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ABSTRACT

The following major papers and summaries of discussion are included in this report of a two-day conference on the improvement of the teaching of economics and business administration at liberal arts colleges. Should the Economics and Business Curriculum in a Liberal Arts College be Different? is the introductory address by Robert L. Bunting. H. Gregg Lewis' paper, On Doing Our Thing, presents a survey of recent developments in economic analysis which focuses on the human capital concept's implications for socioeconomic events. Five models of undergraduate business education programs are described by Paul V. Grambsch in The Role of Business in Liberal Arts Colleges. John R. Coleman's Techniques in Teaching Economics: A Critical Report provides a five point evaluation of undergraduate teaching in economics. The final session is a discussion of goals and the contributions of economics within the liberal arts college; it is reported in a one-page summary. (DJB)

Proceedings of A Conference on the Teaching of Economics and Business at Liberal Arts Colleges

edited by

Robert L. Bunting

This Conference (held at Cornell College) and the publication of the conference results were made possible by a grant from the Louis W. and Maud Hill Family Foundation. Robert L. Bunting, formerly a member of the Cornell College faculty, directed the Conference and edited these Proceedings.

Preface

In May of 1969 Cornell College hosted a conference for representatives from several liberal arts colleges for the primary purpose of exchanging ideas on improving the teaching of economics in those institutions. Since the Joint Council has long had an interest in improving teaching, it undertook to publish and distribute the deliberations of the conference.

October 1971

Arthur L. Welsh
College and University Program

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Introductory Comments

Should the Economics and Business Curriculum in a Liberal Arts College be Different?

Robert L. Bunting
Macalester College

The answer to my title question is implied by the fact that this Conference has convened. Nevertheless, a few remarks about "how" and "why" seem an appropriate way to begin the discussion.

The "how" is easy--and brief. Over the past eight years our Department of Economics and Business here at Cornell College has been struggling with the issue raised by the Conference: Just what should we be doing with respect to education in economics and business and how should we be doing it? Quite early in that process the Louis W. and Maud Hill Family Foundation began supporting our efforts to find answers. A year ago Mr. A.A. Heckman, Executive Director of the Foundation, suggested that we hold a conference to exchange ideas with teachers from other liberal arts colleges. Subsequent discussions led to the present conference format: a small two-day conference designed to stimulate free interchange of thoughts among representatives of major universities and smaller colleges. Furthermore, we decided to pull together the results in some publishable form which would make the Conference deliberations available to a much larger group than that actually present. So much for "how."

What about "why"? A conference focusing on this topic makes sense only if the problems and/or opportunities for teachers of economics and business in liberal arts colleges are in some sense unique. I learned the hard way that this is indeed so. I came to Cornell do. All faculty teach the course; we keep our sections small (about 15-17 students); and each of us designs his own course. The result is that teaching introductory from inundating departmental professorial resources. In a sense, doing a good job at the *graduate* level—where the reputation of the institution within the scholarly community is largely determined—puts a premium on doing a poor job at the undergraduate level.

At a good liberal arts college all of this is different: Competitive pressures reward excellence of program and quality of teaching. I quickly learned that my Cornell colleagues in philosophy, political science, physics and the like, took their roles as teachers

very seriously, and that any department not adopting the same attitude quickly finds itself with the poorest students on campus as its majors.

A second characteristic of a good liberal arts college which contrasts it sharply from larger undergraduate institutions is the flexibility of its program, coupled with what appears to be a great willingness on the part of its faculty to experiment. Typically on a large university campus, the "principles" courses are handled by graduate students who parade their sophomores through a Samuelson-like, 1000-page volume—frequently emphasizing the more esoteric topics which they are currently studying in their graduate seminars. Little wonder that we continue to uphold our profession's long-standing reputation for alienating students and for convincing them that economics is dull and irrelevant. But the flexibility provided by a small faculty and relatively few students makes it possible for us in liberal arts colleges to handle the problem differently—and we at Cornell do. All faculty teach the course; we keep our sections small (about 15-17 students); and each of us designs his own course. The result is that teaching introductory economics is fun, not a chore. I interpret our increasing enrollments to the fact that what goes on in these classrooms has become a more pleasant and rewarding experience for everyone involved.

I have suggested that liberal arts colleges seem to attract professors who are willing to experiment, to try out new ideas. There are times when I wish this were not so—for it means that we seem destined to try all the fads which come our way. But the other side of it is that every now and then a good, new idea does come along; when it does, it can usually find a sympathetic hearing in a liberal arts community.

A final reason for holding a conference such as this is less flattering to those of us who constitute the liberal arts faculties; in the current vernacular, this is not where the action is at. The new ideas in economics are generated and tested in the major university centers. In the postwar years the discipline of economics has grown in many directions and it is terribly important that those of us who are, in a sense, on the fringes of the arena keep in constant contact with each other and with those economists such as Dr. H. Gregg Lewis who are in the center. We must continually ask ourselves what these new developments mean to our liberal arts offerings.

Similarly, and even more dramatically, the notion of what education for business should consist of has been undergoing radical change in the past 10 or 15 years. Most of the discussion has taken place at the graduate schools of business and it has been largely focused upon educational problems at that level. But what are the implications of these almost revolutionary developments for us in liberal arts colleges? Dean Paul V. Grambsch of the University of Minnesota will lead our discussion of these issues in our second session.

Finally, there have been disturbing indications that the effectiveness of our profession's teaching efforts leaves a great deal to be desired. Dr. John R. Coleman, who as you may remember had a good deal to do with the American Economic Association's experimental TV series, is here to interact with us on this tough issue.

In brief, this Conference grows out of the problems raised, and opportunities offered, by the special educational environment of a liberal arts college. I hope it will prove fruitful for all of us.

On Doing Our Thing

H. Gregg Lewis
University of Chicago

Among the chief advances in economics that have occurred during my lifetime as an economist, now thirty years, is the formulation, mainly in the last decade, of a general concept of human capital and the related development of a body of economic theory of human capital that has great versatility in terms of its implications for social-economic phenomena. The two major contributors to these advances are Professors T.W. Schultz (1960, 1961a, 1961b, 1963) of the University of Chicago and Gary S. Becker (1964) of Columbia University.[1] I think that it is no exaggeration to say that these developments are in the process of revolutionizing the study of the economics of labor and are having in general a substantial impact on the economics of resource use.

These advances in economic analysis in turn have been the stimulus for much empirical research on one or another of the many facets of investment in persons, especially schooling. Indeed, the worldwide research on human capital formation and its implications has reached such tidal wave proportions that it is difficult to keep an up-to-date list of the published work, to say nothing of digesting the work. In part the emphasis on formal education in the research to date is a consequence of the greater availability of data on schooling than on other aspects of human investment. More importantly, the emphasis undoubtedly reflects a considered judgment that formal education is one of the principal ways that society invests in man. Although schools, including colleges and universities, to some extent are engaged in producing perishable commodities currently consumed by students, teachers and others, there can be little doubt that the main output of schools is durable capital embodied in persons (students). This capital, we trust, increases the productivity now and in later years of life, in both market and nonmarket activities,

[1]Needless to say, as both Schultz and Becker acknowledged, there were important precedents for their work in the earlier literature, some of which quite explicitly applied the capital concept to man, and, of course, there was a large literature on capital theory and physical capital formation.

of the persons (students) in whom the capital is invested. Of course, in part our schooling of the young is gross rather than net capital formation and simply represents the replacement of the schooling capital lost by the death of their parents and grandparents. However, in the United States and in most of the rest of the world the distributions of population cohorts by years of schooling have been shifting secularly to higher years of schooling classes. Thus we know that the schooling industry in general has been engaged in net as well as gross human capital formation.

In what follows I refer to the United States though much of what I have to say about the U.S. also can be said about the rest of the world. Much of the empirical research on investment in humans, and especially that by Professor Schultz and those who followed his lead, was motivated by statistical evidence that growth in physical capital per head (or per man-hour) explained a relatively small fraction of the growth in real output per head (or per man-hour) in the U.S. (and other) economies, leaving a large "residual" to be explained. Schultz was convinced that a substantial part of the residual could be explained by the growth in the human capital per head or "quality" produced by the schooling of the labor force. Subsequent research by him and by others has confirmed his belief.[2]

Let me put the argument formally. I write the aggregate production function for the economy as

$$Y = T'f(NHQ, K)$$

where Y is aggregate output, N is aggregate employment of labor in heads, H is the average hours worked per year per employee, Q is an index of the average human capital per head or "quality" of the employed labor force, K is proportional to the stock of physical capital, and T is an index of technical change—that is, T measures our ignorance, that which is not explained by NHQ and K. We may write this equation as a differential or "change" equation as follows

$$\frac{\mathrm{d}\ \log\ Y}{\mathrm{dt}} = \alpha\left(\frac{\mathrm{d}\ \log\ NH}{\mathrm{dt}} + \frac{\mathrm{d}\ \log\ Q}{\mathrm{dt}}\right) + (1-\alpha)\ \frac{\mathrm{d}\ \log\ K}{\mathrm{dt}} + \frac{\mathrm{d}\ \log\ T}{\mathrm{dt}}$$

$$\text{or}\quad \frac{\mathrm{d}\log y}{\mathrm{dt}} = \alpha\ \frac{\mathrm{d}\ \log\ Q}{\mathrm{dt}} + (1-\alpha)\ \frac{\mathrm{d}\log k}{\mathrm{dt}} + \frac{\mathrm{d}\ \log\ T}{\mathrm{dt}}$$

where α is the share of labor income in total output, $y \equiv \frac{Y}{NH}$ is aggregate output per man-hour, and $k \equiv \frac{K}{NH}$ is proportional to the stock of capital per man-hour of employed labor. I have obviously skipped some reasoning underlying the coefficient α, but, as you know, this reasoning is mainly our so-called marginal productivity theory. Griliches (1968) has estimated the index Q for selected years in the period 1940-1967 essentially by calculating the weighted average years of schooling of the employed labor force, weighting by the average wage earned in each schooling class. (The wage weights were held constant in each pair of adjacent years.) Over the period as a whole, he found that the index Q grew at about 0.8 percent per year. Since the share of labor income in total income was about 0.7, the growth in output per man-hour accounted for by the growth in *years* of schooling per head was approximately 0.6 percent per year, or about one-fourth of the total growth in output per man-hour.

There are two other kinds of evidence that the human capital formed by schooling has substantial productivity at least in the market place. First of all there are the estimates of the market rate of return on increments of schooling. (This evidence, of course, is not really independent of that contained in the kind of labor "quality" index just discussed.) Such rate of return estimates are now available in large volume. I mention here

[2]For a recent compact summary of this research see Griliches (1968).

only those by Becker (1964, especially Chapters IV, V and VI). Professor Becker's estimates, for example, of the mean private after-tax rate of market return on the increment of schooling involved in completing at least an undergraduate college or university education for urban white males in fairly recent years are of the order of magnitude of 10 to 15 percent, as high or higher than corresponding rate of return estimates for physical capital. Similar estimates by Becker for the high school increment of formal education run even higher. Secondly, the quality index and rate of return findings have been broadly confirmed by recent empirical research on aggregate production functions in which the set of input variables explaining output include a labor quality index, based on schooling and wage data, of the type discussed above. Griliches (1968) has an excellent summary of this research.

It is, of course, rewarding to know, even in a global sense, that the schooling capital that we are helping to produce apparently has considerable productivity in the market. However, for an appraisal of the effectiveness with which we are doing out thing—producing somewhat specialized human capacity by training in economics—we would like to know the rate of return figures or quality indexes or production functions for increments of undergraduate and also graduate training in economics. And we would like to be able to compare these kinds of data with similar data for increments of undergraduate and graduate schooling in other disciplines. Such information is presently not available for the United States, though, interesting enough, I know of two ongoing studies in Latin American schools of economics that are attempting to estimate the rate of return on collegiate training in economics. (Crude inspection of the data on earnings of economists in the U.S. suggests that the rate of return on economics training is considerable.) I shall come back later to this unfinished piece of our business.

