1962, #4 never published

OE-50027
Bulletin 1962
Number 5

# ECONOMICS *of* HIGHER EDUCATION

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HEALTH, EDUCATION, AND WELFARE
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# Contents

## Tables

CHAPTER 2 SOCIAL AND ECONOMIC DETERMINANTS OF THE DEMAND FOR EDUCATION—Continued



CHAPTER 3. THE NEED FOR PROFESSIONAL PERSONNEL



CHAPTER 4. HEALTH MANPOWER: AN ILLUSTRATION

CHAPTER 4. HEALTH MANPOWER: AN ILLUSTRATION—Continued



CHAPTER 5. NATIONAL REQUIREMENTS FOR SCIENTISTS AND ENGINEERS: A SECOND ILLUSTRATION



CHAPTER 7. RISE IN THE CAPITAL STOCK REPRESENTED BY EDUCATION IN THE UNITED STATES, 1900–57



CHAPTER 8. EDUCATION AND ECONOMIC GROWTH



CHAPTER 9. INCOME AND EDUCATION: DOES EDUCATION PAY OFF?

CHAPTER 9. INCOME AND EDUCATION: DOES EDUCATION PAY OFF—Continued



CHAPTER 10. THE NATION'S EDUCATIONAL OUTLAY



CHAPTER 11. STUDENT HIGHER EDUCATION AND FACILITIES OF COLLEGES AND UNIVERSITIES: PROJECTIONS



CHAPTER 13. THE FEDERAL GOVERNMENT ROLE IN HIGHER EDUCATION

## Chapter 14. State Financing of Higher Education



## Chapter 15. Corporate Support of Higher Education



## Chapter 17. Educational Expenditures and the Income Tax



## Chapter 18. Research and the Financing of Higher Education

CHAPTER 18. RESEARCH AND THE FINANCING OF HIGHER EDUCATION—Continued



CHAPTER 19. FINANCING OF HIGHER EDUCATION IN THE UNITED STATES AND IN GREAT BRITAIN

# CHAPTER 9

# Income and Education: Does Education Pay Off?

*Herman P. Miller**

IT IS GENERALLY ACCEPTED, on more or less intuitive grounds, that income and schooling go together. Persons who have not gone beyond elementary school are seldom qualified to hold any but the most menial jobs, and persons who aspire to professional or managerial work generally need at least 4 years of college training. In a society where one-third of the salesmen and one-fourth of the office clerks have gone to college, the man who is inadequately schooled would appear to stand little chance of achieving financial success.

Statistical studies of the relationship between income and schooling tend to support our intuitive feelings on this matter. Numerous studies, conducted under varying economic conditions, have shown that persons with more schooling tend to earn more money. The studies support the thesis that investment in education provides, on the average, a favorable return when compared with other investment yields. Despite the marked increase in recent years in the number of proportion of college graduates, for example, their relatively high incomes were maintained. Labor market demands for more highly educated people appear to have kept pace with the increased supply. During the past generation professional and managerial employment—two major outlets for the college-trained—increased 50 percent, absorbing the enlarged flow of college graduates.

Education, however, is only one of many factors that determine income; both income and education may be related to more fundamental traits like ability, drive, and imagination, or to family status and prestige in the community. The relationship between schooling and earnings may be spurious, and what essentially may remain undisclosed are underlying causes both of advanced education and higher earnings, conditions such as superior intelligence, better home environment, and greater opportunities both socially and economically.

Recent analyses of returns on investment in human resources have interpreted income increments accompanying additional years of

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schooling as the consequence of the schooling. It is generally assumed that the attainment of more schooling, particularly at the secondary and college level, in some measure improves the productivity of the individual, and thereby his economic contribution and earnings.[1]

Economists have long argued that earnings could be increased by improving human capacity and productivity. This type of formulation was made 200 years ago by Adam Smith in his famous comparison between investment in education and in a machine;[2] and it appears in similar form in current economic literature as well.[3] Very likely this same formulation underlies much of the emphasis placed on education by minority groups.

While I have on other occasions set forth findings from the Census Bureau's population surveys on income differentials and education, findings that give support to the idea that college education pays off in enhanced earnings, the present chapter is designed to illustrate by two examples that we must consider the earnings returns to the individual cautiously. Education has many values, and these values are not measured exclusively by income returns. There are barriers to job opportunities and factors of selection among individuals and groups that interfere with a direct association between education and income. The time perspective we use to assess income yield may not be adequate; schooling itself delays employment and earnings, and generation-to-generation effects of education[4] such as those reported in the Brazer-David study elsewhere in this volume, do not often appear in the statistics.

