

## **The World-Wide Expansion of Higher Education in the Twentieth Century**

Evan Schofer  
Department of Sociology  
University of Minnesota

John W. Meyer  
Department of Sociology  
Stanford University

Draft 3  
January 2004

Work on this paper was supported by grants (to Francisco Ramirez and John Meyer) from the Spencer Foundation ( ) and from the Bechtel Center of Stanford's Institute for International Studies, and by a National Academy of Education/Spencer Foundation Postdoctoral Fellowship (to Evan Schofer). Many helpful comments were received from Francisco Ramirez, Gili Drori, and other members of Stanford's Comparative Workshop.

## **The World-Wide Expansion of Higher Education in the Twentieth Century**

### **Abstract**

We analyze the twentieth century expansion in higher educational enrollments. Rates of expansion increased dramatically in all types of countries starting around 1960. A dramatically changed model of society came into place world-wide -- one in which schooled knowledge and personnel were seen as appropriate for a wide variety of social positions, and in which greatly expanded proportions of young people were seen as appropriate candidates for such positions and their educational requirements. National characteristics play a less central role in explaining rates of expansion. The rates are a little higher in countries better linked in organizationally to world society. They are also a little higher in developed countries and in countries with expanded secondary enrollments. And they are a little lower in countries high on ethno-linguistic fractionalization, and in Communist countries. But time period effects dominate the analysis, and Third World countries now commonly have much higher enrollment rates than European countries did a few decades ago. We briefly discuss implications for world society of a situation in which essentially all countries have large elite sectors schooled in institutions that have a great deal of cultural commonality.

## **The World-Wide Expansion of Higher Education in the Twentieth Century**

We are in the midst of an educational revolution: higher education has been growing at explosive and historically unprecedented rates throughout the world. In 2000, more than one hundred million people were enrolled in tertiary education worldwide, a staggering number that represents roughly 20 percent of the relevant age cohort (UNESCO 2001). A century earlier, in 1900, the number of tertiary students was orders of magnitude lower – estimated at about five hundred thousand students – and amounted to only a small fraction of one-percent of the age cohort (Banks 2001). Moreover, this expansion is not limited to the wealthy, industrialized nations of the world. Higher education is exploding *everywhere*. To put things in perspective, consider that countries like Algeria, Kazakhstan, and Myanmar each now possess about as many tertiary students as could be found *in the entire world* at the start of the century (UNESCO 2001).

In addition to sheer size, higher education has expanded in scope and centrality, so that by the end of the century almost all the world's elite positions were best accessed through tertiary education. A dramatic example is the rapid reorganization of business enterprise, such that managerial positions increasingly require post-secondary degrees. The American diploma of the “MBA” has become global symbol, produced by a rapidly spreading business schools (Moon 20XX, Mazza/Sahlin-Andersson 20XX).

Like the development of mass education systems some generations earlier, the expansion of higher education represents a profound societal transformation with wide ranging implications. At the individual-level, the life course is reshaped. At the level of society, the structure of the labor market is and processes of elite reproduction are altered.

On a global scale, elites are increasingly trained in a fairly common frame of reference, and carry credentials that are recognized worldwide.

We seek to make sense of the growth of higher education over the past century. Perhaps one of the biggest obstacles to understanding this dramatic social change is the very fact that it has become taken-for-granted by laypeople and sociologists alike. The virtues of higher education seem obvious to us, and thus it is hard to conceive of alternative outcomes. Thus, sociologists are more apt to decry existing inequalities and suggest the need for *faster* expansion among under-represented groups (women, minorities, citizens of developing countries), rather than comment on broader trend.

It is easy to forget that the tremendous expansion of higher education was quite unexpected. In the nineteenth century, it was widely assumed that higher education served only very specialized purposes, such as training clergy (cite 19XX). Moreover, it was thought that industrialization would bring further de-skilling of labor, which would reduce rather than augment the need for highly educated individuals (cite 19XX). And, as enrollments began to grow, there was a real fear of harmful consequences.

“Overeducation” was a serious social concern (cite 19XX). It was imagined that a surplus of graduates, unable to be absorbed in the labor market – would experience anomie – and possibly generate widespread social unrest (cite 19XX). People did not foresee our world in which policemen, secretaries, restaurant managers, or hairdressers would commonly sport a college education. As late as the 1960s, the notion that twenty percent of the world’s children would eventually receive post-secondary schooling seemed to many both ridiculous, and a huge waste of societal resources (cite 19XX). And even today, some wonder whether it is a wise social investment for governments to

sponsor double-digit tertiary enrollment ratios in impoverished sub-Saharan nations experiencing massive unemployment.

In this paper we view the expansion and institutionalization of higher education as requiring real explanation. We advance our thinking on the subject by showing empirically, with available cross-national data sets, when and where it occurred. We try to infer from such data why originally specialized institutions producing training for limited sets of roles became the main regulator of elite selection, and thus social stratification, for the whole world. Finally, we consider implications of a world of “mass” higher education.

## **Global Trends and Explanations**

### *Previous Research*

Prior studies have noted growing tertiary enrollments, but typically invoke explanatory frameworks that emphasize the local contexts of individual countries. This happens because most of the literature on higher education focuses on individual country cases, and case researchers are renowned (and rewarded) for attending to special or unique features of their cases. Thus in the United States, it is conventional to call attention to the "GI Bill" as aiding the expansion of higher educational participation into new sectors of the population (cite 19XX), though seen in historical terms the associated expansion of higher education in America simply continued much longer trends (see below). In Third World countries, scholars commonly point to decolonization as generating expansion (cite 19XX). In Europe, case researchers can refer to American

influences (cite 19XX), or the weakening of standards associated with democratization (cite 19XX).