The data I cited above refer to increments of schooling measured in a "quantity" sense—*years* of schooling. But surely both within and between countries at a given time there are some large differences in the quality of schooling. (The quality differences may play a substantial role, along with quantity differences, in understanding the problem of poverty with which we are presently so preoccupied.) Furthermore, it seems very likely that the quality of schooling has changed—we trust that it has improved—over time for given populations.

Even at the global level, empirical research attempting to separate the productivity effects of schooling quality from those of schooling quantity is still in its early stages and there are few published works on the subject to which reference may be made.[3] We know even less in a systematic way about the ingredients of quality in economics training and the incremental costs and benefits of these ingredients. Of course, each of us has strong opinions about these matters relating to the production function in our business; I will share my opinions with you shortly.

But first I return briefly to the economics of education at the global level. I noted earlier that the within-cohort distribution of the U.S. adult population by years of school completed has been moving secularly toward higher schooling classes. The movement has been going on for quite a long time at a fairly rapid pace. It is probably not as well known that at least in the last two to three decades, but perhaps not earlier, there has been little, if any, secular tendency for the structure of relative wages by schooling class to narrow.[4] Thus, despite the great growth in the relative supply of "schooled" persons and the steady and substantial upward trend in real wages on the average in the economy, relative wages of schooled persons have not tended to decline. Hence it must be that the relative demand

[3]The study by Professor Finis Welch (1966), however, should be cited.

[4]See Becker (1964), Chapter VI, and Griliches (1968).

function for labor by schooling or skill level has been shifting in this recent period in favor of more schooled labor—that is, one might say, in favor of human capital relative to human *labor*.

Empirical studies of the relative demand for labor by schooling or skill class are now underway, but it is still too early to discern with confidence what will be the eventual consensus of the findings.[5] My favorite hypothesis—"favorite" because it appears plausible and already has achieved a bit of empirical support—is that commonly physical capital is a better substitute for labor embodying relatively little human capital than for labor with relatively much human capital. Put over-simply, I think it is easier to substitute physical capital for "brawn" than for "brains." If this is so, then real wages that rise in more or less the same ratio for all schooling or skill levels will induce relatively less substitution of physical capital for relatively schooled or skilled labor than for relatively unschooled or unskilled labor and hence increase the demand for the first relative to the second at a given relative wage of the first to the second. (This, by the way, is an example of the proposition that the demand for one kind of labor relative to another depends not only on their *relative* wage, but also on their *absolute* real wage level.)

However, there are at least two other hypotheses that may account in part or whole for the rising relative demand for schooled labor: (a) for some reason or other technical change may have been biased in favor of the more-schooled labor, and (b) the demand for the output of industries employing a relatively rich skill mix of labor may have grown relative to that for industries employing a relatively unskilled labor mix.

Whatever the ultimate demand explanation may be, it appears to be true of about the last quarter century in the United States that economic growth—rising real wages—was accompanied by growth in the relative demand for labor with high school and collegiate schooling skills. This growth in demand maintained the real market return to investment in high school and collegiate training at a higher level than otherwise would have occurred, and this, in turn, I believe was an important incentive to young persons to undertake these schooling investments. In other words, a substantial part of the recent growth in average years of school completed may have been demand-induced. Nevertheless until we know much more than we do now about the relative demand for labor by schooling class, it would be foolhardy to predict continuation of these recent trends into the long-term future.

The economic cost to a college or university student of four or more years of higher education is large and immediate. It consists of the real value of the time he otherwise would have spent in market and nonmarket activities plus the direct cost (net of scholarship grants) to him of this schooling in the form of tuition, fees and extra living and travel expense. The market return to this investment in the form of higher market wage rates and, we trust, greater nonmarket productivity occur mainly after the completion of schooling and are well spread out over the remaining years of the student's lifetime. Furthermore, changes in the specialty or "occupational" composition of the demand for labor occur more or less continually and these changes in turn tend to cause changes in the market return prospects by occupation. Do cohorts of young people of collegiate age who are high school graduates tend to respond to these changes in market return prospects? Do they choose in larger fractions to make a collegiate investment as the return prospects on this investment improve? Do they choose in larger proportions the fields of specialization and, after graduation, the occupations in which the market return prospects have improved the most? I suspect that all of us would answer this question affirmatively even in the absence of much evidence. In fact we have already accumulated a considerable amount of evidence in support of an affirmative response. I cite here three

[5]However, see Griliches (1968) and Rosen (1966).

studies. There is, first, Professor Becker's finding (Becker, 1968, Chapter IV) of a positive correlation, across U.S. groups by color, sex, and urban *vs* rural residence, between the rate of return on the collegiate increment of schooling and the fraction who completed college. Second, Professor Bruce Wilkinson (1966) in a study of teachers and engineers in Canada found that as the returns prospects for teachers increased relative to prospects for engineers in the period 1957-1961, teacher-enrollment increased substantially relative to engineer-enrollment. Third, Professor Richard Freeman (Department of Economics, Harvard University) in a statistical study covering a rather broad spectrum of college- and university-level specialties supplies a variety of evidence confirming the responsiveness of collegiate investment decisions of both graduate students and undergraduates to market return expectations.[6] Hence we can presume that the fraction of college and university students who will choose to major in economics will tend to vary directly, though with some lag, with the market returns to occupations that make substantial use of economics training relative to the market returns to other occupations.

Of course the fraction choosing economics surely also depends on students' estimates of their capacity to master the subject matter of economics and their tastes for the discipline, both of these relative to other disciplines. In particular, I do not doubt that the proportion will be larger and of greater intellectual ability, the livelier and more intellectually challenging is the subject matter taught and the greater the effort made to demonstrate the power and versatility of economics for illuminating social phenomena, including much that most students initially would put beyond the scope of the discipline.

The evidence on the responsiveness of specialty choices to market returns lends credence to the view that students tend to choose higher quality schools over lower quality schools in which the cost of education is the same and tend to "buy" higher quality of instruction at higher cost so long as the expected return to an increment of quality exceeds its expected cost. Of course, because admissions to U.S. colleges and universities are not "price-rationed," and because generally the rationing of admissions places heavy weight on the estimated capacity of each applicant, students judged to be more capable academically will tend to have a wider range of choice of schools than those judged to be less capable. (Needless to say, our estimates of applicant capacity are probably crude and in need of improvement. This is another unfinished piece of our business.) Thus if the above view of student choice of school is approximately correct, applicant quality will tend to be positively correlated with school quality among schools of equal cost.

I have a rather strong impression that the behavior of graduate students does conform to the above view. This impression is based on about 30 years of observation of graduate students in *economics,* but I doubt that their conformity is a consequence of their specializing in economics rather than in some other discipline. Furthermore, in spite of differences of opinion about the ranking by quality of schools within discipline, I think that it would be relatively easy to assemble impressive evidence in favor of this hypothesis about school choice from data on the graduate school choices of winners of such fellowships as the Woodrow Wilson, Danforth, and National Science Foundation. However, I suspect that the evidence in support of the view will be less impressive, though positive, for undergraduates because their choice of schools takes place substantially earlier, often before they have chosen their fields of specialization, when they are much less well informed about school quality.

This is an appropriate place to return to the hard question that I mentioned earlier: How can we make the best out of what we have? It doesn't help much, beyond reminding us to be economists in managing our schooling affairs, to put the problem as one of

[6]Professor Freeman's results are reported in an as yet unpublished book manuscript with the title The Labor-Market for College Trained Manpower.

maximizing an objective function, subject to a set of restraints. I am not going to try to specify in a general way either the objective to be maximized or the restraints to which the maximization is to be subjected, and in a moment I will turn to a narrower question. Nevertheless, I think that we economists and our colleagues in other disciplines do have a continuing obligation to try to discover more precisely what our objective function is and which of the apparent restraints on our choices were of our own making. We can learn about what it is that we are trying to accomplish with the resources we have by worrying ourselves and our colleagues with questions that are analytically similar to those we put to our economics students. For example: (1) Would there be a net loss in achievement of objectives if we admitted one less star athlete-mediocre student and one more mediocre athlete-star student? (2) Would there be a net loss if the faculty rather than the staff of the Dean of Students Office (or Admissions Office) selected the students to be admitted? (3) In dickering with prospective faculty is teaching load taken as a given or is it recognized as a self-imposed restraint, hence subject to negotiation? (4) What would be the net loss to the school if Department "X" were eliminated and the resources reallocated among the rest of the departments? (Let "X" be, say, economics.) (5) Is it really a net gain to substitute a popular among students but badly taught course in development economics for a tough, unpopular and well-taught course in international economics?

I come then to the narrower question to which I will devote the rest of my remarks: How can a department of economics improve the quality of its undergraduate program for economics majors, given its resources and the number of students the program serves? I have put in these restraints because what I want to discuss now is the content of the program rather than other things.

Before answering this question it would be useful to have, first, an index of the quality of undergraduate instruction in economics in the U.S. at the present time. I know of no such index.[7] The appraisal that I give is therefore impressionistic. It is based mainly on my observations and those of several of my colleagues of the performance of graduate students in economics early in their graduate work. Our point of observation, of course, is a biased one, since the sample of students observed is not a random sample of all undergraduates who have completed an undergraduate major in economics, but, we hope, is a sample of the most capable, dedicated and interested students in this population. If so, then the bias should lead us to overestimate the quality of undergraduate instruction.

In general, but not without some significant exceptions, I judge that the institutions that have strong graduate departments of economics also provide good instruction in economics and closely related subject matter to their undergraduates. There are quite a few other institutions, liberal arts colleges and universities without a renowned graduate department of economics, who serve their undergraduate economics students well. But in many schools, perhaps most, it is my judgment (one that is shared by several of my colleagues with whom I have discussed this matter) that the undergraduate economics program is weak. Indeed, in some schools economics instruction is so poor that it is a disservice to students. Undergraduate students who hope to do graduate work in economics frequently ask the Department of Economics at Chicago for advice about how to prepare themselves best for graduate study. More frequently than I like to admit I have

[7]There are, of course, the Graduate Record Examination achievement test data. I am in the process now of examining the usefulness of these test scores for predicting performance of students who subsequently pursued graduate study in the Department of Economics, University of Chicago. In an earlier study several years ago, based on a small and nonrandom sample of such students, the GRE aptitude and achievement scores proved to be almost worthless in the presence of such other predictors as a student's undergraduate grade record, and my judgment of the quality of the school he attended. [Editor's Note: See also the Hansen article in the accompanying fall issue of the *J.E.E.*]

advised them to substitute mathematics or statistics or history or English courses for additional courses in economics.

The fact is that we admit students for graduate study in economics who have had *no* previous training in economics and expect them to progress about as rapidly to the Ph.D. as the average student with an undergraduate major in economics. This is an unhappy state of affairs for us because it means that the Ph.D. program is longer than it would be if we could build on excellent undergraduate preparation.

What are the ingredients of good undergraduate preparation in economics? The answer to this question probably depends to some extent on the answer to a second question: Preparation for what kind of career? That of an economics Ph.D.? A business career following an M.B.A.? A career in law following a law degree? Or the kinds of careers followed by undergraduate majors in economics who complete their formal schooling with a bachelor's degree? Because my experience has been mainly with students training themselves for the career of a Ph.D. economist, it is easier for me to think about program ingredients for such a career than for others. Yet I am aware that only a minority of undergraduate economics majors go on for graduate work in economics, and I will try to take this into account.

