "reward" ostensibly necessary high-level talent in professions such as medicine justified their monopoly status, when nonmeritocratic criteria for entry might well have resulted in a societal decision to eliminate monopoly protections. Moreover, given the capacity of the affluent to invest differentially in the capabilities of their children, the actual class (althoughd probably not individual) identities of persons granted access may have been effectively unaltered by the shift to meritocratic selection. To the degree to which individual identities were affected, this probably represented an inefficient rechanneling of the most able into the protected professions, when, in the absence of meritocratic selection, the most able would have had a *comparative* advantage (over their duller class peers) in nonprotected spheres.

[9]One might even go so far as to argue that the absence of Cold War motivations for the development of military technology would have reinforced the developing separation of "science" and "technology" (discussed below), resulting in an even greater neutralization of science (and of increasingly scientific "technology") than in fact occurred. At the least, militarilly-oriented scientific activity served to partially limit the relative scope of the in-

the other hand, it is clear that whatever civilian benefits derived from militarily-driven technological developments could have been achieved more efficiently (at lesser resource cost) had they been obtained directly rather than as an indirect spin-off of militarily-oriented technology (although the reduced resources required for directly civilian technological development might not have been forthcoming).[10]

Third, and related to the first two in that it relied both on monopoly protections and on direct subvention by the state, the academic establishment was capable initially of bidding increasing proportions of the highly capable away from other spheres of activity. Enjoying extremely strong demand for its teaching functions, precisely because of the prevailing excess demand for intellectually competent labor,[11] and accounting for a large share of the more fundamental research deemed critical to national security, earnings and other perquisites of academic employment improved dramatically in the postwar period, increasing the relative attractiveness of academic employment.[12]

In short, while many sectors experienced severe shortages of intellectually competent labor and, thus, declines in competence at all levels, the proportion of the highly capable attracted into what were, generally, economically "nonproductive" activities (professions enjoying protected

creasingly internally-oriented academic science monopoly.

[10]In effect, military considerations served to "internalize" benefits of technological development (at the governmental level) which, in the absence of a direct governmental interest, would have been largely external (to potentially initiating corporations and enterprises).

[11]In the face of an excess demand for highly educated labor the position of the academic sector is comparable to that of the physical capital goods sector confronting an increase in investment demand, i.e., an accelerator effect operates. Of course, a failure of demand to continue to expand also produces a magnified depressive effect, as will be indicated.

[12]These and subsequent developments in the U.S. academic labor market are documented in Stephen P. Dresch, "The Weakening of the Academic Labor Market and the Politicization of Academe," *PS* (Bulletin of the American Political Science Association) (Summer 1983).

monopoly privileges, civilian and military government employment, military-related research, and, progressively, the academic sector) rose significantly.[13] However, even in these favored sectors the competence of marginal entrants probably declined significantly, at least in the latter part of the expansionary period.

At this stage one can only speculate concerning the consequences of this progressively more effective postwar "sterilization" of highly competent labor within the protected professions, government, "pure" science and academe. However, it could only reinforce the generally "conservative" tendencies associated with the all-embracing absorption of talent within established hierarchies. Thus, the siphoning of talent into "nonproductive sectors" resulted in even more severe declines in competence within the hierarchies of the "productive" sectors and in even lesser residues of talent outside of established hierarchies.

Simultaneously, the academic and scientific establishments became effectively insulated from productive spheres, an insulation made possible by their socially and politically favored positions (and hence direct command over resources).[14] This insulation greatly reduced their

[13]The term "unproductive" is used here quite loosely. Roughly speaking, it includes those components of economic activity which are included in the Western concept of ***gross domestic product*** but are excluded in the socialist (Soviet and Eastern European) concept of ***net material product***. More substantively, it rests on a conception of activities which would nominally be considered to be of the form of nonmaterial investments, when these investments have extremely low (zero or negative) returns ***at the margin***. Thus, for example, the late Derek de Solla Price has documented the very marginal contribution to scientific knowledge made by the marginal scientist, while substantial evidence is available concerning the very trivial contribution to health made by physicians and other medical specialists. Finally, the academic sector is "productive" only when the productivity of educated individuals exceeds the productivity of the uneducated by a margin sufficient to rationalize the costs of education.