More systematic and comparative research has made only a limited amount of progress toward general explanations, but produces one strong finding: The twentieth century expansion of higher education is a *worldwide* phenomenon, not one mainly linked to the special properties of particular country cases or types. Riddle (1990, 1993) studies the rates at which universities are founded around the globe since the origin of the institution around the year 1200. Riddle finds a very slow and consistent rate of new universities founded up until the French Revolution, followed and an increased rate until World War II, and a dramatically increased rate of university creation thereafter. She finds that expansion is very general, and is unable to isolate national-level factors that strongly affect it. Meyer et al. (1977), in their cross-national study of tertiary enrollment ratios from 1950 to 1970, find very rapid increases in these ratios in all sorts of countries. Tertiary expansion, in fact, considerably outpaces the rapid expansion of mass (i.e., primary and secondary) schooling during the period. But these studies, too, are unable to find any independent variable that strongly affects the rate of expansion.

Windolf (1997) takes a different strategy, examining enrollments in a few countries (Germany, France, Italy, United States, and Japan) from around 1850 to 1990. Like the other researchers, he finds long-term expansion, especially after World War II. And like the other researchers, he is not able to find independent variables that strongly affect country-level variations. Most notably, Windolf finds no impact of industrial development on the growth of higher education, dispelling one common functionalist

explanation for the expansion. Instead, he tends to see expansion as feeding on itself, in what is sometimes analyzed as a process of competitive inflation (Collins 1979).

### *The Trend*

Data on higher education enrollments come from two sources, both of which are based on national reports. Higher education is organized in modern national societies, and is seen as of considerable importance, so national reports of enrollments are routinely available. In the period since 1950, UNESCO gathers enrollment data from most countries, and reports them in standard form (UNESCO 2001). Tertiary enrollment is commonly standardized as a ratio of enrollment to the population of individuals aged 20 to 24. A more precise standardization is not practical, since the higher educational enrollment cycle, in any country, is almost always of uncertain and variable duration. In this paper, we track this variable every five years, from 1950 to 2000, for a large sample of nations.

Banks (2001), working from the similar sorts of national data, reports enrollment data back into the 19th century. Naturally, fewer cases are involved, in the early periods, because (a) many countries didn't have higher educational data to report, or (b) didn't report them, or (c) were not independent. But it is important in our study to examine the data that do exist, so we analyze them here in 10-year periods from 1900 to 2000.<sup>1</sup> It is not feasible to standardize these enrollments by the population aged 20-24, since estimates are unavailable at the start of the century for many nations. Instead, we

---

<sup>1</sup> Data from Banks is not available in 1990 and 2000. We extended analyses to 2000 using data from UNESCO (with the appropriate per-capita standardization). Note: The addition of UNESCO data does not significantly alter results.

standardize enrollments by a country's total population. For the postwar decades in which both data sets are available, they are extremely highly correlated (over .97).

Figure 1 shows total reported world enrollments in higher education in raw numbers through the twentieth century. Missing data – mainly in colonies and poor countries in the early period – are unlikely to be a problem in this case, since developed countries account for the vast proportion of the enrollment early on. The Figure shows the dramatic character of the explosive expansion in world higher education, whose rate of growth obviously changes sharply around 1960.

[Figure 2 about here]

Figure 3 shows the historical trend more precisely, reporting mean national enrollment per capita for constant-case groups. The overall global trend could be influenced by the fact that more and more countries begin to report data in later years. To correct for the changing case-base, we report separate curves for each new “cohort” of countries that begins to report data. For example, the “1900 Constant Cases” curve includes all countries that report data in 1900. The “1930 Constant Cases” curve reflects those that start reporting data by 1930 (but does not include the cases represented in the 1900 curve). The interpretation of the curves is clear: The trend is not merely a byproduct of the changing case-base. Accelerating enrollments can be found among all groups of countries.

[Figure 3 about here]

Figure 4, also taken from the Banks data, reports mean enrollments as proportions of national populations. Countries are sorted by world region, to capture differences between the developed countries and various types of developing ones. We distinguish the West, Eastern Europe, the Middle East and North Africa, Asia, Sub-Saharan Africa, and Latin America. We include only cases with data at most points throughout the period. The striking feature of the results is how similar the growth curves involved are between these dramatically distinct sorts of countries. In every type of country, enrollment growth is explosive, especially after about 1960. As a result, the typical Third World countries have enrollment rates in 2000 that approximate those obtaining in the West only twenty or thirty years earlier.

We also observed striking similarity of enrollment trends at the country level. For purposes of illustration, Figure 5 presents the first case listed alphabetically in five major world regions: Afghanistan, Algeria, Argentina, Australia, and Austria. These cases were not “hand picked”, but rather are typical of our data. Since the absolute levels of enrollment differ significantly across these cases, we standardized by each country’s value in 1990 to fit them on the same graph. For readers cognizant of the huge political, social, and economic differences among these cases, the trends are shockingly similar. All cases experience a rapid acceleration of enrollments around or shortly after 1960. Without labels, it would be difficult to identify one nation from another. Only Afghanistan proves to be distinctive, with a sharp falloff in enrollments between 1990 and 2000, coinciding with the rise of the reactionary Taliban regime. In a sense, Afghanistan may serve as “the exception that proves the rule”: it is only in the most

extreme cases of conservative governance and economic collapse that enrollments cease their post-1960 acceleration.

### *Explanations of the Trend*

We observe three dominant features of tertiary educational expansion in the modern period, which any explanation must address: First, the expansion vastly outruns any national-level independent variable changes, for instance in economic development levels. Second, the expansion is surprisingly homogeneous across radically varying national societies. And third, the expansion is dramatically concentrated in a particular time period.

In short, the expansion of higher education has the quality of a single global sea change. This poses significant challenges for localistic explanations. Most explanatory discussions of tertiary educational expansion focus on putative causal factors that are properties of individual societies. This is true of the few cross-national studies (and theories), which look for effects of national development or national political characteristics. And it is true of the many case studies, which trace educational expansion in particular countries, similarly calling attention to local political and economic factors. None of the theories or analyses are very effective in explaining a transformation that is global in scope. Many fashionable explanations used to account for growth in the industrialized West – such as allusions to a “knowledge society” or “new economy” – fall apart when one sees similar trends in countries like Afghanistan (prior to 1990) and Algeria.