I have found it useful in trying to discover some wisdom that I could share with you to review the changes that have occurred in economics since the time over 30 years ago when I was an undergraduate student of economics.[8] Perhaps the most obvious change is the greatly increased use of mathematics in economic analysis. Use of mathematical language (beyond high school algebra and analytical geometry) in economics exposition goes back more than a century. Yet as late as 1930 exposition of economics was overwhelmingly in the literary style. But since then there has been a very rapid upward trend in the use of mathematics, beginning with elementary differential calculus and elementary linear algebra, and then onward and upward with more and more sophisticated mathematics. The trend appeared first in technical articles and books in economic theory and in economic statistics (econometrics) until now there is a substantial literature that nonmathematicians like myself can't begin to read. Then graduate courses in mathematical economics began to appear in a substantial number of schools, and increasingly even first-year graduate courses in economic theory have come to demand differential calculus as a prerequisite. And the traditional foreign language requirement for the Ph.D. is being replaced by a mathematics "language" requirement. Then still later the trend appeared in undergraduate economics instruction. Some schools are already offering undergraduate mathematical economics courses and a few schools have made differential calculus a prerequisite for their senior-level theory courses.

It is still fairly easy, nevertheless, to arouse quite heated argument on the question of the contribution of mathematics to economic analysis and to the teaching of economics. However, I think that the use of at least the more elementary parts of differential calculus and linear algebra has met the survival test by now and I will not argue for a reversal of the trend.

Even as recently as 15 years ago, only a small minority of those who applied for admission for graduate work in economics at the University of Chicago had as much mathematics instruction as a year of calculus. This year roughly three-fourths of the applicants will have completed a year of calculus before beginning graduate work and a substantial proportion of these have more advanced mathematics training, especially in linear algebra. Thus the message regarding the advisability of calculus and algebra training in preparation for graduate work in economics appears to be coming through now in

[8] I have been aided substantially in this review by Professor Harry G. Johnson's inaugural lecture at the London School of Economics.

a loud and clear fashion in the majority of schools or at least to the majority of undergraduates.

I noted earlier that mathematical economics courses, or at least courses labelled that, are beginning to appear in undergraduate curricula and I judge that a trend may be in the making here. I do not object to undergraduate economics courses with demanding mathematics prerequisites that are competently taught as economics courses. However, it is clear that some of the so-called undergraduate mathematical economics courses, taught by members of economics rather than mathematics faculties, demand very little previous mathematics training and apparently are intended to provide in one quarter or one semester the instruction in calculus and linear algebra needed as preparation for graduate work. Such attempts to sugar-coat and short-cut the desired mathematics training, in my judgment, are mistaken. I speak here from some experience, for I have taught such a course. Infrequently do members of undergraduate economics faculties have the competence to teach a good course in calculus or linear algebra.

The trend toward mathematization of graduate study in business more or less parallels that for economics, and undergraduate training in calculus and algebra is probably as advisable for the prospective graduate student in business as for his counterpart in economics. However, the benefit from such mathematics training is probably less great on the average for other undergraduate economics majors—those who complete their training with a bachelor's degree or do graduate work in other social sciences, the humanities, or law.

Almost as obvious as the trend in the use of mathematics in economics and business is a similar one in economic statistics and statistical economics or econometrics, the quantification of economics, including the estimation of economic relationships and the testing of economic theories. (Indeed, in an important way the growing demand for mathematics training of economics and business students is a consequence of the trend in quantitative economics.) In the last decade the trend in quantitative economics of course has received a big push from the postwar development of the electronic computer which has reduced immensely the cost of the kinds of numerical computations we performed on desk calculators 15 years ago and has made possible some computations that we regarded then as unthinkable. Computing a multiple regression with seven or eight variables along with the associated test criteria was a day's work on a desk calculator. Today the computation of a several-equation "simultaneous equations" model involving several times as many variables is routine.

Forty years ago the word "econometrics" was not yet in the vocabulary of economics and departments of statistics did not exist, though good statisticians did. Thus in the ensuing two decades most of the training of economists and business students took place in faculties of economics and business. Indeed, in marked contrast to mathematics training, this is still true to a very considerable extent, though by 1940 it was clear that statistics had come of age as a discipline and after the war departments of statistics were established in quite a number of universities here and abroad.

As a consequence of the progressive quantification of economics, economists more and more feel obliged in presenting new developments in economic analysis not only to state the implications of the analysis in a form in which these implications can be empirically studied, but also to do some of the empirical work themselves. The work of Professors Schultz and Becker on human capital is an example. And, of course, along with this has been the restatement and quantification of elements of economic analysis that have long been a part of our set of tools.

In numerous instances the empirical research necessary to estimate the order of magnitude of the numbers sought did not demand either very sophisticated economic analysis and econometric techniques or data of a kind not available three decades ago,

though, of course, our data resources are indeed much greater. Thus the quantification trend has involved not only improvements in method and data, but also, I think, a real change in attitude of economists. Let me give you an example with which I am quite familiar.

Thirty years ago when the growth of unionism in the U.S. labor force was at its height and unionism was very much in the spotlight, there were undoubtedly many economists, myself included, who were ready and willing to tell you that unionism was having and would continue to have a "large" impact on the U.S. relative wage structure, and, I think, few who would have disputed this judgment. (I think now that many of us were guilty not only of casual empiricism, but also of bad economic analysis.) Yet if we had been asked the question "How large?" we couldn't really have answered, because there were literally no empirical studies available that contained numerical answers to the question. Furthermore, the absence of numerical estimates was not due to either lack of data or of economists capable of doing empirical research on the question.

The question continued to be an important one and in the decade following the war, there was quite an outpouring of relevant quantitative research, much of it using prewar data and elementary statistical techniques. However, though the reported findings were based on numbers, they were almost always stated in terms of adjectives like "large" and "small" rather than numbers. (Partly for this reason, partly because the dates of reference differed, and partly because of ambiguity in what was being measured, there was more apparent disagreement among the results of the studies than was really warranted.) And for the first time, I think substantial disagreement appeared among economists regarding the *numerical* magnitude of the relative wage effects of unions.

In the last ten years empirical work in the area has continued. The notion of what kind of relative wage effect is being measured in each of the various types of studies has become clearer so that there is less disagreement about the interpretation of the statistical results. Many new data have been examined. The practice of using adjectives rather than numbers to characterize findings has largely been discontinued and though there is still some disagreement about the magnitude of the global numbers, the disagreement is diminishing.

The quantification of economics has two important implications for the undergraduate major in economics. First of all, it is advisable that all of those who expect to work later as economists in government or business include in their training an appreciable amount—at the very minimum a one-semester course—of hard-headed instruction in statistics that includes so-called "descriptive" statistics, but is mainly concerned with the techniques of modern statistical inference. Their work later, whether after graduate study or without it, is very likely to involve both use of statistical studies by others and the carrying out of statistical work of their own. The benefit of such instruction for those who will do graduate work in economics, business or the other social sciences is, I think, obvious. However, I would even argue for statistics training for the undergraduate major in economics who expects to be a lawyer.

In contrast to the situation with respect to mathematics training, a minority (mainly those from the larger and more prestigious universities) of graduate students in economics begin their graduate studies with substantial previous training in statistical inference. I infer from this that a majority of undergraduate economics majors graduate without such training. Undoubtedly the newness of statistics as a discipline has contributed importantly to this situation. Many schools, especially the small liberal arts colleges, that have faculties in mathematics, economics, psychology, political science, sociology and the other social sciences, have no faculty in statistics. Indeed, I judge that a good many of these have no faculty members who are willing and prepared to teach a tough semester- or year-long course in statistical inference.

In some schools this condition can be remedied most easily by persuading an interested faculty member to take a paid leave of absence of a year or two for study that will qualify him to teach the needed statistics course or courses. In other cases, the solution to the problem will involve the appointment of a qualified new faculty member in an already existing discipline, who will devote part of his teaching to that discipline. And don't overlook the possibility of solving the problem, as your school buys or rents its first electronic computer, by appointing a computer generation faculty member who is also a good statistician, a not unusual combination.

Quantified economics, taken in its broadest sense so that it includes all manner of good empirical work and not merely regression equations and empirical simultaneous equation models, also has an important consequence for undergraduate instruction in economic analysis, namely that of increasing the credibility—real-worldliness—of the analysis. I will have more to say shortly on the credibility problem.

I turn now to the developments in economic *analyses* and particularly to "relative prices and resource allocation." I have already commented at some length on one major advance: the formulation of the concept of human capital and the development of a body of human capital theory with great versatility in terms of its implications for the economics of labor. The implications of this theory go not only to economic growth and occupational choice, which I have already mentioned, but also to the understanding of wage differences by age, sex, color and other worker characteristics; the distribution of income by size of income and thus to income inequality; unemployment differences; the behavior of employment and hours of work, especially in the short run; labor turnover; labor force participation; migration; and the economics of health care, morbidity and mortality.

A key element in human capital analysis is the recognition that much of the economic cost of human capital is the opportunity cost of the *time* spent in acquiring the capital by those in whom the capital is embodied. A second important development in economic analysis is the extension of this reasoning to other uses of human *time,* in particular to the allocation of time between market (work) activities and nonmarket (household production-consumption) activities and among the latter.[9] This has led to recasting both the theory of labor force participation and hours of work and the traditional theory of the demand for consumption goods, including the consumption function.

Closely related to these two advances is a third—the development of the economic theory of information and search.[10] The chief element in the theory is the recognition that the information required for making choices of all kinds is costly in terms of the human time and other resources needed for its acquisition and that therefore an additional increment of information will be acquired only if its expected value exceeds its expected cost. Some of the areas in which the theory is likely to be useful already have been pointed out: advertising and employment agencies and exchanges; wage and price dispersion; unemployment, labor mobility and other forms of labor turnover, and labor force participation.

Along with these three developments—in the economics of human capital, human time, and information and search—have come a number of others, some of which may prove to be of equal or greater importance, treating the economics of:

Human fertility and family size
Discrimination and nepotism
Crime and law enforcement
Political democracy
Property rights and contracts

[9]See Becker (1965).

[10]See Stigler (1961, 1962).