Some groups in the population, particularly nonwhites, have not realized income gains commensurate with increases in their education. During all the years for which figures on income, education, and color are available, the correlation between income and education is much higher for whites than for nonwhites. Among nonwhite men 25–44 years old—an age group that has benefited from recent advances in education and from the migration of Negroes from southern farms, and one that also encompasses the period of peak earnings—elementary school graduates had about the same average income as high school graduates despite the 4-year difference in schooling. Moreover, during the past decade nonwhites have made far greater relative gains in education than have whites, but income differentials

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[1] Theodore W. Schultz. "Education and Economic Growth," in National Society for the Study of Education Sixtieth Yearbook, Nelson B. Henry, ed., Part 2, *Social Forces Influencing American Education, 1961*, University of Chicago Press, p. 46–88.

[2] Adam Smith. *The Wealth of Nations*. Everyman's Library. New York, E. P. Dutton, 1910. Book I, p. 88–89.

[3] Theodore W. Schultz. Capital Formation by Education. *Journal of Political Economy*, 68: 571–583, December 1960.

[4] See Harvey E. Brazer and Martin David, ch. 2 of this publication.

between the two groups have remained more or less constant. Under conditions that prevailed in 1949, male college graduates could have expected to earn about $296,000 over a lifetime.[5] For whites the average was about $300,000, as compared with only $183,000 for nonwhites and the nonwhite college graduate could expect to earn no more over a lifetime than the white with only 8 years of schooling.

An analysis of income changes for veterans also raises some questions about the extent to which education is primarily responsible for the income gains made by veterans of World War II. Nearly 8 million veterans of World War II accepted education and training benefits provided under the Servicemen's Readjustment Act of 1944, at a cost of about $14.5 billion to the Federal Government. Scholarship aid under the GI program raised the educational level of veterans considerably above that of nonveterans, and income differentials between the two groups increased progressively from zero in 1948 to a peak of 30 percent in 1955. Yet, and this is the important fact, veterans who did not receive scholarship aid under the GI program had only slightly lower average incomes than those who did, despite their lower average educational attainment. It is possible that 1955 was too soon to attempt to measure financial gains associated with training completed after the close of World War II. Pending additional data on the subject, however, we must conclude that there is some question as to whether education was a primary factor in the development of income differentials between veterans and nonveterans.

The meaning of the relation between education and income is not easy to assess if we insist upon scientific standards of evidence, and certainly the figures require more penetrating analysis than they have received to date. Other recent studies have observed the sluggish way in which nonwhites' incomes have responded to increases in education. With the exception of an analysis by Becker now in process, being made for the National Bureau of Economic Research, the income responsiveness of a narrowing of educational differences between white and nonwhite groups has been ignored or treated in a very cursory way.[6]

Nonwhites are virtually excluded from certain occupations, and many nonwhite men and women who have completed college are in low-paid jobs. It is entirely possible and indeed likely that productivity potentials of nonwhites have been raised, as suggested by the

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[5] The comparable estimate for 1958 was $425,000. See Herman P. Miller, "Annual and Lifetime Income in Relation to Education: 1939–59," *American Economic Review*, 50: 962–986, December 1960.

[6] See, for example, Gary S. Becker, "Underinvestment in College Education?" *American Economic Review*, Papers and Proceedings, American Economic Association, 50: 346–373, May 1960; and Edward F. Renshaw, "Estimating the Returns to Education," *Review of Economics and Statistics*, 42: 318–324, August 1960, part 1.

theory that correlates increases in years of schooling with additions to human capital, but these potentials may not have materialized, owing to discrimination. There are, however, other factors that have a bearing on the situation and these relate to the precise meaning of the unit of analysis—a year of schooling—by which education is measured.