We observe a pattern of growth in higher educational enrollment that is world-wide, characterizing all types of countries, and sharply concentrated in the period after about 1960. But we examine this pattern against a background in the literature of obviously inappropriate arguments that stress variable national factors, and time period stimuli distinct to particular countries. In the second part of our analysis, we will indeed show that the well-theorized national factors, such as national economic development, have modest effects on growth rates. But these factors do not even begin to offer explanations of the pronounced world pattern we observe in Figures 2 to 5, and as our later analyses show, holding them constant does not really alter the pattern.

Too many things changed in the world around 1955-60 to permit clear tests of the various and overlapping hypotheses we can put forward about why the worldwide explosion in higher education occurred at this point. We provide, here, a simple list of some plausible explanations. Our later analyses provide indirect support for a few of them:

- a. Most obviously, our observations support the institutionalist notion that properties of national society like higher education very much reflect prevailing world models (Meyer et al. 1992, 1997) rather than national characteristics. This idea is clearly important in explaining isomorphic change in a period-specific world-wide movement. It does not help to explain why the prevailing models so dramatically emphasized higher educational expansion.

b. Higher educational enrollment rates, historically, had been constrained by closed corporatist and statist regulations tying them to particular national stratification systems. World War II radically weakened such the legitimacy of such nationalist arrangements, and led to supports for models emphasizing open and liberal expansion. Further, the dominant United States clearly carried such models, including relatively expanded higher education.

c. The societal models involved emphasized the idea of highly progressive "national development" and economic growth, in contrast to models of the nation as having a fixed social order (Chabbott ). Worldwide emphasis on national development was intensified by the Cold War competition, in which both sides put forward such models.

d. Education, in all sorts of human capital and manpower planning models, was seen as a crucial instrument for economic growth, as well as for political and social development (Chabbott ). And it was an institution through which national societies could both do nation-building and also enhance the status and rights of their populations of citizen-individual persons.

Clearly, a rationalized model of society is firmly in place. It sets up higher education as a crucial basis for every social elite, and many less elite roles. Higher education can now be seen as necessary for the people who do child care, keep books, raise wine or cattle, manage businesses, or care for toenails, as well as for the limited set of traditional professions (medicine, law, civil service, and university preparatory teaching) that it focused on one or two centuries ago. It is also seen as a crucial benefit

for individuals seeking personal fulfillment as well as opportunity and status-enhancement.

Interestingly, other studies on related themes show similar dramatic shifts, globally, in patterned models of the properly modern society. Boli and Thomas (1999) report a number of studies in which international nongovernmental organizations show explosive growth in the period after about 1960. Drori et al. (2003) provide data showing that this same period evidences dramatic scientific growth (see also Schofer 1999). Meyer et al. (1997) show similar shifts in the rate of rise of modern environmentalism.

In these new models of society, the old objections to higher education have disappeared almost entirely, and the virtues of expansion are taken for granted. A recent World Bank report on higher education for developing countries simply celebrates the need for expansive improvement (World Bank 20XX). Nothing is left of the older fears that higher education might somehow be irrelevant to the needs of society (Berg 19XX), or that its expansion would produce an over-educated and under-employed population (Freeman 19XX), who might make a lot of political and social problems because of their unrealistically high expectations (Huntington 1968). Cost aside, there seem now to be few legitimate reasons to slow the expansion.

Models of society have changed so that many old roles are seen as requiring higher education, and many new roles requiring it are created. But models of the ordinary person have changed too, so that people in general are seen as capable of benefitting from higher education as general "human capital." The World Bank's ( ) discussion of higher education for developing countries gives no hint of older truths that

most people cannot benefit from (and are perhaps crippled by) over-education. In the new vision, higher education is valuable human capital for everyone.

All these change must be seen as having the character of a world-wide cultural wave (or less kindly, cargo cult) rather than realistic assessment. There remains strikingly little empirical evidence that expanded higher education has any positive effects on economic growth (Meyer et al. 1979, Benavot 1992 -- for a review, see Chhabott and Ramirez 200 ). Evidence that it supports the performance of particular economic roles is also strikingly limited (Berg ). There is more evidentiary support for broader positive benefits like concern for the environment or democracy or human rights (Drori et al 200 ). But the whole global growth process since the 1950s seems to tell more about world culture than about any narrowly functional process.

## II. National Variations

Higher educational expansion is, in the main, a world process, as we have stressed. And this is strikingly at odds with a great deal of theorizing that stresses only national, or case-level, factors. But there is no real inconsistency in any logical sense, since both kinds of factors can clearly be operating. In the analyses that follow, we examine national variables as they affect expansion in panel analyses covering the twentieth century.

Theories

Much of the nominally “comparative” research on the expansion of higher education has focused on case studies of universities or countries. This has permitted the development of a wide range of theories, which survive little touched by efforts at falsification. The theories involved are familiar, because they tend to parallel ideas about the expansion of education at any level, and because they reflect general lines of reasoning in sociological theories.

First, there is *traditional socioeconomic functionalism*, often employed as a baseline or straw man in the field (Collins 1971). The idea is that national development, rationalization, and differentiation create needs for both specialized trained personnel and elites loyal to a common culture. The obvious core proposition is that the expansion of higher education is strongly affected by national development. This proposition survives in analyses of modern education, despite much solidly-based criticism, because it is so much a part of modern culture and the standard modern ideological justification of educational expansion. In fact, however, empirical researchers working on educational expansion at any level do not find strong effects of development. And those concentrating on higher education tend to be very skeptical of any idea that the developed economy or labor force requires or produces any specific level of higher education (Windolf ;Meyer et al 1979).

Traditional functionalism has critical variants on the left (e.g., Bowles and Gintis (1976) and right ( ), treating the modern system itself as functional principally for economic or political elites. In these lines of thought, differentiation is seen as domination, and integrative culture as hegemonic. The core prediction remains, however

distinctly colored, the standard one: development predicts the expansion of higher education.