[14]This insulation is clearly indicated by changes in the sources of funding for academic research which took place in the U.S. over the 1950s and 1960s. Thus, the industrial share of academic research funding declined from in excess of six percent in 1955 to about 2.5 percent in 1970, while the Federal share increased from 40 percent to 70 percent. Simultaneously, the academic share of total national research and development activity increased from six to nine percent, while this aggregate increased in constant dollar by about 200 per-

potential as a source of innovation.[15]

Thus, creative (and creatively destructive) capacities both within and outside the productive sectors were seriously eroded. In this context it is certainly not preposterous to suggest that the progressively more effective sterilization of talent over the course of the 1950s and 1960s may well have contributed significantly, with a lag, to the decline in rates of innovation and of productivity growth which occured after the late 1960s.[16]

At some point between the mid-1960s and the mid-1970s, however, the situation which had prevailed over the preceding postwar period (characterized by the progressively more exhaustive absorption of talent by existing hierarchies) radically altered. First, the expansion of the upper tiers of these hierarchies came to a rather sudden halt.[17] Second, the number of competitors for these positions began to expand much

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cent. Data on U.S. research and development expenditure, including sources of funds and sectors of performance, are presented in U.S. Bureau of the Census, *Statistical Abstract of the United States, [Year]* (Washington, D.C.: Government Printing Office, annual).

[15] In the United States the passage of the National Science Foundation Act in 1950 has particularly important real and symbolic significance in this context. First, it marked the end of the World War II marriage between science and technology by granting primacy and independence to the former. Second, it further eviscerated technology by including within its perview engineering, converting that field from a "technological" to a "scientific" discipline.

[16] This clearly should not be considered a "single-factor" explanation for the decline in productivity growth, although other factors may have been directly or indirectly related to these developments. For example, increasing bureaucratization may well have contributed to productivity decline but also resulted from declining relative competencies in the upper tiers of relevant hierarchies and from the protected, insulated state of these hierarchies. Similarly, the increasing internal orientation of academic research and teaching, reflected in the "publish or perish" phenomenon, certainly is largely attributable to insulated academic affluence.

[17] The reasons for this halt in expansion of the upper tiers cannot be fully discussed within the confines of this paper. To some degree it was a *necessary* phenomenon, in that a component can only temporarilly grow at a rate greater than that of the aggregate of which it is a part. Also, this was, to some degree, an accelerator-type process, as suggested above with reference to the growth of demand for academic personnel; as a result, a decline in the "external" component of demand was reflected in a concomitant contraction in the internal, endogenous component of demand. Most generally, the progressively greater costs of the expansion of upper hierarchical tiers inevitably served to constrain continued growth.

more rapidly than had been the case in the past.[18] Thus, in contrast to the first postwar period, in which the pool of potentially disruptive talent was effectively drained in the process of fulfilling expanding demands for ability and competence, this pool has subsequently been expanding rapidly. The problem has actually been exacerbated by the previous period of rapid growth of high-level positions: Because incumbents even at the highest levels are relatively young (although aging rapidly), rates of attrition (losses to death and to the social, physical and intellectual infirmities of age) are extremely low. Thus, there is neither an expansionary nor a replacement demand for persons of competence and ability within the established orders.

In summary, established hierarchies are increasingly characterized by aging (but not aged), atrophying incompetents occupying their higher tiers. In contrast, increasingly frustrated concentrations of talent have accumulated in the lower tiers and entirely outside of existing orders. Incompetence at the higher levels of these hierarchies renders relatively ineffective their attempts to control or neutralize threats from below and outside the system, while these threats (from within and without) become increasingly dangerous and potentially effective as disenfranchised talent accumulates.

The socially destabilizing consequences of these developments are greatly magnified by the prior shift toward meritocratic criteria of selection. First, as opportunities for advancement have contracted, residual

[18]The expansion of the number of competitors reflected the postwar surge in births, producing significant growth in the number of labor market entrants in the 1960s and 1970s, after one or two decades of relative stability or decline. Anticipating (incorrectly) a continuation of an excess demand for the highly capable, these bloated cohorts were educated at rates which had previously been achieved.

nonmeritocratic influences have become more pronounced (or at least more visible). Second, the expectations generated by meritocratic opportunity, apparently justified by the experiences of past cohorts, are broadly shared, resulting in more widespread frustration than these developments would have engendered in the premeritocratic period. Third, the degree of faith in the application of meritocratic criteria is further eroded by the evidence of secure, entrenched incompetence in high-level positions. Thus, what in the past would have been a relatively confined frustration has become endemic, as the fraction of young labor force entrants experiencing this foreclosure of opportunity has dramatically increased.