The available statistics used to measure economic returns from education are in terms of years of schooling completed. In view of obvious differences in the importance of a year of elementary school, of high school, and of college, these classifications by level of education are made in the basic data. Since they distinguish 1 year of schooling from another, they introduce a qualitative factor into the statistics. Beyond this distinction, no allowance is made for differences in the quality of education provided or received. Crude attempts that have been made, largely for the purpose of historical comparison, to modify the concept in terms of school-year equivalents based on days of schooling per year [7] must be regarded as faltering first steps. Statistics which show that the average young nonwhite male is only about 1½ years behind the average young white male in years of schooling completed must present an erroneous impression of the educational difference betwen the two groups when account is taken of possible differences in the quality of schooling. Qualitative differences have tended to be ignored in measures of physical capital [8] and, except for minor attention, they are also being ignored in recent work on human capital. For broad overall analyses, it is perhaps essential to ignore the qualitative element, especially since it eludes accurate measurement. This logic seems much less applicable when attention is focused on relatively small subgroups in the population.

Although qualitative differences in education are difficult to measure, there can be little question that on the average nonwhite children receive schooling of lesser quality. This problem has received intensive study by Dr. Eli Ginzberg, director of the Conservation of Human Resources Project at Columbia University, who concludes that—

> . . . considerable weight must be given to poor schools. . . . Often these schools in predominantly Negro neighborhoods are in serious disrepair, are staffed by inexperienced teachers, and are unable to provide instruction geared to the widely different abilities of their students.[9]

Dr. Ginzberg cites many instances that attest to the lower quality of Negro schooling. The Speaker of the House of Representatives of Georgia is quoted as stating that "What the Negro child gets in

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[7] Theodore W. Schultz. Education and Economic Growth, op. cit., and ch. 7 of this publication.

[8] Mary Jean Bowman. Ch. 6 of this publication.

[9] Eli Ginsberg. *The Negro Potential*. New York, Columbia University Press, 1946. p. 58.

the sixth grade, the white child gets in the third grade." [10] As presumptive evidence of great differences between educational opportunities of Negroes and whites, Ginzberg quotes a 1956 report of an earlier study by the National Manpower Council showing that "the average freshman in a Negro college scored only a little higher on aptitude tests than the lowest ranking freshman in the average college." [11]

Another important limitation of the "years of schooling completed" concept is that no differentiation is made with respect to the learning gained through exposure to a given amount of education. "Years of schooling" has an entirely different meaning for a student who has done well in a school system with high standards and established bases for measuring achievement from the meaning it has for a poorly motivated student who has just managed to get by in a school system with low standards. Education, after all, is not synonymous with time spent in a schoolroom. If as a result of cultural, social, or economic conditions nonwhite students as a group tend to have a relatively low standing in their classes, they cannot expect to derive as much from a year of schooling as do other students. Therefore the narrowing of differentials in years of schooling that has taken place is not matched by a parallel narrowing of differences in scholastic achievement or in later earnings, since there appears to be an association between scholastic achievement and occupational success.[12] There is some empirical basis for the judgment that problems relating to behavior, discipline, and lack of motivation occur disproportionately in Negro areas and this may well be part of the explanation for the low correlation between income and education for nonwhite men.[13] The whole question of the relationship between income (or earnings) and IQ, performance on aptitude tests, standardized achievement tests, and other objective measures has been inadequately explored despite the existence of much basic data on the subject. In view of the importance of education and the increasing share of our national income that is being devoted to educational services, it is perhaps time to intensify the efforts devoted to the collation of school and Army records with socioeconomic data collected in household surveys, for the purpose of measuring more precisely the economic importance of education to the individual when other relevant factors are taken into account.

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[10] Ibid., p. 83.

[11] Ibid., p. 55.

[12] *See* Donald S. Bridgman. Problems in Estimating the Monetary Value of College Education. p. 180–184; *and* Dael Wolfle, Economics and Educational Values, p. 178–179, both in *Higher Education in the United States, the Economic Problems*, Seymour E. Harris, ed., Cambridge, Mass., Harvard University Press, 1960; *and* Ernest Havemann and Patricia Salter West, *They Went to College; The College Graduate in America Today*. New York, Harcourt, Brace & Co., 1952. p. 164.

[13] For a recent study, see Calvin F. Schmid, *Impact of Recent Negro Migration on Seattle Schools* (paper presented at the International Population Conference, Vienna, 1959).