I do indeed mean to suggest by this brief discussion of recent developments in economic analysis that some of the more important parts of these advances get into undergraduate economics courses. But that is only part of my purpose in discussing these recent developments. You will notice that in all of them the mode of analysis for the most part is not really new, though each of course incorporates some novel elements. Basically it is the same mode of analysis as that used in introductory "price" theory courses to attack traditional "demand-supply" problems. Professor Harry Johnson has described well the key elements in economic analysis and I quote:

> "The central concept of economics is that of a system by which the resources of the economy are allocated in production, distribution, and exchange by the interactions of the decisions of individual economic units in an interrelated network of markets . . . The essence of the concept of an allocative system is the interdependence of the separate parts of the economy, which implies that a change in conditions in any part of the system . . . will set up repercussions that will reverberate to a greater or lesser extent throughout the system.
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> "The concept of an interdependent system, in which the quantities and prices reflect a balancing of opposing forces, is a powerful engine of clarification and understanding of economic relationships and phenomena, and its usefulness extends well beyond the confines of economics proper. In relation to social questions, it has two important implications: that things are the way they are for some powerful reason or reasons, which have to be understood if effective social solutions are to be devised; and that any solutions so devised and applied will have repercussions elsewhere, which will have to be faced, and which ought to be taken into account.
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> "The second relevant concept [is] the concept of choice. This concept has two major facets. The first is the *fact* of choice, or more precisely of the availability of choice between alternatives. There are almost invariably a number of ways of achieving a given end, and efficient decision-making requires consideration of their relative advantages and disadvantages. The second facet is the *process* of choice, which involves the concept of differing costs and returns attaching to alternative courses of action, and of choice as the process of weighing up returns against costs and selecting the alternative with the largest net benefit or highest benefit-cost ratio. The notions that there are always alternatives, that they have costs as well as benefits, and that there are scientific procedures available to assist the making of choices, are extremely important guides to any rational discussion of social questions."[11]

What is novel in these recent developments taken as a group is not so much the mode of analysis, but the problem to which the analysis was applied. Thus to me these developments demonstrate increasing recognition that economics is a *way of thinking* about *all manner* of social problems and social phenomena. This has two important consequences. First, we are increasingly becoming aware that some of the things that we have taken as given (or beyond our competence to analyze) in analysis of traditional problems are themselves subject to analysis and, at least in some contexts, should not be taken as given. And this surely will lead in turn to better analysis of traditional problems. The second consequence is recognition that the scope of economics is not limited to some fixed set of *economic* variables and *economic* problems that are distinct from other *noneconomic* variables and *noneconomic* problems. In my judgment, making undergraduate students of economics aware of the versatility of the analysis they are learning,

[11] Johnson (1968), pp. 6-8.

is an important ingredient in making the "dismal sciences" interesting and challenging to them. In this connection let me quote from an application for admission that we recently received from a senior at a midwestern liberal arts college:

> "Teaching should provide opportunities to interest the more intelligent students in the study of economics. Yet if economics departments are that of my college or fit descriptions given me by my friends at other schools, professors have generally failed to convey to students any sense either of vitality within the discipline or of opportunity for creative and challenging thinking. At too many schools the brightest students do not enroll in economics because, for reasons completely unrelated to Malthus or Ricardo, the subject is still viewed as a 'dismal science'."

At the 1962 Christmas meetings of the American Economic Association, Alain C. Enthoven, in a paper discussing the role of economists and economic analysis in the Department of Defense, made the following observation:

> "The tools of analysis that we use are the simplest most fundamental concepts of economic theory, combined with the simplest quantitative methods. The requirements for success in this line of work are a thorough understanding of and, if you like, belief in the relevance of such concepts as marginal products and marginal costs, and an ability to discover the marginal products and costs in complex situations, combined with a good quantitative sense. The advanced mathematical techniques of econometrics and operations research have not proved to be particularly useful in dealing with the problems I have described. Although a good grasp of mathematics is very valuable as intellectual formation, we are not applying linear programming, formal game theory, multiple regression theory, nonlinear programming under uncertainty, or anything like it. The economic theory we are using is the theory most of us learned as sophomores. The reason Ph.D.'s are required is that many economists do not believe what they have learned until they have gone through graduate school and acquired a vested interest in marginal analysis."[12]

I think that many of the brighter and more dedicated undergraduate economics majors, by the time they graduate, do have considerable command of the technical concepts of economic analysis. They know a good deal of the special jargon of economics and are not easily trapped by questions of concept definition. They can solve with accuracy and speed problems that require the knowledge of "equilibrium" conditions and the ability to solve a system of simultaneous equations, provided that the problems are all neatly laid out and do not involve the "ability to discover the marginal products and costs in complex situations." But a very substantial fraction of these "technically" competent students simply do not know how to proceed when they are confronted with a problem that is not neatly laid out with all the variables properly labelled in the verbiage of economics (most *real* problems are not so neat). It is no surprise that they should express their disbelief in economic analysis by backsliding into the vulgar economics they knew before they ever took a course in economics.

The key to the solution of most real-world economic problems lies first in knowing how to state the problem—i.e., in knowing what parts of what we have been taught are relevant—and second in having a good sense of what facts are relevant. Thus the use of economic analysis to illuminate the real world typically involves not only technical competence—the ability, so to speak, to solve a set of equations, but also *artfulness*—the ability to find the appropriate set of equations.

Some students seem to acquire this artfulness almost effortlessly, without being taught. But I think they are exceptional. Most students will acquire a modicum of the

[12]Enthoven (1963), p. 422.

talent only if they are encouraged to do so and given some help by their teachers. I know of no way of teaching artfulness except by example—by spending classroom time discussing analysis of real economic problems that illuminate the principles you are trying to teach, by asking students to read good examples of such analyses, and by assigning problem exercises and examination questions that require some skill in discovering what the economic problem involved really is and what information is relevant to its solution.

Finally, a few words about the content of the course program in economics offered by a liberal arts college with a very small staff—say, two or three faculty members.

Emphasis in the undergraduate program should be on the fundamentals of economic analysis and the applications of the analysis to real-world problems. Thus the heart of the program would consist of a course or sequence of courses in the tools of economic analysis—the theory of relative prices and resource use and the theory of income, employment and the price level. I don't see how this can be done effectively in much less than a year-long course or course sequence. Although I regard this course as "introductory" and would make a part or all of it a prerequisite to other more "advanced" courses, it should be taught at a relatively sophisticated level—the level of a so-called intermediate theory course, at least for economics majors.

Beyond this introductory course the department, choosing among important and fundamental courses, should offer what it is best equipped to offer. Thus I would urge the young staff member who wrote his thesis on the development problems of the new African nations, and who is well prepared to give a course on this subject or a much more traditional course in international trade and finance, to give the latter and use his knowledge of trade problems of Africa to make the trade course lively. Similarly, a course in public finance should have priority in importance over one in urban financial problems, a course in labor economics, though not one in collective bargaining, over one in problems of poverty. On the other hand, although I think that knowledge, for example, of the history of thought is an important part of the training of economists, I think it is a mistake to offer a course in the history of economic thought if none of the staff members has training and interest in the subject. The result is too likely to be a dull and otherwise badly taught course in which the students may learn much less economics than in a course on the development problems of the new African nations taught by someone who knows the latter subject matter well and uses it to teach economic fundamentals.

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Discussion

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Professor Lewis has given us an excellent discussion of major new developments in our science which we should try to emphasize at an early stage in our economic teaching. I think we need to consider these developments in the context of trying to define the goals of a liberal arts program generally and more specifically, the role of economic education in that program. Professor Lewis points out that schools produce both perishable consumption commodities and durable capital formation in humans. Following Friedman† I should like to subdivide the latter (capital formation) into "general education," which has large externalities or neighborhood effects, in which case benefits are diffuse and where direct *financial* return therefore does not accrue to the person receiving the investment, and "vocational and professional schooling" in which case the rewards *do* accrue chiefly to the recipient of the schooling. For brevity, let us call these two classes of schooling-investment "education" and "training." Friedman feels that the former category, "education," occurs largely at lower grade levels, and that college schooling falls largely into the "training" subclass. Much college schooling obviously does consist of "training" but I would claim that a large share of what we try to do in a liberal arts college, including our economics teaching, falls in the general "education" category rather than in the "training" or *direct* technical investment category.

If I am right, two things follow: First, the success of an economics curriculum in preparing some of our students for graduate study in economics, professional graduate schools of business, law school and the like is not a sufficient criterion for judging what we are doing. The direct economic return to the student is not the total social return (in terms of a set of humanist values about producing educated people), when we are dealing with the "education" category.

Second, large numbers of students occupy our resources by taking courses just to get certified—to enter certain parts of the labor market—and this creates unfortunate pressures and burdens on those institutions and individuals who are engaged in supplying education in economics.

Employers of labor for nearly every job type today use higher quality labor—defined as labor with more schooling—than formerly; they generally either require or strongly urge more years of schooling than formerly. The employer of a janitor may typically demand a high school diploma, when perhaps technologically this may not be "necessary." A corporation may wish new employees to have four years of college before starting to sell soap. Public schools frequently demand a master's degree instead of, say, two or three years of college for someone to teach six-year-olds. Nearly every college administrator insists on a Ph.D. for undergraduate teaching if he can find one. We often insist on personnel with 10 years of formal medical training to provide us with even routine health services.

I would claim that in many cases this pressure for "over-trained" labor burdens our educational system by creating an artificial demand for our educational output from those who wish only certification in order to enter occupations where this schooling is not "really" necessary. However, our economic system has set up such "artificial" requirements for entry. Some use of our educational output, then, may represent neither socially productive "education" nor "training." Moreover, students seeking our services for such reasons may not be getting a very good bargain in consumption goods either, given their interests and their reasons for being in school.

Both for those who wish to make use of economic knowledge professionally (in graduate school, business school, law school, etc.) and also for those who study economics as part of a liberal education, economists could do a better job if this resource misallocation to which I refer above could be reduced. We could then improve the process of furnishing a *smaller* quantity of *better* education to those students in whose cases the returns are both social *and* private.

I have no disagreement with Professor Lewis concerning the important elements of an undergraduate economics curriculum which we should stress; the new developments on human capital, on information, on time; the tools of mathematics and of statistics; and the need for developing skill in the art of using elementary theory as a *way of thinking* about problems. What we do need to ask at depth is whether and to what extent an optimal undergraduate curriculum to prepare for professional training differs from good education in a general liberal-arts curriculum. If the latter is merely a subset of the former, fine; if a trade-off is necessary, what do we want to do?

Summary of General Discussion

1. The need for mathematics and statistics was generally acknowledged for students who plan to go on to graduate school in economics or business. But what about other students, those who major but who will not go on for advanced work and those who take only one course or a few courses in the discipline? What about the alternative costs (the foregone courses) of work in mathematics for these students? And how many students who could profitably study undergraduate economics will be repelled by insistance

upon mathematics prerequisites?

Answers to such questions would be facilitated by more complete insights into the intrinsic, liberal arts merits of familiarity with mathematical concepts and techniques of analyzing problems.

Concern was expressed that emphasis upon mathematical means of expressing economics—especially as used by younger and less-experienced teachers—underlay declining enrollments in certain institutions. There seemed to be a good deal of agreement that most of the undergraduate offering could be rendered with little or no reliance upon calculus; more generally, the conferees seemed to accept the idea that advanced mathematical techniques should be reserved for special, optional courses.

2. The matter of artfullness in teaching received a great deal of attention. A strong consensus seemed to be reflected in comments stressing the crucial need to demonstrate to students, early in their exposure to economics, the wide applicability of the discipline's tools of analysis. Putting relatively simple tools to work on a variety of current problems (pollution, crime, the draft, etc.) was seen as much more important in the introductory course, for example, than exploration of more sophisticated theories and techniques. The text by Allen and Alchian was referred to by several participants as being especially successful in emphasizing the problem-solving approach.

There is much to be said for using senior faculty in the introductory course, given the tendency for their younger colleagues to be more enamoured with complex apparatus.

3. Economists know relatively little about important aspects of the teaching-learning process. What personal and professional characteristics of professors contribute most to their teaching effectiveness? Is teaching effectiveness properly measured by student attraction? What other variables—library facilities, religious background of students, absolute size of the educational institution, etc.—influence the students' ability to learn? What are the relative importances of such variables? The need for research into such questions is great.

†Milton Friedman, "The Role of Government in Education," in *Capitalism and Freedom.*

The Role of Business in Liberal Arts Colleges

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I suspect many of you in this room have spent all or most of your academic careers as students and teachers in large universities. You are now struggling with the task of developing an educational philosophy, designing a curriculum, and, in general, implementing a program for the teaching of something called business in a liberal arts college setting. My background and present tasks are, in a sense, just the opposite. I am a product of a liberal arts college with a good deal of training in sociology and economics; it wasn't until I was a student in the doctoral program at Indiana University that I took courses which might be labeled business. Now I find myself struggling with the problems of teaching business administration within a university professional school. I find, insofar as we are all part of the same higher educational framework in this country, that the problems that I and the faculty at the University of Minnesota are trying to solve are not far different from yours in liberal arts colleges.