A version of functionalism which includes the availability of resources as a "supply-side" factor is often employed. The idea is that countries with more resources can expand higher education more. The point is especially plausible because higher education -- particularly in the developing countries -- is much more expensive than mass education.

Traditional functionalism also has variants that shift the core argument from the national to the global level. Here the expansion of higher education in the core aids in coordinating relationships in the world, perhaps, in critical versions, to the advantage of economically and/or political dominant countries (see Clark for an illustrative argument, Weinberg on the expansion of education in Britain as part of the maintenance of empire, or \_\_\_\_\_ on current visions of American higher educational expansion as functioning to maintain hegemony). Again, the core predictions change very little, despite variations in political tone.

Thus, the lines of thought reviewed above all suggest a core hypothesis:

*Hypothesis 1: Socioeconomic development produces the expansion of higher education.*

*Complex World-Level Functionalism:* Predictions become more problematic as functional arguments become more sophisticated. It is plausible that higher educational expansion reflects the functional pressures of global development, but occurs everywhere rather than simply in core countries. Needs for world coordination and integration create a common worldwide elite culture, with training institutions found in every society (see

Cohen, for a creative early variant of this general story). Again, one can see the coordinated system (and the forces that produce it) as generally advantageous, or as reflecting the needs of core political and economic elites for allies in more peripheral areas ( ). The central prediction here would be that higher education spreads throughout the system in response to systemic expansion and globalization. Concretely, the expansive period since World War II should show high rates of expansion.

Most lines of theorizing that follow this general line suppose that global power structures would expand higher education everywhere, but especially in dominant core areas (Wallerstein, Chase-Dunn). They would thus make the same predictions as traditional functionalism -- that educational expansion would especially characterize core countries. Their advantage over traditional functionalism is that they can offer an account for systemic expansion, too.

*Institutionalism:* As functional thinking evolved in the sociology of education, it became more difficult to falsify. A crucial step was the shift from conceptions of education as a functional response to the needs created by socioeconomic development, to ideas about education as an efficient instrument of this development (Inkeles and Smith 1974). Thus, according to development and modernization theories, expanded education can be adopted by advanced elites as a planned device to increase development. Expanded education, thus, might be found wherever modernization is a goal, not only where it is a reality. This creative destruction of traditional functionalism produces a version of institutional theory, according to which expanded education is a functional myth, not necessarily a functional reality (Meyer and Rowan ). The only difference is that the

developmental or modernization perspectives suppose the myth is true. In any case, this line of thought would predict the worldwide expansion of higher education in response to the post-World War II spread of the nation-state and diffusion of notions of nation-states as all having capacity for modernization and development.

With the installation of functionalist, modernization, and development theories as policy realities, sociological institutionalists argue that policies linked to these theories would spread independent of their actual efficacy. That is, higher education becomes a core component in the *model* of a properly developing national society -- a proper source of elites, a proper opportunity for citizens, and a proper locus of training for differentiated roles. Institutional theories (see Meyer et al. 1977a, 1977b, 1992a, and 1992b) emphasize the diffusion of highly rationalized models of education and society in the contemporary world.

The lines of thought above all support two hypotheses about the expansion of higher education. On the first of these, we have already examined descriptive data. Here, we can incorporate the relevant time period effects in multi-variate panel analyses.

*Hypothesis 2: Higher education expands especially rapidly in the post-war period, when it becomes part of the model of a properly developing or developed national society.*

*Hypothesis 3: Higher education expands most rapidly in countries linked in organization and identity to world models.*

An implication of strong versions of institutional theories can be that countries respond to the pressures of world models more than to their own histories. And indeed, if their own histories produce globally-unacceptable effects, subsequent history is likely to correct for these. This produces a prediction dramatically opposed to the ideas about inertia found in much organizational theory, and suggests a kind of negative inertia:

*Hypothesis 4: Countries with low rates of higher educational expansion in given periods tend to have "corrective" higher rates in subsequent periods.*

*Theories of Conflict, Competition, and Organization:* In response to the failures of functionalism, two broad lines of thought have evolved. Institutional theory, discussed above, treats functional ideas about socioeconomic development as cultural or ideological myths and models, rather than reflections of reality. Conflict and organizational theories treat socioeconomic development as providing resources and grounds for competition, rather than social systems in some sort of equilibrium.

Some conflict theories overlap in their predictions with (typically left) critical functional theories, as discussed above, and require little attention here. It matters little, for our purposes, whether political and economic elites use higher education as an efficient method of organizing a whole social system that functions well for their benefit (the functional version) or whether higher education is simply an efficient method of control and extraction independent of systemic functioning. In fact, it is often difficult to understand which argument is being made (see, e.g., Bowles and Gintis 1976).

But one very distinctive idea arises from strong conflict and competition theories. That is the idea that as education becomes important (or seen as important) in the attainment of social status, groups and individuals compete more intensively for success in education, producing inflationary credential expansion far beyond any original functional requirements (Boudon , Bourdieu , Collins 1971, Collins 1979, Meyer 1977a). Some resulting predictions, here, overlap with hypotheses above, such as the idea that the actual or perceived importance of education in social functioning produces expansion. But there are some additional predictions, such as the idea that higher education expands in response to the expansion of lower levels of education. Status-competition, then, drives expansion. Thus:

*Hypothesis 5: Higher education expands more rapidly when secondary educational enrollments are high.*

A second theme in conflict theories is that elite groups use the educational system to perpetuate the dominance of their arbitrary status-group culture, not simply their roles or their children (Bourdieu , Collins ). This theme has implications for the content of higher education, but not directly for its overall expansion. However, it is common to argue that educational expansion is more rapid (and less functional) when status group competition is high (Rubinson and Fuller; Rubinson and Browne). As a concrete illustration, American higher educational expansion, with its attendant cultural embellishment, is thought to reflect the pressures of immigrants from cultures perceived as alien ( ). Unfortunately, it is unclear how to effectively assess variations in status

group competition. A common measure used is an available assessment of the degree to which a country has competing ethnic and linguistic groups.