# I. Income and Education: Differences between Whites and Nonwhites

## ANNUAL INCOME AND EDUCATION

Migration and technological change during the past two decades are altering the occupational patterns of the nonwhite, from the southern farm laborer or sharecropper to the low-paid industrial worker. In 1940 about three-fourths of all nonwhites in the United States lived in the South, where they were largely engaged in agriculture. By 1950 the proportion residing in the South dropped to about two-thirds;[14] and in 1960 it was somewhat more than half (56 percent).[15] Even in the South, nonwhites are now more concentrated in urban areas than ever before. In 1960, over half (58 percent) of all southern nonwhites were urban residents.[16]

The figures on the occupational distribution of nonwhite males tell the story even more dramatically. In 1940, 4 out of 10 employed nonwhite males in the United States worked on southern farms as either laborers or sharecroppers.[17] In 1960, fewer than 2 out of 10 were employed in agriculture, and about half of them were either unskilled or semiskilled workers at nonfarm jobs.[18] The change in the occupational status of nonwhites was accompanied by a marked rise in educational attainment, proportionately far greater than the rise for whites. Among men in the 25–29-year age group—and these are the ones most likely to have benefited from recent advances in education—the median years of school completed by nonwhites increased by about two-thirds—from 6.5 years in 1940 to 10.9 years in 1959 (table 1). The increase for whites in the same age group was only about one-fifth—from 10.5 years to 12.5 years. In 1940 the average nonwhite male 25–29 years of age was about 4 years behind the average white male of the same age in his schooling. By 1959 this gap had been narrowed to only 1½ years.

The most dramatic advances in schooling among nonwhites have occurred at the lower elementary grades. In 1940 one-third of the nonwhite males 25–29 years of age in the United States had com-

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[14] U.S. Department of Commerce, Bureau of the Census. *1950 Census of Population—Preliminary Reports.* Series PC–7, No. 2, Employment and Income in the United States by Regions, 1950.

[15] U.S. Department of Commerce, Bureau of the Census. *U.S. Census of Population: 1960, General Population Characteristics, United States Summary.* Final Report PC(1)–1B, table 57.

[16] Ibid., table 52.

[17] U.S. Department of Commerce, Bureau of the Census. *1950 Census of Population—Preliminary Reports,* op. cit.

[18] U.S. Department of Labor, Bureau of Labor Statistics. *Employment and Earnings,* vol. 6, May 1960.

pleted less than 5 years of school. By 1959 the proportion had been reduced to only 8 percent, and this decrease was largely responsible for the striking reduction in illiteracy among nonwhites during the past two decades.[19] Gains in education among nonwhites during that period were by no means restricted to the lower grades. The proportion of high-school graduates among nonwhite men 25–29 years of age rose fourfold, from 10 percent to 40 percent, and the proportion of college graduates more than tripled.

TABLE 1.—Level of schooling completed by white and nonwhite males, United States, selected dates, 1940–59

| Date, age, and color | Percent by level of schooling completed | | | Median school years completed |
|---|---|---|---|---|
| | Less than 5 years of elementary school | 4 years of high school or more | 4 years of college or more | |
| **WHITE** | | | | |
| 25 years and over: | | | | |
| March 1959 | 7.1 | 43.6 | 10.8 | 11.1 |
| March 1957 | 7.9 | 41.1 | 10.1 | 10.7 |
| April 1950 | 9.5 | 33.5 | 7.6 | 9.3 |
| April 1940 | 11.5 | 23.8 | 5.8 | 8.7 |
| 25–29 years: | | | | |
| March 1959 | 2.6 | 65.9 | 15.7 | 12.5 |
| April 1950 | 3.7 | 52.6 | 10.1 | 12.4 |
| April 1940 | 3.9 | 38.6 | 7.5 | 10.5 |
| **NONWHITE** | | | | |
| 25 years and over: | | | | |
| March 1959 | 28.1 | 16.5 | 2.6 | 7.6 |
| March 1957 | 30.3 | 16.2 | 2.6 | 7.3 |
| April 1950 | 35.3 | 12.0 | 2.0 | 6.4 |
| April 1940 | 45.3 | 6.7 | 2.1 | 5.4 |
| 25–29 years: | | | | |
| March 1959 | 8.2 | 40.0 | 5.6 | 10.9 |
| April 1950 | 18.8 | 20.4 | 2.3 | 8.4 |
| April 1940 | 32.8 | 10.4 | 1.6 | 6.5 |

SOURCE: Data on nonwhites from U.S. Department of Commerce, Bureau of the Census. *Current Population Reports*, Series P–20, No. 99, table 3. Figures for whites derived from data underlying the published table.