There are approximately 500 liberal arts colleges that have formally organized departments which include work in something called business administration. There are probably a number of others which do not have a formal program but which offer business courses. It is probably fair to say that at least some of the criticism directed at business schools a few years back was brought about by the relatively poor programs found in liberal arts colleges. The late Thomas Carroll, the man who was most responsible for the Ford Foundation efforts to upgrade business schools, stated on several occasions that some of the worst excesses of specialization and some of the narrowest of vocational courses were found in the business administration departments of liberal arts colleges.

In general, there has been marked improvement in these liberal arts programs of business administration. Marked improvement in some cases, I suppose, means the abolition of all work, across the board. It must be observed, however, that there is considerable student demand for work in business subjects and the colleges find it difficult

to completely ignore these demands. I am sure there are many faculty members and administrators who would argue that a subject such as business has no place in a liberal arts college because of its vocational nature. I would maintain that this is a weak basis of attack because many other subjects offered in liberal arts colleges have vocational overtones. There are much stronger reasons for questioning the study of business, such as the shortage of qualified faculty or lack of college resources such as computers, but these apparently do not have the same ring as that of the charge of vocationalism.

The important thing, I believe, is that regardless of criticism, business administration as a subject for college study is here to stay.

Several years ago, when a number of us were fitting together a long-range plan for the American Association of Collegiate Schools of Business, the question arose as to whether we should consider not only business schools but also the departments in liberal arts colleges if we were to make a massive step toward upgrading the entire educational effort in the field. The plan, as it finally evolved, did not attempt to set standards or evaluate liberal arts departments. However, a device known as the AACSB Assembly was created which permitted liberal arts departments to join with business schools in a somewhat less formal organization. As an outgrowth of my thinking about these matters, I have tried to evolve a number of alternative models for departments offering courses in the general area of business administration within the liberal arts setting and tradition. Of these, four are more or less distinctly different and I would like to use them as the primary basis of this discussion.

The first model which might be appropriate to a liberal arts college is what I shall call the institutional model. This is the study of business as a key institution in society. The aim of a program of study using this model is two-fold. First, it should serve as the vehicle by which all students in liberal arts colleges, regardless of their major fields of study, could gain an insight into the workings of the business system. Second, the program should have enough depth to enable students who are really interested to delve further into the organizational and operational problems of business firms.

Essentially, the methodology of such a program is careful and concise description plus a system of classification. I know that description as such has fallen upon evil days in American education but I would maintain that much of the work that goes on in other disciplines must be considered as description and classification. Our major problem has not been our methodology; rather, it has been the preoccupation with description of trivia in many of our standard business courses. I am sure that some programs using the institutional model are already in operation. They undoubtedly suffer from the problem that bothers all of us in this field, namely, a lack of good, and relevant, text material. Business is dynamic. Frequently, questions of the moment tend to obscure long-run trends and changes. The conglomerate form of business organization, for example, is a phenomenon of the last ten years. Because of its recency the conglomerate raises problems of definition and is difficult to describe and classify.

I visualize five major topics which should form the nucleus of the curriculum. The way they should be organized into course units obviously is a matter of judgment for the indidividual school. I would ordinarily consider these topics as building upon a standard principles of economics course.

1. *The business firm as a legal institution.* It has always interested me how few people really understand the concept of a corporation and how few are aware of other forms of business organization.

2. *The business firm as a social institution.* Many people are greatly surprised when they realize that a business can develop a bureaucracy in much the same way that a government does—that indeed a business almost has to in order to survive. The workings of the reward system and the utter dependence of the business firm upon its employees

makes a fruitful area of study, one which can be made useful to all students.

3. *The business firm as an economic system.* The student needs to realize that for all the talk about social concerns, a business firm still must meet the market test. This is what sets it apart from other institutions and other organizations in our society.

4. *Man-machine interaction in the business firm.* This study area should focus on the various kinds of inputs and contributions which both men and machines make to the success of the business enterprise.

5. *The role of business as an institution in society.* The business firm in the economic system would be a good place to start but I would certainly hope that the role of the business institution as a place to work, and as a place of human fulfillment, would come in for considerable discussion.

A second model, which I am calling a modified "Antioch" program, is worthy of attention, I believe. Much is made today of the relevance of education. Our young people are being urged to have all kinds of experiences and colleges are considered to be "not with it" in that there seems to be no connection between the experiences which students are having and the courses that are being taught.

I am suggesting that a program in business administration studies might be the ideal place in which a meaningful program of relevant education could be organized. I recognize that we cannot completely structure all the educational experiences but I am also sure that we are missing a real opportunity by not attempting some sort of work-education relationships. I recognize also that a program of this kind might require more than four years, but this would have the wholesome effect of forcing us to reexamine what may have been an unnecessarily rigid structure.

What are some of the lessons that might be learned in the work situation? Some would be of a personal nature, such as an appreciation of monotony in work and all that it implies. Others would have to do with the meaning of organization, the conflicting goals between organizations and the existence of conflict within an organization. More broadly still, a work-education experience would promote an understanding of "the system" and of the individual's relationship to it.

A third model is what I choose to call the management model. In this model, the faculty of many parts of the college might be used to develop a common framework. One hears today from many business executives that technicians are in plentiful supply as compared with people with leadership ability. These executives are concerned with the lack of people who can raise their heads from their own work place and see the firm as a whole, while at the same time recognizing that the firm as a whole is made up of a series of work places all of which are important in their own right.

The study of management is found actually in a number of places in the college. Some of its elements are in economics, psychology, sociology, mathematics and anthropology. The function of management is basic to organizations throughout society, whether they be business organizations, governmental organizations, educational organizations or any other kind. I can visualize several interdisciplinary courses around subjects such as planning, organizing, controlling, decision-making and decision implementation. There is a respectable body of literature in fields such as industrial psychology and industrial sociology. Cultural anthropology has a great deal to offer and certainly those applications of mathematics and statistics we now call "decision theory" are worthy of study. The liberal arts college faculty is probably much better equipped to teach and to mount a program in the management mode than it is for any of the traditional approaches to the study of business. Notice that I did not make mention of subjects such as accounting or finance. I am treating these as a part of economics. The basic elements of accounting are fundamental to the study of the economics of the firm.

A fourth model, which to some extent is independent of the other three, is to develop

a cooperative arrangement with graduate schools of business so that a student might be registered in both the college and the graduate school during his senior year. This idea is not new, of course. Law schools and medical schools have had arrangements of this kind for a long time, although they have applied it generally to students in other schools in the same university.

Some people might argue that this is destroying the integrity of the four-year undergraduate college. I would not go that far but I recognize that it would substantially alter the standard college program. I would like to point out first of all that I don't regard the four-year undergraduate college program to be sacred: I see no reason why it should not be modified in one way or another from time to time. In fact, the modification process is going on in many different ways all the time. Many schools are engaged in programs permitting a year's study abroad. Frequently these study experiences are quite different from their home-base alternatives, so that such programs constitute important changes in the standard four-year liberal arts offering.

It should be noted that this program would apply only to those students who are interested and qualified to be admitted to the graduate school program. It doesn't answer the question as to what to do in business education for the average "C" student. But perhaps it could. I would suggest it might be possible to work out a special arrangement with reputable undergraduate business schools permitting those students also to take their senior years in such programs.

What I am getting at in suggesting this model is a way of extending the program of the liberal arts college into a professional field of study without cost to the college—and the cost should not be substantially different for the student. Moreover, I think arrangements could be worked out to protect the integrity of the total educational effort. If we truly believe that the values of the liberal arts college education are important, it might be far better that *more* students be attracted to a three-year program rather than *fewer* students to a four-year program. I am sure that many graduate and undergraduate business schools would be willing and eager to work out cooperative arrangements of this kind. After all, they stand to gain to the extent that students come to them with what is widely considered the ideal preprofessional educational background, especially in areas such as mathematics, psychology, etc.

I am sure that in addition to the four models I have described, there are two others that will occur to all of us. The first of these is to present a substantial undergraduate major in something called business administration, offering all the traditional business courses. It is undoubtedly true that with new teaching devices, programmed learning, etc., much more can be done than has been possible in the past. The advent of the small computer and the possibility of time-sharing systems even makes it possible for the relatively small college to move into the computer age. But the overriding difficulty with this alternative is that it is very hard for the liberal arts college to recruit and attract the necessary faculty. One of the reasons we are gathered here, in my opinion, is the general dissatisfaction with our past attempts to achieve success along these lines.

A sixth model would, of course, be to stop doing anything in this field on the grounds that it is professional study and cannot or should not be taught at the undergraduate level. There is considerable support for this idea in many colleges and universities across the country but as I have tried to indicate earlier, the American public still believes that education should be aimed at some useful vocational end. As long as we are going to have virtually all high school graduates going to college, we are certainly going to have widespread vocational pressures. Many colleges have been able to do away with their pre-engineering work. Even this has not been wholly accepted, but the protest against it is small compared with that which would arise if business subjects were completely dropped.

The American liberal arts college is, in my opinion, undergoing the greatest challenge of its history. It was conceived before the rapid growth of technology and before the development of our complex business society. The college is now struggling to adapt to the changes around it. Students are challenging some of the time-honored traditions and time-honored approaches to education. They are questioning the relevance of study as never before. While it is difficult to achieve, the area of business studies may be the key to the integration of a fragmented liberal arts college. This is certainly the time for experimentation and I think it is essential that we get on with the task.

Discussion

Marvin L. Carlson
Washington University

In revising our program at Washington University we considered several of the models for business programs suggested by Dean Grambsch; hence our experience is in a way a case study in the application of his paper, and it is in that direction that I shall point my comments.

First, it would be well to present a very brief characterization of our MBA program as background for the discussion of our philosophy of undergraduate education. Attracting primarily students whose undergraduate majors were in some field of arts and sciences or, in some instances, engineering, our sixty-hour MBA program takes the man who has what we consider to be the ideal preprofessional background and equips him for positions of general management responsibility. The emphasis, as Dean Grambsch noted in describing his fourth general model, is professional, i.e., the subject matter is taught with a view to the eventual application of that knowledge by the student when acting in an administrative capacity.

While not minimizing the many significant differences between our undergraduate program and our MBA program, it is probably accurate to say that, prior to 1968, the emphasis or tenor of the courses in these two programs was quite similar. In essence, at the undergraduate level we were following Dean Grambsch's fifth model—that of offering a traditional program with professional emphasis.

If this situation was ever justified, it was only so long as the undergraduate program was producing graduates who were accepting business positions upon receipt of their undergraduate degrees. But the trend at our school has been that our students are going to graduate school in increasing proportions, frequently to graduate schools of business. Hence we were involved in a paradox: Our undergraduate program was producing significant numbers of entrants to graduate business schools, yet these individuals did not have the type of background we sought in entrants to our own MBA program. Our objection was not that we were giving undergraduates some business courses, but rather that they had had too many business courses of too professional a nature.

At this point the faculty undertook to make a choice between Dean Grambsch's sixth model—to discontinue all undergraduate business offerings—and some other model which would result in an undergraduate program of revised emphasis and limited scope.

Several questions were pertinent to our decision. To what extent can the study of business legitimately occupy the undergraduate program of one who plans to do graduate work in business? To what extent should business courses be available to arts and sciences students who desire to have some knowledge of business as part of the process of gaining a liberal education? To what extent can an undergraduate program which is suitable for the prospective MBA satisfy the needs of the student who plans to enter a business career upon receipt of the undergraduate degree? To what extent can a curriculum bend to accommodate the differing objectives of various students without violating the philosophy underlying the particular program model which was chosen? These are difficult questions, and rather than providing their definitive answers (which I cannot do), I want to set for myself the more limited goal of commenting on some of their aspects.