*Hypothesis 6: Higher education expands more rapidly under conditions of high ethno-linguistic fractionalization.*

What *is* clear in the literature is that organizational conditions affect the operation of competitive pressures for the expansion of higher education. That is, organizational decentralization permits such pressures to operate in very inflationary ways (Ben-David and Zlockzower; Ben-David and Collins). This is a conventional explanation of early rapid higher educational system in America. The attempt of the eastern coastal universities to block western expansion failed early on (Hofstadter ): they were sometimes able to block public universities in their own states, but not in adjacent ones. Public universities, too, were unable to block the rise of accredited private colleges reflecting all sorts of (mostly religious) groups. On the other hand, strong states in Britain and France, allied with elite educational programs, were able to greatly delay higher educational expansion in those countries.

The core idea here is rather fragile. Looking at the set of countries and time periods where higher education is a core institution, it can unambiguously predict rapid educational expansion in decentralized cases. But it can less clearly predict slow educational expansion in centralized ones, since the central authorities might have reasons to wish to more penetratively control local or international society (by the

propositions above). We put the case cautiously. Centralized countries have the capacity to control expansion, and *may* choose to do so:

*Hypothesis 7: Under conditions of high institutionalization of higher education, expansion will be rapid in decentralized systems, but may be controlled in centralized ones.*

## **Data**

We turn now to more elaborate analyses of growth in higher educational enrollments, using panel analyses. Throughout, we take as our dependent variable the enrollment rate in higher education. With the Banks data set, it is standardized on the total population. In the UNESCO data set it is standardized on the population aged 20-24. We consider all cases for which we have data at two adjacent time points.

The data are pooled across time periods, so that each country case may appear a number of times. We use random effects models to correct for the fact that we repeat data points for the same set of countries (this makes little difference, for reasons that will become clear below). Naturally, since we already know that growth is highly time-dependent, we incorporate independent variables for the relevant time periods. In analyses using the Banks data set, we use a dummy variable for the period since 1960 in our models. In analyses using the UNESCO data set, we employ a dummy variable for the 1955-95 period, as experimentation suggests this is the most effective periodization.

Our baseline analyses, reported in equation (1) of Table 1, simply analyze growth as a function of initial level of enrollment, and the time period dummy variables described above. We also include a dummy variable for countries with almost no enrollment, to capture floor effects (in some analyses, countries with no higher educational institutions seem less likely to have much immediate growth than others).

[Table 1 about here]

The results with both Banks and UNESCO data show, as expected, that growth is dependent on time period and on initial enrollment levels. The time period effects certainly support our Hypothesis 2.

In equation 2, we add the variables making up our basic multivariate analysis. To test Hypothesis 1, we add a standard measure of economic development: Log GDP/Capita, for the UNESCO data, and logged iron and steel production per capita for the Banks data, since GDP data are not available for most countries before World War II (detailed measures and sources are reported in the Appendix). As expected, these measures of development show modest positive effects on enrollment growth -- supportive of the standard Hypothesis 1, but much smaller than would have been expected by most functional theories. The effects become insignificant in the UNESCO data set -- possibly because enrollment growth after 1950 became so much a world-led pattern. Enrollment growth, as the earlier Figures suggest, characterizes both the rich and the poor countries during this period.

Hypothesis 3 reflects the institutionalist idea that linkage to a world context in which models of the proper nation-state emphasize higher education should increase growth. We use a conventional indicator of linkage -- the log of national memberships in international non-governmental organizations (UIA, various years: see Boli and Thomas 1999 for uses of this variable).

We add two variables suggested by competition theories of educational expansion (Hypotheses      and      ). A standard measure of ethnolinguistic fractionalization indicates potentials for ethnic status competition of the sort suggested by Collins (1979) and many others: unfortunately, the literature emphasizing status competition is convincing in principle, but is very unclear on what measures might capture variations in this variable (see, e.g., Rubinson and Fuller      ). And the conventional measure of the secondary education enrollment rate (UNESCO, various years) captures the expansion of the pool of potential applicants competing for higher educational positions -- status competition and credentialing theories suggest that this may drive higher educational expansion (e.g., Boudon      ; Rubinson and Fuller      ). The results show a clear effect of secondary educational enrollment expansion on subsequent higher educational expansion, and but a significant negative effect (contrary to the competition hypothesis) of ethnolinguistic fractionalization. The negative effect probably reflects that fact that fractionalized countries have more difficulty putting together common cultural institutions, whether or not they "need" them in a functional sense, or whether or not their groups are in competition.

In equation (3), we add one additional variable, to explore the institutionalist idea (Hypothesis      ) that growth in one period might be negatively correlated with growth in

subsequent periods, on the principle that fixed nation-state characteristics are less important than correctives to the pressures of the system overall. We characterize a country by its enrollment growth in the preceding period (i.e., by enrollment in Time 1 minus enrollment in Time 0). The idea is that if fairly consistent country characteristics really matter, enrollment growth should be associated with enrollment growth in preceding period. The results are striking -- there is little consistency in enrollment growth across adjacent periods, suggesting that country characteristics are unlikely to account for a great deal of variance in growth. Indeed, the coefficients are negative, though insignificant, suggesting that a system-oriented "corrective" effect is operating. (Unfortunately, small negative effects of this sort might equally be expected out of simple measurement error, since such error at the intervening data point would produce negative associations.) Growth in higher education in the twentieth century is a world phenomenon, related more to time period than to national characteristics. The finding that enduring national characteristics are so unimportant is worth attention, and we return to it in our later discussion.

We address the same institutionalist Hypothesis ( ), that countries tend to correct their earlier "errors" as defined by systemic norms, in another way. As we note below, Communist countries tend, after about 1970, to expand higher education less than others. Here we may note that after the end of communism, these countries tend to correct their errors, and expand higher education a little more rapidly than others (Equation ).