Despite the proportionately greater gains in education among nonwhites during the decade 1950–59, earnings differentials between the two groups did not change much (table 2). In 1950 the average wage or salary income for nonwhite workers was about three-fifths of that received by white workers ($1,800 as compared with $3,000). In 1959 this ratio was unchanged; the median for nonwhite workers was $2,800, as compared with $4,900 for white workers. Prior to 1950 there had been a substantial narrowing in earnings differentials between whites and nonwhites. This, however, was not primarily attributable to differences in education, but was rather closely related to war-induced labor market conditions, including extreme shortages of unskilled labor and Government regulations such as those of the War

[19] U.S. Department of Commerce, Bureau of the Census. *Current Population Reports*, Series P–20, No. 99, 1960, table 3.

Labor Board, designed to raise the incomes of lower paid workers.[20] Although the educational gains among nonwhites were concentrated in the younger age groups, income differentials between whites and nonwhites in these groups were virtually unchanged during the decade 1950–59. Table 3 shows that in 1949 and in 1956 among males 25–44 years of age, nonwhites received about one-half the income received by whites.

TABLE 2.—Median annual money wage or salary income of white and nonwhite male workers with wage or salary income, United States, 1939 and 1950–59

| Year | White | Nonwhite | Ratio of nonwhite to white |
|---|---|---|---|
| 1939 | $1,112 | $460 | 41 |
| 1950 | 2,983 | 1,828 | 61 |
| 1951 | 3,345 | 2,080 | 62 |
| 1952 | 3,507 | 2,088 | 58 |
| 1953 | 3,700 | 2,233 | 59 |
| 1954 | 3,754 | 2,131 | 57 |
| 1955 | 3,996 | 2,342 | 59 |
| 1956 | 4,280 | 2,396 | 56 |
| 1958 | 4,260 | 2,436 | 58 |
| 1959 | 4,569 | 2,652 | 58 |
| | 4,902 | 2,844 | 58 |

SOURCE: U.S. Department of Commerce, Bureau of the Census. *Historical Statistics of the United States: Colonial Times to 1957*, and various issues of *Current Population Reports*, Series P–60.

Some of the basic statistics pertaining to the relationship between annual income and educational attainment for whites and nonwhites are presented in table 3, which shows the average (mean) annual income in 1939, 1949, and 1956 of men with different amounts of schooling.[21] (Similar data for 1959, based on the 1960 census, will soon be available.) The data are presented separately for three broad age groups for all men in the United States 25 years old and over so that the figures can be examined independent of changes in the age distribution of the population. Women have been excluded from the analysis; since a large proportion of them do not enter the labor market and many of those who do are employed on a part-time basis only, the relationship between their income and education may be distorted. In contrast, practically all adult men are full-time workers and it can therefore be assumed that any advantages that may accrue from more schooling are reflected in their incomes.

[20] For a discussion of the narrowing of earnings differentials during World War II, see Herman P. Miller, "Changes in the Industrial Distribution of Wages in the United States, 1939–1949," in *Studies in Income and Wealth*, vol. 23. Princeton, N.J., Princeton University Press, 1958.

[21] For each year the mean income was obtained as a summation of the product of the average income and the proportion of persons for each income level. Persons with no income were excluded. For income levels below $5,000 in 1939, below $10,000 in 1949, and below $6,000 in 1956, the midpoint of each class interval was assumed to be the average. For 1939, $9,000 was used for the "$5,000 and over" interval; for 1949, $20,000 was used for the "$10,000 and over" interval; and for 1956, the averages for the "$6,000 to $10,000" and "$10,000 and over" intervals were fitted by the use of Pareto curves. See the note to table 3 on comparability, for more details regarding the limitations of the data.