The most obvious evidence of the foreclosure of opportunity within the existing hierarchical structures, even for the highly talented, is the radical decline in the relative status of younger members of the labor force which has occured over the last ten to 15 years. In contrast to the preceding period, in which the status distributions of successive cohorts of labor force entrants equaled or exceeded those of their predecessors, and certainly exceeded those of their parents, the status distributions of young entrants have shifted downward rapidly. Large proportions even of the highly able and well-trained have been incapable of obtaining entry into any established hierarchy, and comparable proportions of those who have obtained entry either have found themselves permanently frozen into the lower tiers of the system or have occupied very precarious positions, confronting foreclosed upward mobility and the risk (in some cases virtual certainty) of displacement by subsequent entrants.

In the United States this pattern of development is most evident in the declining incomes of those younger members of the labor force who are most capable and highly educated.[19] Thus, for example, between 1972 and 1979 annual incomes of employed 30 year-old males with 17 or more years of schooling (generally implying postbaccalaureate graduate or professional training) declined (in constant 1972 dollars) from $17,190 to $12,876, for a cumulative decline of 25 percent in just seven years. For persons with 16 years of schooling (completion of a baccalaureate degree), the decline was from $13,666 to $12,121, or by 11 percent, indicating that the contraction has been greatest for those who might have expected to occupy the highest positions. The lesser impact for those aspiring to (and trained for) lower status positions is clearly indicated by the experiences of persons with only 12 years of schooling (high school graduates), for whom incomes were virtually invariant over this period ($10,044 in 1972 versus $10,022 in 1979). That this has been an experience only of the young and highly educated, and does not reflect a general decline in levels of real income of persons with high levels of education, is indicated by the fact that incomes of 45 year-olds with 17 years of schooling increased from $19,968 to $22,001, or by 10 percent, between 1972 and 1979. And, while incomes of 45 year-olds with 16 years of

[19] The evidence presented in this paragraph is developed more thoroughly in Stephen P. Dresch, "Education and Lifetime Earnings: The Census Bureau's Misguided Misrepresentations," *Review of Public Data Use* (December 1983), drawing on data published by the U.S. Bureau of the Census, *Current Population Reports, Series P-60, No. 139, Lifetime Earnings Estimates for Men and Women in the United States: 1979* (Washington, D.C.: Government Printing Office, 1983), and *Current Population Reports, Series P-60, No. 92, Annual Mean Income, Lifetime Income, and Educational Attainment of Men in the United States, for Selected Years, 1956 to 1972* (Washington, D.C.: Government Printing Office, 1974). More detailed evidence, covering the period from the mid 1960s through the early 1980s and examining evidence on intra- and inter-occupational earnings differentials, is presented in Stephen P. Dresch, *Occupational Earnings, 1967-1981: Returns to Occupational Choice, Schooling and Physician Specialization* (Greenwich, Connecticut: JAI Press, forthcoming 1984).

schooling declined over this period from $19,042 to $18,301, or by six percent (about one-half the relative decline experienced by 30 year-olds), 60 year-olds with 16 years of schooling enjoyed an increase of 14 percent (from $19,449 to $22,096).

This pattern of development is becoming increasingly apparent in a number of other countries as well. In the Federal Republic of Germany it is especially evident in rising rates of unemployment of university graduates, in prolongation of nominal student status, in downward shifts in the occupational distributions of graduates, and in rising proportions of graduates who do not enjoy conventional contracts of employment and hence constitute a "grey market" for labor services.[20] Similarly, in the Soviet Union there is accumulating evidence of enterprise accumulations of "surplus stocks" of highly qualified personnel, while significant numbers of young specialists, confronted by progressively less desirable opportunities for professional employment (less desirable in terms, e.g., of location, conditions of work and opportunities for advancement) have elected to pursue nonprofessional careers.[21]

In both the Soviet Union and West Germany, and also in the U.S., the previous pattern of rising educational aspirations and attainments on the part of young people has given way to one of stability or decline, although this development has been partially offset (or delayed) in the West by rising unemployment (with especially pronounced youth unem-

[20]These and related developments in West Germany are summarized in U. Teichler and B. Sanyal, *Higher Education and the Labour Market in the Federal Republic of Germany* (Paris: UNESCO, 1982).

