

SOME COMPLIANCE TESTS FOR A UNIVERSITY SEGMENT

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If an individual is to improve himself, it is usually supposed that his environment must first be adjusted. Yet, when looking at the American university, people call for self-reform within the context of existing conditions. Is the university then free of environmental shackles and capable of rebirth at will? The findings of the study highlighted here suggest it is not. Instead, the university, or at least its school of business, seems to respond to the institutional and economic environment in regular fashion. So regular is the response, in fact, that the "compliance" of a single university segment with the field it faces may be tested against the behavioral background of a national sample.

Of course, the university is a complex organization with many behavioral facets. The one chosen for emphasis here is the offering of instructional topics in various subject fields. This university output is thought separable from other outputs like library services, academic atmosphere, and hypothesis formulation and testing, and is judged distinct from the community's utilization of instructional offerings in the productive process called higher education. In addition, this particular output has the advantage of being quantifiable in dimensions of diversity, dominance, and depth. Diversity here registers the number of topics in a series of subject fields which a school stands ready to "teach" to qualified members of society. Included are units like principles of economics, theory of matrices, and regression analysis. Dominance, on the other hand, measures the diversity of offerings in one subject field (like marketing, mathematics, or accounting) relative to those of the school as a whole. Lastly, depth registers the relative frequency of topic sequences of two or three-or-more units linked through a strict system of prerequisites.

To locate the variables in the environment upon which a school's diversity, dominance, and depth depend, one must fish in the environment with a theory. The theory adopted holds that the university's output is a social good. Offerings of instruction satisfy many individual preferences simultaneously and one person's enjoyment (as opposed to his utilization) of the output in no way reduces the amount available for another. So seen, no individual is apt to reveal his true preferences for the university's output nor to be willing to pay as much for the offer of instruction as he would if its availability to him depended upon his sacrifice of resources alone. By the same token, a university can count on no special rewards for carefully adjusting its output to suit the implicit preferences of its consumers. Thus, as the consumer is content to pay less than his maximum for the presence of a university's output which is not ideal, so the university is satisfied and permitted to produce an output that caters partially but not fully to the populace which supports it. A wedge is then driven into the chain of accountability between user and producer such that the university wins some slack for pursuing objectives of its own choosing. Admittedly, supporting taxpayers and donors may require certain output character-

istics before an exchange between them and the university becomes possible at all. Perhaps the university must equip itself with fringes of research or athletics, must offer instruction in American Free Enterprise or in Black Capitalism, or must exclude Agricultural Price supports from discussions of farm policy. Nevertheless, with such basics satisfied, the responsiveness of the university will tend to be loose rather than rigid and categorical rather than specific.

What this theory says about the university's reaction to environment is easily summarized. Output will be sensitive to forces within the school as well as without it and the long list of conventional influences bearing on preferences of individuals and groups and on public goods exchanges become relevant for consideration.

Having settled on a representative of output for the university and a direction for locating its controls in the environment, the theme of response must next be confronted by reality. To do this, a random sample of thirty-nine schools has been drawn from the 1970 membership of The American Association of Collegiate Schools of Business. Of the thirty-nine, twenty-four prove to be public, nine are graduate, thirteen are graduate-undergraduate, and seventeen are undergraduate. Furthermore, twenty-three are linked to universities with academic rankings in the nation's upper ninety-eight as measured on the Cartter scale.

For each of the schools of the sample, catalogs give information sufficient to measure diversity, dominance, and depth of offerings. In this quantification of output, departmental lines are ignored and course descriptions are used to put offerings within one of ten conventional subject fields. These are accounting, marketing, management, finance, real estate and insurance, general business, mathematics, computer science, statistics, and economics. Of note, perhaps, is the fact that general business here treats the interaction of business with forces of demography, culture, politics, technology, organization, communication, and natural environment in social feedback systems; it clearly does not refer to the catch-all property of some misfit departments and courses. As might be expected, the three measures of output possess high coefficients of variation. Indeed, these are the coefficients which the theme of this study would explain by differences in setting.

It would take too long and be too tedious to relive the drama of selecting proxies and testing them for service in the theme. Suffice it to say that the method of selection has been that of step-wise regression applied to those forces inside and outside the university which possess properties of "mental fit". Using the F-test, only relationships significant at the 0.05 level (or better) have been saved and, using the t-test, only variables significant at the same level have been included. While superficial investigation of correlation matrices among inputs has led to redefinition or rejection of all but one of any subset for which intercorrelation was obvious, no careful analysis of multicollinearity has been judged worthy of attempt.

On the whole, the application of the noted procedure gives results which uphold the hypothesis of university sensitivity. The significant relationships do draw from both inside and outside forces as supposed and numerous (nineteen) forces are required to "explain" the behavior of output. Indeed, the coefficients of determination for the response patterns, mainly in the 0.50 to 0.70 range, give room for additional as well as more appropriate inputs.

Coming to specifics, diversity and dominance prove to be much more sensitive to conditions than does depth. Diversity rises with the size of the total university faculty, the population of the city wherein the school is located, the public nature of the institution, and undergraduate emphasis of the college. It falls with the percent of the population in the school's state with a high-school education, a suggestion that an informed and interested group of supporters increases pressures for university accountability and curbs proliferation.

Among the ten subject fields, dominance responses are significant in all except economics and statistics. For finance and computer science, only external forces matter. Finance offerings grow in relative frequency with total personal income while those in computer science rise with employment in defense industries and with the percent of employment in goods-producing industries in the school's home state. Offerings in finance are at the same time restricted by the home state's expenditures for education per one-thousand dollars of personal income. In so far as the positive forces are concerned, concentrations of particular interest groups are evidently swamping the effects of field proliferation that wider and more affluent consumer audiences bring. Simultaneously, negative influences are reflecting the pressure for accountability that comes with public awareness. In the fields of general business and mathematics, internal forces alone rule. Of major account are positive effects tying to a school's academic rank (Cartter scale) and to its faculty quality (represented by salary levels). The negative influences relate to field diversification that comes with growth in the size of the school in terms of both students and faculty. In the four remaining subject fields, dominance responds both to inside and outside forces in generally interpretable fashion. Of special concern, nevertheless, is the negative influence which faculty quality has on offerings in real estate and insurance. Are such offerings gratifications which faculties take for themselves when monetary rewards are inadequate? If so, the faculty quality that has been associated with compensation levels must include activation of a strict perspective on higher education in business.

Among the measures of depth, only three-or-more sequences are "explained" by environment. In this case, the relative size of the business school within the university acts positively while the quality of the faculty acts negatively.

To test a single school's compliance with its environment, the relationships developed from the sample can be applied to the relevant measure of the school's own internal and external circumstance. This has been done for the

business school of the University of Nebraska-Lincoln. Though Nebraska's environmentally-conditioned response is mainly in tune with that of the sample, its offerings in both finance and general business appear to be "under-dominant". In the case of finance, this might suggest that Nebraskans have an insufficient concentration of interest in financial aspects of business and government to swamp the diversification of fields that their personal income brings or that their University is made especially sensitive to public wishes by the quality of expenditures on education per thousand dollars of income. Furthermore, in the case of general business, one could say that the University's academic rank is really not as high as the Cartter ratings suggest (where it stands eighty-second) or that the salaries paid overstate the quality of the Nebraska faculty. However, recalling the speaker's affiliation, the proper interpretation of Nebraska's non-compliance in these two instances is left as an exercise for the listener, and hopefully also, for the reader of the complete study. [1]

REFERENCES

- [1] Thomassen, H. (1972). Some compliance tests for a university segment. Complete paper of which the foregoing is a synopsis.