While students who come to our graduate program with good credentials but with no prior work in business can be expected to do quite well, this in itself does not indicate the disutility of undergraduate business studies. Even for students who consider themselves future MBA's from their first day of college, some undergraduate business courses are usually necessary simply to confirm for them their interest in an MBA program. Then too, some undergraduate business courses may result in a student's advanced placement in an MBA program; hence, rather than having caused the MBA program to be repetitious of former work, these courses have actually allowed a more significant MBA experience by permitting room for greater depth in the student's graduate program. As a practical matter, to ask prospective MBA's to refrain from taking business courses as undergraduates may come close to asking the impossible of them, for it is as difficult for the student who has a keen interest in business to put off business courses for four years as it would be for the freshman intent on becoming a sociologist to swear off all sociology as an undergraduate or for the future minister to eschew all religion and philosophy offerings until seminary. Graduate school professors frequently face the problem of seeing to it that a late convert to their field can proceed to his advanced degree in about the same time as one who has had an undergraduate major in the area. Professors in undergraduate schools must frequently face the problem of encouraging a student who has a burning interest in a field to temper his enthusiasm in order to keep his program broad and to avoid premature specialization. These problems are quite different, and the graduate school professor's success in his task of accelerating the program of the late convert does relatively little to relieve the undergraduate professor's problem of forestalling premature specialization in the early convert to the field, while at the same time assuring that the student's interest in business not only continues but also matures.

Whatever the force of these and other advantages to undergraduate business offerings, great care must be taken in regulating them. Certainly such offerings should not be allowed to preclude a broad, liberal education. It is possible to stipulate further that the undergraduate business offerings should not have the same professional emphasis that the student will experience in his MBA program, and that, as a result of this different emphasis or of the possibility of advanced placement in an MBA program, the undergraduate courses should not run the risk of causing substantial repetition in the graduate program.

These considerations seem to point to a program which meaningfully integrates the study of business as an institution with other liberal studies. It seems to me that the program should occupy something less than fifty percent of the student's time in all years, especially the junior and senior years, thereby allowing for significant advanced work in other areas.

If such a program is appropriate for the prospective MBA, will all or parts of it be appropriate for the liberal arts major who has no thought of a business career? Fortunately, the answer is yes. The institutional model will serve not only the prospective MBA but

also other students who are perceptive enough to see that part of the process of gaining a liberal education involves gaining an understanding of the institution that lays claim to eight hours of most everyone's day. If some of these courses can gain a fair measure of campus-wide acceptance, the business faculty can justifiably feel proud, since generally American colleges and universities have not adequately conveyed the role of the business institution to anything approximating a respectable proportion of the student body.

In short, a business program of institutional emphasis and of limited scope may encourage and develop the major interests of the prospective MBA without jeopardizing either his liberal education or the vitality of his graduate program. Parts or all of this program would be ideal electives for undergraduates generally. The same program model seems to fit the needs of these two groups of students very well.

A much more difficult question concerns whether this program model is appropriate for the undergraduate student who plans to enter a business position upon the receipt of his undergraduate degree. One school of thought claims that it is impossible for one program model in business adequately to function both as a program of terminal education and as a program preparatory to the MBA. The assumption behind this position is that someone entering the business world upon completion of his college work should be equipped with many technical skills which, for continuing students, are properly reserved for graduate study. The opposing view holds that those who do not take the MBA can learn most of these technical skills on the job, and a broader undergraduate education (quite similar to the prospective MBA's) will serve the student better in the long run. The position which one takes in this debate seems to depend primarily on his educational philosophy. While I tend to believe that the education the noncontinuing student receives need not have a dramatically higher technical content than has the education of the prospective MBA, I must readily admit that it is at this point that the student criticism of our new program at Washington University has been concentrated. For example, as a result of the revision, our undergraduate accounting offerings were cut from 24 hours to nine hours. The nine hours provide a student with a foundation both in financial and managerial accounting principles (total six hours) and a course (an elective) in intermediate accounting theory. Nevertheless, a number of students who wanted to major in accounting were dismayed by the lack of offerings in cost accounting, tax accounting and auditing. Past experience convinces me that some of the students who were the most dismayed are precisely those who would have gone on to an MBA (probably an "MBA in Accounting") program anyway; and hence we have done them a great favor by preventing the kind of specialization which they could best take later. Of course we have opened ourselves up to the charge of "forcing people into graduate work"—a charge which is mitigated by the existence of a "3:2 option" which allows superior students to transfer to the MBA program at the beginning of their fourth year. There may be some noncontinuing students who do not agree that nine hours is sufficient depth in accounting. They may elect not to attend Washington University—a school which otherwise may have been their first choice. While the school never can be insensitive to the interests of these students, it does not have the resources to operate several undergraduate programs which represent several models of education. Nevertheless, the primary consensus of the faculty was that a limited undergraduate program of institutional emphasis was a desirable program for the noncontinuing student. I suppose only time will tell whether one program model can satisfy the various demands which we have tentatively decided it can satisfy.

Although the preceding discussion indicates generally the philosophy underlying our new program at Washington University, I hesitate to hold our particular courses up as exemplars of what constitutes the ideal implementation of this philosophy. This hesitation is due in part to the consideration that the political compromises required within a

faculty to effect a major revision of a program may not always constitute the purest extension of the philosophy behind the new model. Dean Grambsch has noted another consideration: The scarcity of texts and other teaching materials which depart from the traditional mold intensifies the preparation burden upon the professor and impedes the extent to which a genuinely new emphasis can be achieved.

With these reservations, and with the further reservation that in some cases our course titles are, I hope, more traditional than the courses themselves, I shall outline the general framework of the program.

The freshman and sophomore years are devoted to taking general requirements and such business-related courses as Principles of Economics, Principles of Accounting, Economic Statistics, and Introduction to Social Psychology (which is a prerequisite to our course in Organizational Behavior and Administration).

In his last two years, the student takes two business courses during each semester:

Junior Year

Fall Semester

Finance: Capital Markets and Financial Management
The Marketing Environment of Business

Spring Semester

Quantitative Analysis of Managerial Problems
Organizational Behavior and Administration

Senior Year

Fall Semester

Business and Society
Production and Operations Management

Spring Semester

Business Policy
Research Seminar in Administration

Two additional courses to be taken during the last two years are elected from among the following:

Investments
Personnel and Labor Relations
Financial Accounting Theory
Management Information Systems
Marketing Strategy and Management
The Legal Environment of Business Management
Any 300 and 400 level economics courses

I will conclude by again sounding the reminder that what I have been describing is simply the process by which one faculty examined various program models and attempted to adopt one which seemed to fit most closely the needs of its particular constituency. Other schools will likely face different circumstances, but the processes by which we analyze program models and fit them to our own situations are likely quite similar.

Summary of General Discussion

Most of this discussion period was concerned with an effort to understand the rather widespread antibusiness prejudice existing on campuses.

1. It seems to have two closely related aspects: the general lack of interest in, and in some cases, revulsion for, a career in business on the part of students, and the hostile attitudes of some faculty towards the business world.

2. On the part of students:

a. There is less interest, at least among undergraduates, in vocationalism than among students of 10 to 20 years ago. Correspondingly, there is more awareness of social problems such as racial prejudice and poverty. These seem to be paralleled by the view that a career in business offers few opportunities to make contributions to the resolution of these problems.

b. Business receives its share of the anti-establishment views of certain elements of the student left.

3. Among the faculty:

a. The most serious problem is a lack of understanding about how the price mechanism operates—and especially what role profits play within that system.

b. Among faculties of larger institutions, business schools (along with other professional schools) tend to be physically separate from the main body of the university. Such arrangements discourage communication among faculty members and hence support tendencies for suspicion and mistrust. Additional frictions arise when such schools man supporting courses in economics, mathematics, psychology, etc., from their own faculty.

4. It could be argued that large enrollments in MBA programs refute the notion that antibusiness prejudice on campus is serious. Offsetting this argument is the possibility that the quality of such students is less than otherwise would be the case; also, such enrollments tell us nothing about the attitudes of the remainder of the student body.

5. Liberal arts faculties charge business offerings with vocationalism and with low levels of content; they are less apt to see that the same charges can be made against certain courses and course materials within their own disciplines.

Techniques in Teaching Economics: A Critical Report

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An administrator's credentials to speak as a teacher of economics are surely among the more perishable of life's goods. It is now ten years since I was a fulltime teacher, and a single course taught each semester today is scarcely enough to let me offer words of wisdom to my colleagues. But, administrators possessing in brashness what they sometimes lack in substance, I am prepared to seize this moment to comment on the state of our art.

Much of what I say will come out sounding pessimistic for, on the whole, I am not impressed with how we are approaching our new opportunities in the economics classroom. I offer two reminders at the outset in the hope that they may soften what follows enough to hold a few economists' attention but not enough to feed their complacency.

The first reminder is that, whatever the situation in our discipline, the situation is seldom better in other disciplines. In economics, we may even be a little more honest in our recognition that our teaching falls short of what it should be. With the possible exception of the field of biology, I know of no equivalent for our Joint Council on Economic Education. That organization, after years of good service in improving economics teaching below the college level, now has the courage to turn on those of us who have been so prepared to tell elementary and high school teachers how to do their job and so reluctant to practice what we preach in our own classrooms.

The second reminder is that it is not just the undergraduate courses that fall far short of greatness today. Most graduate courses are in still more trouble, but the graduate students of today have been slower to rise in rebellion against mediocrity or worse. The day may come when graduate instruction is under intense scrutiny; indeed even a poor quality of crystal ball is good enough to allow a prediction that the movement for reform will soon hit the graduate schools—not just in economics of course—with a fury that we have yet to behold.

There are five points in my sweeping evaluation of undergraduate teaching in eco-

nomics today. I propose to charge us with fuzziness in our goals, avoidance of evaluation, uncertainties on relevance, obsession with purity, and timidity in methods. Strong words? Yes, but my belief in our capacity to reform and upgrade ourselves makes me anxious to talk in strong words.

The Fuzziness of Goals

This may be the gravest charge of all. If substantiated, it underlies all the rest of the problems. I suggest that, to a very great extent, we do not know what we want our undergraduate courses to accomplish. Especially in the introductory course but also in the more advanced ones, we seldom ask what our specific purposes are in doing what we do. Or, if we do ask the question, we all too often answer it in ways that have little impact on what we choose to do with each passing week of the courses.

The American Economic Association's committee on education became interested a few years ago in a plan to publish some of the best course syllabi from introductory courses all over the country. Outlines were accumulated in impressive numbers. My spies tell me that the single biggest disappointment about the whole works is that very few syllabi had any statement of purpose at all. And, in those that did, there was too often little discernible connection between the statement and the outline which followed thereafter.

Maybe other fields are equally derelict. But there is less excuse for us. Our whole stock in trade is a concern with the effective use of resources. We are trained to think in terms of the interrelationships between means and ends, and hence to see that the costs of teaching one thing are to be measured in terms of foregoing the teaching of another.

Where is our courage to choose just a few goals for the undergraduate courses and then to stick with our choices? It is eroded whenever we say, "We'll add a bit of this, and a bit of that, and do a little over there too." In the process, we lose sight of our key goals and probably lose sight of our students too.

The point is easy to preach about (I've been doing so for ten years, with no strain on my voice), but hard to practice. Until a year or so ago, I hadn't written a text. Now I have one for the high school level. Surely that is the place, if anywhere, to discipline oneself to do a few things only and to do them well. I started out with high resolve; no one was going to bamboozle me into making it a survey of all the interesting areas of economists' concerns. Now look at the final product. There is a central thrust, but bits of this and that also crept in to the point where it is often both diluted and dull. Well, maybe the second time around I'll practice what I believe.