[21]The current Soviet situation is summarized in D. Chuprunov, R. Avakov and E. Jiltsov, *Higher Education, Employment and Technological Progress in the USSR* (Paris: UNESCO, 1982).

ployment) since the late 1970s, encouraging many individuals to persist in school (and hence to receive educational subsidies which constitute *de facto* unemployment compensation not contingent on prior work experience) when they would not have elected to do so had opportunities for employment been available. Thus, the precise manifestations of this overall pattern of development may differ somewhat, but the broad consequences are strikingly, and surprisingly, similar despite major differences in social and economic institutions.

The foreclosure of opportunities for young labor force entrants is most obvious in the more rigidly structured, hierarchical sectors, e.g., education and government. Thus, growing proportions of highly competent labor force entrants have been drawn (or driven) into those sectors (generally the directly "productive" sectors) which had been relatively starved of talent in the first two or three postwar decades, with potentially highly significant positive consequences for the capacity for innovation within these sectors. This potential, however, may well be largely unrealized, in part because talent may be neutralized by the incapacity of existing structures to adapt internally to the requirements of innovation but also because it is in these sectors that the contrast between the relatively high levels of competence in the lower tiers of the hierarchy and entrenched incompetence at higher levels is especially pronounced. While the tenure of high-level (and relatively incompetent) incumbents in these sectors is less formally protected, organizational rigidities and inertias still serve to greatly constrain the opportunities of talented individuals at lower levels.

Thus, realization of the potential for innovation may well take place primarily outside of established organizations and hierarchies (to the degree that this potential is realized at all). The significant question from a social perspective concerns the reactions which these potential "independent" innovative activities will confront.[22] If this type of activity is fostered and encouraged (or even tolerated), then it may well offer a socially constructive outlet for creative talent and bring a significant acceleration of the rate of innovation in its wake. To the degree to which it is resisted, the level of frustration will rise, and the prospect of socially noncreative destruction (at least initially noncreative) will become more likely.

The likelihood of severe instabilitity is particularly great for those sectors which expanded most rapidly in the earlier postwar period. These sectors are now dominated by persons of relatively low levels of ability and competence (by comparison to the abilities and competencies of persons who could be recruited currently), and, although currently exhibiting very low attrition rates, will experience exceptionally high rates of attrition as the "clot" in the age distribution created by rapid postwar expansion suddenly begins to be eliminated. This characterization is especially descriptive of the academic and scientific establishments and of many political elites and governmental bureaucracies, entities which came into existence and/or expanded very rapidly in the

[22]This is essentially a question of the access of "disenfranchised talent" to resources, especially investment resources. In this regard, the role of existing institutional (e.g., corporate) hierarchies as sources of investment in training and technological development which is then realized in new, independent entities initiated by talented individuals leaving the established parent institution is particularly significant. The development of capital market instruments, e.g., R&D limited partnerships, is also significant in this regard.

first postwar decades. Even before these systems enter the phase of rapid attrition of established personnel, stability is threatened by the relative inability of these sectors to absorb younger talent. And, even to the degree to which entry-level opportunities are offered to highly capable members of younger cohorts, opportunities for internal upward mobility are virtually foreclosed by the relative youth and low attrition of the relatively less competent incumbents occupying positions higher in these hierarchies and by the failure of these hierarchies to continue to expand at the rates of the immediate postwar decades. This inability of provide for a "circulation of elites" (as it was classically characterized by Vilfredo Pareto) results in a growing concentration of highly capable individuals in the lower tiers and outside of established power structures, creating the possibility of serious challenges to existing orders. Even if this threat is avoided initially, the surge in attrition as the early postwar cohorts pass from the scene will lead both to increasing pressures from outside the system and to increasing internal flux and uncertainty.[23]

[23]Both external and internal sources of instability in the rapid turnover period are exacerbated by the likely refusal of the highly talented to enter even the accessible lower tiers of these hierarchies, a refusal based on the recognition of (a) the dominance of high-level incompetence and (b) the short- and intermediate-term foreclosure of upward mobility.