TABLE 3.—Mean income for males 25 years of age and over by educational attainment, color, and age, United States, 1939, 1949, and 1956

| Educational attainment and age | White | | | Nonwhite | | |
|---|---|---|---|---|---|---|
| | 1939 [1] | 1949 [2] | 1956 [2] | 1939 [1] | 1949 [2] | 1956 [2] |
| **25 YEARS AND OVER** | | | | | | |
| All | $1,419 | $3,576 | $4,627 | $809 | $1,664 | $2,471 |
| ELEMENTARY SCHOOL: | | | | | | |
| All | 1,125 | 2,540 | 3,278 | 566 | 1,466 | 2,078 |
| Less than 8 years | (3) | 2,294 | 3,201 | (3) | 1,286 | 1,921 |
| 8 years | | 3,575 | 3,777 | | 1,909 | 2,892 |
| HIGH SCHOOL: | | | | | | |
| All | 1,598 | 3,596 | 5,129 | 772 | 2,123 | 3,141 |
| 1 to 3 years | 1,413 | 3,206 | 4,598 | 728 | 2,080 | 3,087 |
| 4 years | 1,685 | 3,940 | 5,547 | 859 | 2,208 | 3,218 |
| COLLEGE: | | | | | | |
| All | 2,297 | 5,289 | 7,694 | 1,064 | 2,739 | 3,831 |
| 1 to 3 years | 1,984 | 4,501 | 6,477 | 948 | 2,413 | (3) |
| 4 years or more | 2,646 | 6,260 | 8,622 | 1,208 | 3,177 | (3) |
| **25 TO 64 YEARS** | | | | | | |
| Total | 1,360 | 3,431 | 4,280 | 600 | 1,790 | 2,526 |
| ELEMENTARY SCHOOL: | | | | | | |
| All | 1,068 | 2,618 | 3,609 | 865 | 1,560 | 2,431 |
| Less than 8 years | (3) | 2,316 | 3,223 | (3) | 1,492 | 2,262 |
| 8 years | | 3,880 | 4,105 | | 1,915 | 3,062 |
| HIGH SCHOOL: | | | | | | |
| All | 1,496 | 3,425 | 5,162 | 745 | 2,145 | 3,119 |
| 1 to 3 years | 1,296 | 3,203 | 4,747 | 711 | 2,037 | 3,173 |
| 4 years | 1,653 | 3,937 | 5,494 | 816 | 2,317 | 3,080 |
| COLLEGE: | | | | | | |
| All | 2,127 | 4,936 | 7,216 | 1,016 | 2,662 | (3) |
| 1 to 3 years | 1,880 | 4,159 | 6,328 | 903 | 2,413 | (3) |
| 4 years or more | 2,411 | 5,512 | 7,988 | 1,163 | 3,082 | (3) |
| **45 TO 64 YEARS** | | | | | | |
| Total | 1,362 | 3,715 | 5,139 | 630 | 1,680 | 2,427 |
| ELEMENTARY SCHOOL: | | | | | | |
| All | 1,226 | 2,843 | 3,740 | 890 | 1,535 | 2,151 |
| Less than 8 years | (3) | 2,537 | 3,267 | (3) | 1,458 | 2,027 |
| 8 years | | 3,126 | 4,184 | | 2,027 | (4) |
| HIGH SCHOOL: | | | | | | |
| All | 1,955 | 4,176 | 5,473 | 896 | 2,223 | 3,368 |
| 1 to 3 years | 1,718 | 3,712 | 4,883 | 814 | 2,137 | (3) |
| 4 years | 2,245 | 4,709 | 6,101 | 1,089 | 2,365 | (3) |
| COLLEGE: | | | | | | |
| All | 2,921 | 6,571 | 9,361 | 1,212 | 3,094 | (3) |
| 1 to 3 years | 2,361 | 5,556 | 7,209 | 1,089 | 2,572 | (3) |
| 4 years or more | 3,529 | 8,054 | 11,185 | 1,335 | 3,686 | (3) |
| **65 YEARS AND OVER** | | | | | | |
| All | (3) | 2,100 | 2,452 | (3) | 877 | 939 |
| ELEMENTARY SCHOOL: | | | | | | |
| All | (3) | 1,696 | 1,972 | (3) | 805 | 911 |
| Less than 8 years | (3) | 1,457 | 1,900 | (3) | 765 | 862 |
| 8 years | (3) | 1,911 | 2,257 | (3) | 1,248 | (4) |
| HIGH SCHOOL: | | | | | | |
| All | (3) | 2,776 | 3,094 | (3) | 1,346 | (3) |
| 1 to 3 years | (3) | 2,421 | 2,800 | (3) | 1,206 | (3) |
| 4 years | (3) | 3,157 | 3,388 | (3) | 1,549 | (3) |
| COLLEGE: | | | | | | |
| All | (3) | 4,898 | 5,218 | (3) | 2,086 | (3) |
| 1 to 3 years | (3) | 3,685 | 4,220 | (3) | 1,589 | (3) |
| 4 years or more | (3) | 5,409 | 6,916 | (3) | 2,451 | (3) |

[1] Restricted to persons reporting $1 or more of wage or salary income and less than $50 of other income for native white and Negro males 25–64 years old only.
[2] Total money income.
[3] Not available.
[4] Base is less than 100 sample cases.