Finally, we turn to the classic theme in the literature put forward here as Hypothesis XX -- the idea that inflationary educational expansion is characteristic of decentralized educational systems and may be suppressed by centralized ones. In

Equation (6) we employ two measures suggested in the literature. We try an overall coding of countries on state central control ( ). Second, we include a dummy variable for Communist countries for the period 1970-90, as suggested by Lenhardt and Stock ( ). These researchers show that for most Communist countries, a generally expansive or progressive educational ideology in the period before 1970 led to high rates of educational growth around the idea of expanded opportunity for the previously-suppressed proletariat. In the period after 1970, however, in Communist country after country, policies were put in place limiting higher educational growth, in order to restrain the formation of an educated elite that would undercut the authority of the Party. After 1990, of course, such controls broke down.

The results are clear: we find a modest negative effect of Communist countries on higher educational growth in the 1970-90 period, as suggested by Lenhardt and Stock ( ). We find no general effect of our measure of centralized control over tertiary education. Perhaps this reflects the limitations of the measure. But perhaps it reflects ambiguities in the conceptions involved: centralized national systems might indeed be able to suppress inflationary growth produced by status competition (Ben-David and Zlockzower ); but in a period encouraging the expansion of schooled elites, they might also be exceptionally able to produce growth.

Additional Analysis

In addition to the analyses reported in Table 1, we tested the effects of other possible factors, adding them (one at a time) to the basic frame of Equation 2. We checked for the additional effects of each of the regions distinguished in Figure 3. We also looked for effects of . . . .

## Discussion and Implications

Our analyses of the expansion of higher educational enrollments around the world show modest effects in conformity with several standard theories. Enrollments grow a little more in richer countries and in countries with expanded mass education: they are limited in Communist countries in a wave starting around 1970.

But the main effects we find are less well theorized in the literature. Enrollments increase much more rapidly in the period after World War II, and leap up in every type of country that we are able to distinguish. The increase runs throughout the period, but is especially intense in the period after around 1955. The effect is worldwide, and occurs in every type of country.

Clearly, the dominant model of the state, society, and the proper stratification system changed dramatically during this period. A world dominated by more traditional elites -- landowners, business owners, political and military machines -- was replaced by one in which a new set of elites (and older ones reconstructed) were built around schooled knowledge. Both the nature of authoritative knowledge, and personnel

selection routines, were transformed (Meyer 1977). And this occurred, not only in the developed and core countries suggested by classical theories of both centrist and critical stripes (Kerr, Dunlop, et al ; Wallerstein 1974 and elsewhere), but in every type of country. The university becomes a central, not a specialized, institution. And levels of enrollment arise in the most peripheral areas that completely transcend anything imagined in an earlier period.

We can think of this as the triumph of optimistic rationalized ideologies about national development -- this would help explain the extraordinary burst of growth in the 1955-75 period -- in the contemporary world. Countries, with educated people and highly schooled elites, could build a future out of expanded "human capital."

It is also possible to think of it in a more critical way, as was suggested in the prescient reflections of Cohen some decades ago. The modern world is knit together in an elite power structure of people more schooled in a cosmopolitan world culture than in their own local one, and linked more tightly to each other than to their own populations. The huge tertiary educational expansion that we have discussed clearly occurs in institutions with a great deal of isomorphism around the world -- the same subject are taught with the same perspectives leading to very similar degrees and to credentials that take on worldwide meaning (for the odd example of the MBA, see Moon 2002 or Sahlin-Andersson ).

Local people who get a little paranoid about all this may not be entirely unreasonable. While beliefs in international power conspiracies -- black helicopters from the UN, or CIA plots from America -- may be imprecise, it is certainly true that controls fueled by higher educational expansion penetrate almost everywhere. Here customary

family arrangements are undercut by elite claims about the human rights of women and children (Boyle). Over there, local agricultural practices are destroyed by world ecological ideologies (Frank). Yonder, local production systems lose access to credit because of worldwide pressures for transparency (Drori). In each case, the culture and the elites involved are produced by a worldwide higher educational system with -- as we have demonstrated -- astonishing penetrative power over local society.

## Conclusion

World-wide higher educational expansion in the period since 1955 or 1960 reflects a common global model of national society more than national social, economic, and cultural variations. The now-established model is one in which a wide variety of roles require higher education, and large number of the young are capable of benefiting from it. As a result, very poor and peripheral developing countries have universities -- and have enrollments higher than the most advanced countries did a few decades ago.

Since higher educational systems tend to carry a common world cultural frame, the expansion of higher education produced a world in which national elites are culturally integrated with each other. This can be seen as a form of world cultural integration, and/or as a form of global domination.

## References

Banks, A. S. 2001. *Cross-national time-series data archive* [dataset]. Binghamton, NY: Computer Systems Unlimited.

Bowles, Samuel and Herbert Gintis. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. New York: Basic Books, Inc.

Collins, Randall. 1971. "Functional and Conflict Theories of Educational Stratification." *American Sociological Review*, 36 (1971): 1002-1019.

Collins, Randall. 1979. *The Credential Society: An Historical Sociology of Education and Stratification*. New York: Academic Press.

International Association of Universities. 1998. "International Handbook of Universities." Paris: IAU Press for the Association of Universities.

Riddle, Phyllis. 1990. "University and State: Political Competition and the Rise of Universities, 1200-1985." Doctoral Dissertation, School of Education, Stanford University, Stanford, CA.

Riddle, Phyllis. 1993. "Political Authority and University Formation in Europe, 1200-1800." *Sociological Perspectives*, 36, 1(spring):45-62.

Rubinson, Richard. 1986. "Class Formation, Politics, and Institutions: Schooling in the United States." *American Journal of Sociology*, 92 (3): 519-48.

Windolf, Paul. 1997. *Expansion and Structural Change: Higher Education in Germany, the United States, and Japan*. Boulder, CO: Westview Press.

Table 1. Random Effects GLS Pooled 10-Year Panel Regression Analyses: Effects of covariates on Higher Education Students (per 10,000 capita), 1900-2000.