Gregg Lewis's point in this conference seems just right to me. Our central objective in the introductory course should be to advance clarity of thinking. If we could do that—and I believe that, in the alternative cost principle, we have both the material and the perspective to do so—we would accomplish enough. Our place in the world of higher education would be firmly established.

The social ferment of our lives makes this more urgent business than ever. The zeal of so many of our students for a better, more humane and peaceful world is too seldom matched by an awareness of costs associated with various courses of action. Until they see, instinctively and everlastingly, that choices are to be weighed in terms of alternatives foregone, we are likely to have less social progress than they or we desire. We will breed still another generation that will let good intentions spawn bad programs.

Setting ourselves the objective of teaching clearer thought patterns does not say what classroom material we select to that end. Perhaps I am most comfortable choosing materials from the areas of labor economics and urban development. Another man will be more comfortable with other materials. The time to worry about both of us is when we try to do "our thing" and the other man's too.

Working with simple and powerful goals for our courses presents at least three difficulties. One is getting over the coverage complex. That requires facing colleagues and admitting candidly that we do not intend to include their favorite area in our course this next semester. A second is getting over the frontier complex. That means enough personal security to get past demonstrating in each class that we have read the most recent journals, and can repeat their finer points whether they are relevant or not. The third is getting over the headlines complex. That certainly does not mean we need to avoid the extra stimulation or fun that comes from using the morning's headlines to highlight a valid point; it does mean that we need to be sure that we extract the economic lesson from them and not assume that timeliness is sufficient unto itself as an excuse for bringing up a topic. Sometimes we fall into the trap of saying to ourselves, "That was a good class today," when all we really know is that everyone was awake and talking; we don't stop to analyze whether we used the students' interest to lead them into lasting lessons on clearer thinking.

A final thought on the fuzziness of goals: Is it not possible that the best instrument of all to show that we have clear, selective purposes in the course is one we often overlook? That instrument is the final exam. That exam, more than anything else, should be a statement about what the teacher thought was important in the course. Seen that way, it is as much an instrument for testing the teacher as it is for testing the student. How do most teachers fare by that test? I suspect we all fall short of passing marks much of the time.

The Avoidance of Evaluation

Up to this point, I have agreed that we often do not know where it is that we want to go in our undergraduate courses. If I am right, it may be that we have been saved from embarrassment only by the fact that there is very little evaluation of our progress in getting there anyway.

All this is going to change. Pressures from students, however misguided they may be at individual moments or on individual campuses, are beginning to force us to look harder at ourselves as classroom teachers. Pressures from outside, which we were able to ignore in less financially chaotic years, are likely to work in the same direction once the outsiders get sophisticated enough to start asking the right questions about our use of resources. This will be the best of times in education if we are serious about ourselves as professionals, or it will be the worst of times if we simply want to be left alone to pursue the old unexamined ways.

As economists, we call ourselves scientists. Yet neither we nor our sometimes skeptical colleagues from the "hard sciences" have distinguished ourselves by much of a scientific approach to so big a part of our own life work. I make no argument that everything we do in teaching can be evaluated in hard terms; that claim would be nonsense today and probably will stay so tomorrow. But some things can be measured, and one might think men who praise measurement elsewhere would be ready to try a bit of it closer to home.

Here some of the economists deserve full praise. More than their counterparts in most other fields, they have tried to develop some measuring instruments to permit before-and-after testing on basic literacy in the discipline. The AEA's Committee on Economic Education and the Joint Council on Economic Education took the lead here; their Tests of Economic Understanding have been used in a number of significant studies of the impact of alternative ways to teach the core course. New instruments, better suited to the college level, are now out and available for those teachers with the will and courage to put some of their favorite techniques to the test.

The evaluation results to date are somewhat sobering. Our long-run impact on students probably is far less than we want to believe. Some of the new technology—televi-

sion and programmed instruction for example—may be able to do a part of the job for us at least as well as what happens in many a traditional classroom. These are but hints for us in seeking to improve our use of teaching resources. Yet, they are clear enough that, if we could decide what our core teaching objectives are, we would have some rough ways of measuring part of our progress to those objectives. The tools are there for us to use. We ignore them only at our students' peril.

The Uncertainties on Relevance

In 1969, we are caught in conflicting pulls. On one side is the beauty in economics that comes from abstraction and pure theory; of such is the castle of the queen of social sciences built. On the other is the usefulness that comes from putting our discipline to work amid the pressing, but messy, problems of the day. We want to be both elegant and workaday at once.

It is our lot in life to live in a time when relevance is called for on all sides. The saving factor here may be that there is little agreement on what it means; hence we can all, with straight faces, declare ourselves relevant and go on doing whatever we were doing last year.

I doubt that we'll get away with that response much longer. However fuzzy they may sometimes be, the students have a point about relevance. My personal interpretation of their meaning makes it more complicated than a plea to be shown what difference today's class material will make in Vietnam or West Philadelphia tomorrow. Rather, I hear in it a plea that we show why what we are doing matters at all. That plea admits of possible responses that cover the classics as much as they cover social work; however, it doesn't admit of responses that duck the question. Perhaps we have assumed that the importance of our material was self-evident; that would be an easy trap for us to fall into because, after all, we ourselves have been enamored of it for years. Perhaps we have assumed that our own enthusiasm for what we do would carry over to students; yet we still manage, by the masks we so often wear, to hide our enthusiasms behind a veneer of cold objectivity. To be relevant to today's students will require that we take off the masks, that we be ready to verbalize some things that lie very close to our hearts in our scale of values. Economics is easy enough to defend in those terms. Why should we be shy in doing so? The view that economics is sterile and passionless and grubby is common enough; we ourselves strengthen it if we present no alternative picture.

The issue of relevance has an additional angle to it today that is more puzzling. Some of our professional leaders—George Stigler and Kenneth Boulding, for example—have suggested that the study of economics makes one more conservative. Seeing the real costs of alternative policies presumably produces soberer views of what can be done to right wrongs. Studying the functioning of such commonplace things as corporations, banks and unions presumably produces less interest in big heroics and more in the littler options of the world. If this be so, then the radicals do well to turn on economics. They ought to cast it aside if it is the poison apple of rationality. Better not to eat of it than to lose one's dreams.

But does it have to be that way? Do we have to abandon rationality in order to speak to today's most urgent issues? Surely not. There must still be ways in which the capacity to think clearly and the capacity to dream boldly can live side by side. We can be both sober about analyzing the alternatives now facing us and committed to the search for still better ones. What we know is enough to make our nays nay on many an occasion; it should also be enough to make our yeas yea on other occasions. We need not give up our AEA memberships and join in praise of any simplistic cure-alls at all. What we can do instead is to analyze the choices ahead of us, take our positions in defense of the best among them, all things considered, and fight passionately for those positions even while

we pursue the search for still better policies for tomorrow. That way, we can have our economics and our dreams too. A world embarked upon sudden and sweeping change needs them both.

An extension of this argument is that we do not need to choose, even in the elementary course, between basic economics and economics of the city, the draft, the black minority, or whatever. The key issues about which we want students to think analytically as well as emotionally are all ones that can be approached, in part, through those same economic tools in the basic texts. It should not be beyond our ability to design a course which acquires relevance through its focus on urban poverty and which achieves discipline through emphasis on the mastery of first principles of market analysis. Moreover, action projects too can be woven into the course in the academic year without destroying academic goals. There are tragic examples of college-level action projects that were all involvement and no mastery of disciplines; but, in my experience at least, these examples usually arise when the economists, for example, stay on the sidelines of the action and leave their discipline unrelated to what is happening in the action area.

The Obsession with Purity

All but the most provincial among us knows that our study of man's behavior is but a part of the whole. On the first day of class, we make a polite bow toward the other social sciences and acknowledge our interdependence with teaching colleagues from those fields. Yet that is about as far as we go in many cases. We somehow expect our students to weave the separate parts of social studies together, while we prove ourselves either incapable of, or uninterested in, doing so.

An example from my own campus highlights this myopia for me. We have less than 700 students at Haverford College, and no more than about 80 full-time faculty members. Contacts across disciplinary lines are necessarily frequent in so small a community; a man who chose to stay only with those in his own field would be a lonely man here. Yet, even under these conditions, it is possible for a good student to say to me in the elementary class last autumn, "Do you realize how closely what you are doing now parallels what is going on in the introductory political science course?" I didn't know—and I should have. My zeal to keep things pure and to discuss the course outline only with those with the label of economist on them had led me to miss good ways to reinforce and to integrate what we were doing.

Almost none of us in economics can pretend to be an expert in sociology, political science, psychology or history. What we need then are not ways to let us pose as all-competent and all-encompassing social scientists, but ways to show again and again the points of contact with other disciplines. From time to time we need joint class hours with colleagues from related fields. Of course, to do that requires the courage to expose oneself in the classroom as someone who is still in the process of learning. That in itself should be a big step forward in college education.

We need not then keep economics forever pure and isolated from other fields. And we need not, as so many of our predecessors urged us to do, keep discussion of values out of the classroom. Values permeate all we choose to talk about anyway. It would be far better to bring them out into the open and work with them there, than to pretend the economist simply takes values for granted and has no more to say on the subject. I hold, for example, that in discussing choices on federal fiscal policy I can teach some hard lessons by showing how my own values may color my reactions to present data, to the search for new data, and to the weighing of impacts. My aim would not be to get students to accept (or reject) my values; it would be to show how one man's world of what ought to be interacts with his world of what is. It may just be that one explanation for the fact

that economics enrollments are not rising across the nation as rapidly as those in some of the humanities and some other social sciences is that we have tried to erect a value-free facade around our work. Students who are anxious to learn about themselves as whole people are unlikely to be attracted to us if we appear in the classroom and in our writings as parts of people only.

The good teachers I have seen in the classroom have been ones whose values were clear for all to see. Milton Friedman is such a teacher. His values were not often m but he showed me a man pursuing truth where it took him, and the truth that matt was a mixture of objective facts and of personal beliefs. We learned to tell the two ap and that made all the difference. Gregg Lewis was another such teacher at Chicago. His kind of teaching saved the graduate school for some among us.

The Timidity of our Methods

I am puzzled by the birth, the limited life, and the unmarked death of experiments in the teaching of economics. We seem to try too few new things, and to know too little about what has worked for others in the classroom.

An AEA meeting is typically devoid of talking, in or out of the formal meetings, about teaching. True, there is always one session on education in the formal program; but it is not a major event. We just do not seem to get our major satisfactions out of the classroom part of our lives.

Those of us who are administrators must take a fair share of the blame for this on ourselves. We are not helpless to make teaching a more central concern than it is usually. We have resources—not enough, but some—that we can make available to stimulate experimentation with new methods of teaching. We can push hard for as much evaluation as there is experimentation. We can reward those who see this as important, if we choose to do so. The fact that so few of us have done so says more about our value systems than do all of our annual reports.

Can any of us name any professional field for which the practitioners-to-be receive so little advance training in their work as is true in college-level teaching? I do not refer to training in the mastery of content, but rather to training in the art of communicating effectively to students. What we learn about teaching we learn by example (and not always good example), by experience (at the students' expense of course), and by plain old good luck. Maybe some part of teaching is an act that cannot be taught; that still leaves room for a substantial part of it that could be made better by some explicit help from others.

The economists did not shape the world of higher education by themselves. We are not the sole creators of the conservatism of methods, the fears of new technology, and the trials and errors of teacher development with which education is saddled today. We are parts of a whole, and the whole is in trouble. So what do we do? We can wait for reform from elsewhere, or we can begin to reform ourselves. One way, we'll be lucky if the reforms fit our tastes and needs. The other way, we'll have a say on what the new world of college teaching will look like.