SOURCE: Data for 1939 derived from U.S. Department of Commerce, Bureau of the Census, 1940 Census of Population, *Education: Educational Attainment by Economic Characteristics and Marital Status*, tables 29 and 31. Data for 1949 derived from *1950 Census of Population*, Series P–E, No. 5–B, *Education*, tables 12 and 13. Data for 1956 derived from the consumer income supplement to the March 1957 *Current Population Survey*.

*Note regarding comparability of the figures*: Neither the income concept nor the statistical universe covered is directly comparable for all the years shown. The figures for 1956 are based on the *Current Population Survey* and represent the total money income of the civilian noninstitutional male population 25 years old and over. The 1949 figures are based on the 1950 census and also represent the total money income of all males 25 years old and over, including a relatively small number of institutional inmates. The figures for 1939 are based on the 1940 census and are restricted to males 25–64 years of age with $1 or more of wage or salary income and less than $50 of nonwage, nonsalary income. For this group, of course, the averages represent total money income; however, because of the way in which the data were collected, the universe has been restricted to persons who received only wage or salary income. Only about three-fifths of all the men 25–64 years old in 1939 were in this category. The effects of this restriction cannot be measured, but it is undoubtedly more important than the restrictions cited above for 1949 and 1956. It is also possible that this restriction affects college graduates more than it affects persons with less schooling, and for them it tends to create an adverse selection since college graduates are more likely to have income other than earnings.

In the 3 years for which data are presented in table 3, there is a progressive increase for both whites and nonwhites in the average amount of annual income associated with each level of schooling. This increase, however, is typically greater for whites in both absolute and relative terms. Thus, for example, in 1949 the income differential between elementary-school and high-school graduates 25–44 years old was about $700 for whites and $400 for nonwhites. When the averages for the two groups were compared for that year, the differential amounted to 25 percent for the whites and 21 percent for the nonwhites. A similar comparison for 1956 shows little difference between the average incomes of nonwhite elementary-school and high-school graduates, but among the white, a 34-percent difference.

Because of the relatively small number of nonwhite college graduates, income data for this group are not available from the 1956 sample survey. The 1950 census, however, shows for whites an income difference of 53 percent between high-school and college graduates 25–44 years old, as compared with a 31-percent difference for nonwhites. In 1956 white males in all age groups who had attended college but did not graduate had an average income $930 higher than did high-school graduates who had never attended college; those who had completed college had an average income $3,075 higher.

The figures in table 3 point to the general conclusion that the association between income and education is closer for whites than for nonwhites, and that the association for nonwhites may have diminished somewhat in recent years. The data from the 1960 census should shed considerable light on this association.

## LIFETIME INCOME AND EDUCATION

Estimates of lifetime income provide summary measures of the financial returns associated with education that cannot be readily obtained from the annual data presented above.[23] The estimates of lifetime income presented here are derived figures—one might say synthetic figures—based on variations in the payments to individuals in different age and education groups in 1939 and 1949, the only years for which the base data are available in sufficient detail to permit preparation of estimates by color. The figures are therefore based on a cross section of the population in 1939 and 1949 and not on life-cycle data which would trace a man's income from the time he starts to work until he retires. Although life-cycle data on the variations of income by age are not available, there is some reason to believe that they would differ considerably from the cross-sectional data. Of course, life-cycle data would involve problems of their own,

[23] For additional information on estimation of lifetime income, see Herman P. Miller. Annual and Lifetime Income in Relation to Education: 1939–1959. *American Economic Review*, 50: 962–986, December 1960.

since they would contain variations resulting from periods of prosperity or depression, with resulting changes in opportunities for employment, in wage rates, and in the cost of living.[23]

Illustrative of the kinds of differences presented by cross-sectional and life-cycle data on income and age are the variations in the treatment of annual income gains due to productivity in the two procedures. At any given time, wage differentials by age groups within a specific occupation tend to be a function of skill, experience, and various random factors that are always present, like illness and accidents. The annual gains in income due to increased productivity, therefore, are not of major significance in cross-sectional surveys because such gains do not affect the distribution of income among age groups. In contrast, the secular growth in real income per capita, which has averaged 1.6 percent per year since the turn of the century, has a marked impact on the pattern of earnings over a lifetime by exerting a continuous upward force on the earnings of the individuals in the study.