Note: All independent variables measured 10 years prior to dependent variable.

| Variables   | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Lagged Higher Education Students Per 10,000 Capita $t-10$           | .916***<br>(.064)  | .901***<br>(.064)  | .924***<br>(.066)  | .931***<br>(.066)  | 1.19***<br>(.055)  |
| Economic Development (Log Iron & Steel p/cap)                       | 1.98*<br>(.816)    | 1.80*<br>(.857)    | 2.18**<br>(.834)   | 1.90*<br>(.813)    |                    |
| INGO Membership (log)   | 4.56*<br>(1.78)    | 4.72*<br>(1.97)    | 4.20*<br>(1.77)    | 4.66*<br>(1.81)    |                    |
| Secondary Enrollment Ratio  | .073***<br>(.014)  | .072***<br>(.014)  | .069***<br>(.014)  | .065***<br>(.014)  |                    |
| Ethno-Linguistic Fractionalization                                  | -.205***<br>(.061) | -.219***<br>(.066) | -.221***<br>(.064) | -.205***<br>(.061) |                    |
| No University System (Floor Dummy)                                  | 7.32<br>(4.35)     | 8.10<br>(5.77)     | 6.49<br>(4.36)     | 6.61<br>(4.23)     |                    |
| Post-1960 Dummy   | 17.76***<br>(3.20) | 21.38***<br>(3.61) | 19.78***<br>(3.46) | 18.59***<br>(3.21) | 23.40***<br>(3.87) |
| Growth in Prior Period: Higher Education Students $[t-20] - [t-10]$ |                    | -.819<br>(.570)    |                    |                    |                    |
| Communist * 1970-90   |                    |                    | -29.84*<br>(11.57) | -28.12*<br>(11.73) |                    |
| Communist * Post-1990   |                    |                    |                    | 93.06*<br>(43.24)  |                    |
| Constant  | -18.74*<br>(7.27)  | -18.07*<br>(8.56)  | -16.89*<br>(7.26)  | -18.35*<br>(7.29)  | 6.61***<br>(1.74)  |
| Adjusted R-squared  | .823               | .817               | .824               | .829               | .768               |
| Number of Countries   | 126                | 123                | 126                | 126                | 150                |
| N   | 654                | 602                | 654                | 654                | 801                |

\*\*\* p < .01, \*\* p < .05, \* p < .10, two-tailed test  
(robust standard errors in parentheses)

Table 2. Random Effects GLS Pooled 5-Year Panel Regression Analyses: Effects of covariates on Higher Education Enrollment Ratio, 1950-2000.

Note: All independent variables measured 5 years prior to dependent variable.

| Variables   | Model 1            | Model 2           | Model 3            | Model 4            | Model 5           |
|---|--------------------|-------------------|--------------------|--------------------|-------------------|
| Lagged Tertiary Enrollment Ratio <sub>t-5</sub>                             | .954***<br>(.052)  | .935***<br>(.050) | .952***<br>(.052)  | .952***<br>(.052)  | 1.09***<br>(.025) |
| Economic Development GDP per Capita (log)                                   | .518<br>(.341)     | .637<br>(.357)    | .482<br>(.345)     | .484<br>(.342)     |                   |
| INGO Membership (log)   | .349*<br>(.135)    | .321*<br>(.146)   | .358**<br>(.134)   | .342**<br>(.133)   |                   |
| Secondary Enrollment Ratio  | .052***<br>(.016)  | .054**<br>(.018)  | .054**<br>(.016)   | .052***<br>(.017)  |                   |
| Ethno-Linguistic Fractionalization  | -.016***<br>(.005) | -.014**<br>(.005) | -.017***<br>(.005) | -.016***<br>(.005) |                   |
| No University System (Floor Dummy)  | 1.15***<br>(.319)  | .934**<br>(.302)  | 1.16***<br>(.320)  | 1.10<br>(.316)     |                   |
| Post-1955 Dummy   | 1.04***<br>(.226)  |                   | 1.09***<br>(.229)  | 1.06***<br>(.225)  | 1.31***<br>(.228) |
| Growth in Prior Period: Tertiary Enrollment Ratio <sub>[t-10] - [t-5]</sub> |                    | -.185<br>(.194)   |                    |                    |                   |
| Communist * 1970-90   |                    |                   | -3.42***<br>(.592) | -3.29***<br>(.551) |                   |
| Communist * Post-1990   |                    |                   |                    | 5.18*<br>(2.14)    |                   |
| Constant  | -5.04*<br>(2.38)   | -4.51*<br>(2.37)  | -4.88*<br>(2.39)   | -4.79*<br>(2.38)   | .302**<br>(.105)  |
| Adjusted R-squared  | .918               | .916              | .918               | .919               | .896              |
| Number of Countries   | 119                | 117               | 119                | 119                | 168               |
| N   | 770                | 687               | 770                | 770                | 1224              |

\*\*\* p < .01, \*\* p < .05, \* p < .10, two-tailed test  
(robust standard errors in parentheses)



Figure 1: Percentage of Countries & Colonies With One or More Universities, 1900-2000.