We are beset on all sides by new, more pervasive unrest among students. We see campus after campus torn apart by violence and mistrust. As I read the reports from each campus, I regularly look for the names of the economists whom I know there. I expect to find them in leadership roles on one side or the other, or in healing roles. Yet, I seldom find them mentioned. With the discipline we have mastered and the skills we possess, why aren't we more prominent in the analysis of tough, complex issues and more forthright in the presentation of alternative solutions that will meet simultaneous needs for change and order?

Perhaps our seeming ineffectiveness there is a reflection of bigger problems in our

field. An era when economic analysis and economists' ways of thinking should be more important than ever is instead an era when our discipline is a little out of fashion on campus.

We are not lost. There is a road back. It has a number of signposts on it, if we care to heed them. The stakes are big enough to make it worthwhile following whatever good leads we can get.

Discussion

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As an active participant in the "Economic Literacy" crusade, John Coleman has the credentials and perspective to provide a grand overview of the hangups in college teaching of economics. His paper does not disappoint us. I have no quarrel with his evaluation. I agree with his major conclusions.

Rather than belabor his points, and merely feed them back to you via another transmitter, these comments will concentrate on two areas. First, I would like to extend three of Coleman's conclusions. Second, I would like to outline a model which approaches the dilemma of promoting effective teaching from a slightly different angle. I call it a theory of reluctance to innovate.

Coleman suggests that our fuzziness of goals could be corrected if we selected just a few, or maybe even one—clarity of thinking. The coverage complex can be avoided by selecting any topics one wishes according to his tastes to illustrate and reenforce the major objective(s) of the course. I heartily agree with this principle and suggest that, in fact, a teacher by using this approach may end up with "greater coverage." Students may learn and retain more of the content units because of greater efficiency provided by the single-minded goal. The relatively few goals that are continually reenforced frame a skeleton on which all of the so-called meat of the course can hang.

Next, Coleman rightly deplores our tendency to avoid evaluation of our teaching. Let me reflect on my own personal experience. In the past 15 years I have attended probably six or seven conferences on effective teaching of college economics. After lengthy discussion of evaluation someone predictably offers that teaching involves so much "artiness" and intuition that the results are subjective and unmeasurable. Hence, the argument for scientific evaluation is swept under the rug of individual tastes and differences. I have noted tendencies in that direction by some comments already made in this conference.

Let us assume that all of us here are charismatic teachers and that inspired student learning takes place at the wave of our hand or touch of the blackboard. That still leaves at least two questions. First, how do we expert teachers know whether the student learns what he "ought" to learn, whether he retains it, whether it has any impact on his behavior? Further, how do we know if we would get the same responses or achieve the same goals, whatever they may be, if we taught some or all things a different way? Certainly by

the use of modern experimental methods we should be able to get at least ball park answers to these questions, individual tastes notwithstanding. At best, the individual differences and charisma would be part of the error term or unexplained variation. At worst, we may find that our charisma is really chimera.

Second, what about those 99 percent of economics teachers not attending this conference—you know, that large, unenlightened, unwashed mass. Do they not need guidelines based on scientific evaluation so that whatever talents and efforts they do input are not wasted chasing down blind alleys or battering against impregnable walls?

Finally, Coleman is puzzled about "the birth, the limited life, and the unmarked death of experiments in the teaching of economics." Aside from explanations he offers, let me suggest another. Bruce Johnstone, in a doctoral dissertation in economic education at the University of Minnesota[1] adopts the thesis that this erosion of experiments and innovations is due to the failure to institutionalize change. Innovations are "evidently adopted," but then erosion eventually causes them to deteriorate back to status quo ante or be swallowed up by educational conventional wisdom. He presents a model clarifying conditions which prevent institutionalization and cause erosion, but I will not elaborate this further.

Johnstone's thesis leads to the second purpose of my comments—to outline a theory of reluctance to innovate. We start with the conventional production function model for education. In Figure 1, professorial human input is one variable; all other inputs, including capital resources, hardware, software, teaching machines, television, etc., represent the other variable. The production frontier AB constitutes the set of points in which combinations of the two types of inputs could be used to teach a given number of students. With this model all the standard things can be modified. An increase in price of professors relative to other inputs would pressure a movement from A toward B along the frontier. Innovations would move the curve outward in the appropriate ways. For example, CAI, or programmed learning, might push the curve out to AC.

Next, consider a new concept which is analogous to an indifference curve, which I shall label an iso-effectiveness (or iso-performance) curve. In Figure 2 all points along XX^1 represent combinations of the two inputs which result in the same performance, however that may be defined.[2] It may be results on the Test of Understanding College Economics, it may be certain proficiencies, attitudes, etc.

It should be obvious that the professorial establishment, along with those who argue for charisma, tastes and individual differences, presumes the slope of the iso-effectiveness curve to be very steep; i.e., little or no capital (nonteaching labor) substitution is possible.[3] On the other hand, some of the empirical evidence from experiments with programmed learning, TV instruction, computer-assisted instruction, gaming and simulation, suggests that for many course goals the YY^1 curve may provide the more accurate substitution rate.

Finally, if the production function and the iso-effectiveness maps are superimposed, the reason for reluctance to innovate becomes clear. Whereas the technology of education and cost factors (professor prices rising faster than capital prices) pushes toward the northwesterly direction, the professional survival syndrome and prestigious image of low student/faculty ratios (especially in liberal arts colleges) pushes in a southeasterly direction. The AB isoquant and the perceived XX^1 iso-effectiveness curves converge in

[1]Donald Bruce Johnstone, The Erosion of Innovation in Higher Education, unpublished doctoral dissertation, 1969, University of Minnesota Library.

[2]It is assumed that number of students (or credit hours) is held constant along the curve.

[3]I am indebted to Robert Will of Carleton College for the notion that the XX^1 curve may also be the student preference curve, thus reenforcing the labor-intensive bias.

the southeast. It is therefore in this region of high labor input, low student/faculty ratio, and low innovation that equilibria solutions are likely to be found. Unfortunately, the isoquants and the YY^1 type iso-effectiveness curves converge in the northwest. But what teacher or college public relations man will argue for fewer faculty, higher student/faculty ratios, and more capital-intensive education?[4] Professors are not known to advocate innovations contrary to their self-interest any more than any other professional group. Labor-intensive innovations may be abandoned because of high cost; labor-saving innovations may not even be tried because of the inherent threat to professional survival.

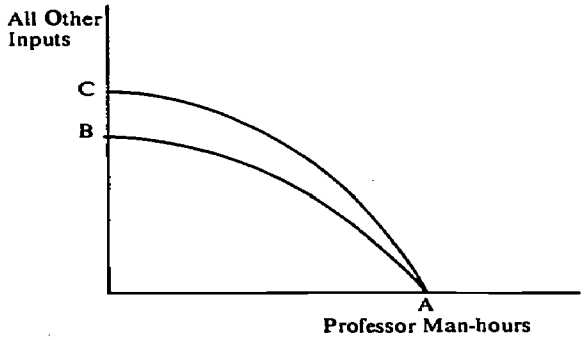

Figure 1

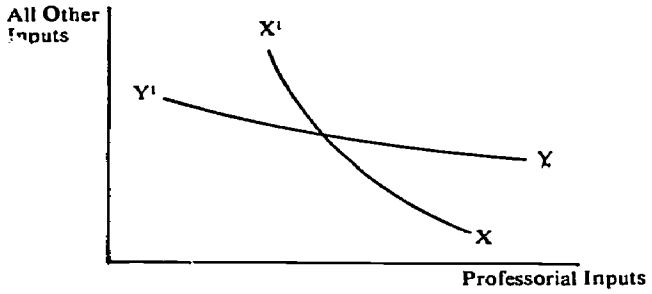

Figure 2

Summary of General Discussion

1. There is no automatic connection between research and good teaching. "The relationship . . . is forever uncomfortable. The notion that these are two companions that work very well together . . . is dead wrong. I think they work together only if you make them work together . . . only if you keep pushing at the teaching aspect of it." The conflict between the two over scarce faculty time is obvious to economists. On the other hand the long-run teaching effectiveness of the undergraduate faculty member is obviously related to his personal study efforts, and these tend to be positively related to research activities.

2. Several points were made in relation to efficiency:

a. Because of the difficulty of defining what our output is we tend to measure it in terms of inputs—man hours in the classroom or laboratory, for example—and this makes for serious difficulties in discussions of efficiency.

b. There is a tendency among liberal arts teachers to assume that all classes ought to be "small"—say in the 10-25 range. It might be that this is a poor use of resources. Thus, if some kinds of subject matter can be handled almost as effectively in much larger classes, faculty could be liberated for more direct contact with students in the form of "independent study projects," senior seminars, senior theses, etc.

c. Perhaps a most important advantage of the liberal arts college is the opportunity

[4]Teachers certainly argue for capital goods (lab equipment, computers; etc.) but always as complements to, not substitutes for, the teaching (meaning lecturing) function.

for individual student-faculty discussion of intellectual issues.

d. Liberal arts colleges are in a "cost-crunch" situation growing out of the two-fold tendency of faculty salaries to increase and teaching loads to decrease. Partly the faculty salary increase is associated with the great increase in the demand for education of the past twenty-five years and partly it is a result of the fact that higher education is a part of the service sector in which productivity grows slowly. To the extent that it is the latter, the relative cost of higher education cannot be expected to improve in future years.

   The other large cost of higher education (since capital costs are low) is the foregone earnings of students. These, too, may be expected to rise.

3. These considerations point to the need for rethinking our programs and procedures in detail. Is a one-semester introductory course in economics as effective as a two-semester course? Can the work for a traditional college degree be completed in less than four years? Can we devise techniques by which students teach themselves, and each other, more?

4. Are there ways to increase the degree of competition (with its traditionally healthy influence on quality and quantity of input) within and among institutions of higher education?

Final Session: A Summary

The final session concerned itself primarily with the meaning and goals of a liberal arts education and of the contribution of economics within the undergraduate liberal arts context.

1. There seems to be a tendency for most liberal arts teachers to want to use the institution primarily to produce replicas of themselves: professional teachers. Other goals need emphasis. Among these is the need for students to gain perspective upon themselves and upon their physical and social environment. Also there is need for students to gain familiarity with the processes of intellectual inquiry—perhaps best gained through systematic one-to-one discussion of issues with teachers.

2. Discussion of the perennial problem of specialization at the undergraduate level resulted in a strong reaffirmation of the need for enough depth in a discipline to establish appreciation for its method as well as its content. In economics this would seem to require not more than one-fourth of the undergraduate's study efforts. For those going on to graduate school there should be special concern for breadth at the undergraduate level. When he graduates, the student loses to a considerable extent the opportunity to study the political and social forces impinging upon the economic system—as well as the opportunity to explore in detail the "humanizing" studies.

3. There seemed to be general agreement that macroeconomics (relative to microeconomics) had declined in favor among economists as the best means of introducing students to basic economic concepts. This decline is probably related to the time-distance from the Great Depression, the success economists have had in dealing with business cycle problems, and recent fruitful developments in microeconomic areas of much current interest.

4. Two participants pointed out that the pass-fail option, designed to encourage students to spend less time in their fields of major interest, had been a failure: students had devoted less time to their nonmajor courses because of the (pass-fail) assurance that their grade averages would not be adversely affected.

5. Sympathy was expressed for the idea of simplifying course structures by deleting many courses from liberal arts catalogs.

6. The period concluded with a brief discussion of the need to make interschool transfers, for a year, a semester, or an interim term, easier—the point being that students could thereby take short-term advantage of special strengths in other liberal arts colleges.

Discussion Leaders

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