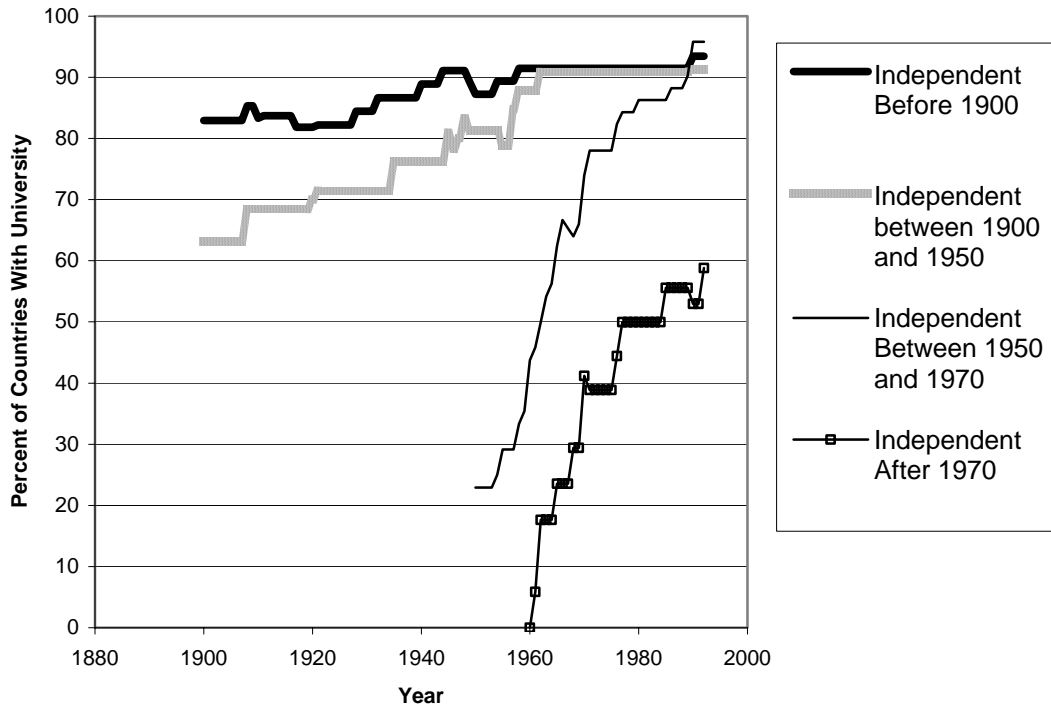


Figure 2. World Tertiary Students, 1815-1980 (Source: Banks).

### World Tertiary Students, 1815-1980 (Banks)

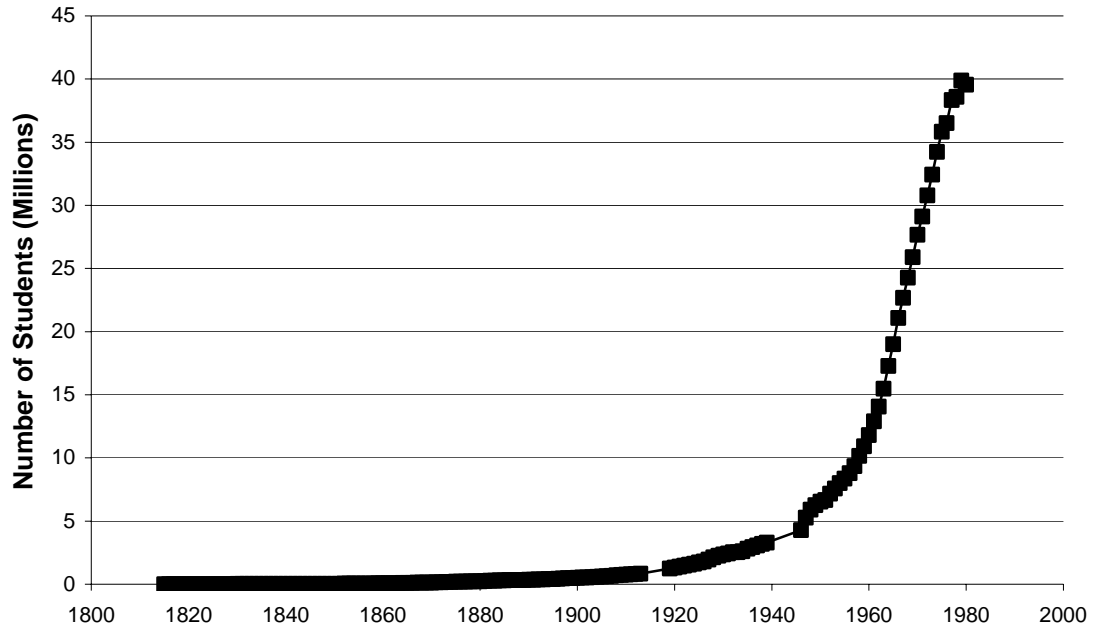


Figure 3. World Tertiary Students by Constant-Case Groups.

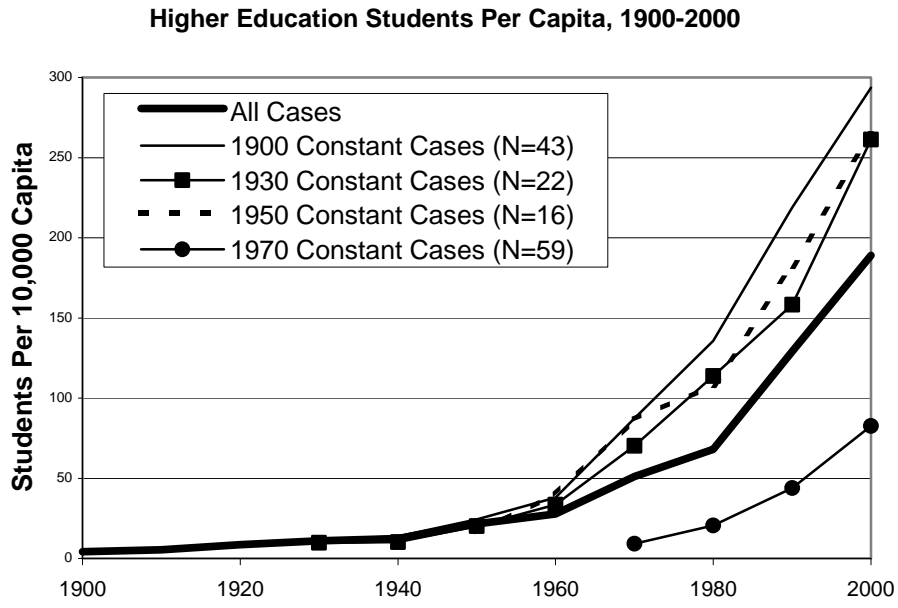


Figure 4. Tertiary enrollment per capita: selected cases scaled to 1990 value.