Consider, for example, a group of 100 men of the same age, education, skill, and experience who started to work in a particular occupation in 1925 at age 25. If the average income for the group is expressed as 100 in the first year of work, 10 years later (at age 35) the average would be 117 if we assume an annual growth rate of 1.6 percent and no other changes. By age 45 the average would be 137, and in 1955 (at age 55) it would be 161. If, on the other hand, we consider a cross section of men in the same occupation in 1955, the differentials by age would not be at all related to the assumed growth during the preceding 30 years, but would reflect only differences associated with skill, experience, and random factors existent at that time.

Standard life-table techniques were used in computing the figures shown in table 4. First, an estimate was made of the survival rate per 100,000 white and nonwhite children born in 1939 and in 1949; that is, the number born who would be alive at specific ages. These estimates were made from appropriate life tables.[24] By way of illustration—it was estimated that out of 100,000 white infants born alive in 1949, about 96,000 would survive to age 18, at which time they would enter the labor market. The basic problem consisted of estimating the lifespan of these 96,000 survivors and the amount of income they would receive during their lifetime. For this purpose it was assumed that survival rates for men in each educational group would be the same as for all white males in 1949. On this basis it was estimated that these 96,000 men would live a total of nearly 5 million man-years

[23] For a discussion of such data, see W. S. Woytinsky. Income Cycle in the Life of Families and Individuals. *Social Security Bulletin*, 6: 8–17, June 1943.

[24] U.S. Department of Commerce, Bureau of the Census. *U.S. Life Tables and Actuarial Tables, 1939–41*, and U.S. Department of Health, Education, and Welfare, Public Health Service, National Office of Vital Statistics, *Vital Statistics—Special Reports*, United States Life Tables, 1949–51, vol. 41, No. 1.

between age 18 and the time the last one died. It was further assumed that during each year of life these men would receive an average income corresponding to that received by men in the same age group with the same amount of education. The averages used for this purpose were arithmetic means computed for detailed age groups by means of procedures described above.[25]

There are several cautions that should be considered before discussing the figures in table 4. First, the figures should not be interpreted as returns from education, because they reflect the impact of many of the factors that influence the relationship between income and education. In addition, the figures are not exactly comparable from year to year owing to changes in the income concept. The data for 1939 are for wages and salaries, whereas those for 1949 are for total income. Finally, the estimates for each year reflect the economic conditions and other circumstances which existed in that year. The

**TABLE 4.—Lifetime income based on arithmetic means for males in selected age groups, by color and by years of schooling completed, United States, 1939 and 1949**

[In thousands]

| Years of schooling completed | White | | Nonwhite | |
|---|---|---|---|---|
| | 1939[1] | 1949[2] | 1939[1] | 1949[2] |
| **AGES 18 TO DEATH** | | | | |
| All years of school | (3) | $157 | (3) | $69 |
| ELEMENTARY SCHOOL: | | | | |
| All | | | | |
| Less than 8 years[4] | (3) | 121 | (3) | 62 |
| 8 years | (3) | 107 | (3) | 59 |
| HIGH SCHOOL: | (3) | 135 | (3) | 79 |
| All | | | | |
| 1 to 3 years | (3) | 171 | (3) | 88 |
| 4 years | (3) | 160 | (3) | 83 |
| COLLEGE: | (3) | 188 | (3) | 95 |
| All | | | | |
| 1 to 3 years | (3) | 258 | (3) | 113 |
| 4 years or more | (3) | 213 | (3) | 98 |
| | (3) | 301 | (3) | 133 |
| **AGES 18 TO 64** | | | | |
| All years of school | $86 | 139 | $21 | 64 |
| ELEMENTARY SCHOOL: | | | | |
| All | | | | |
| Less than 8 years[4] | 43 | 107 | 19 | 57 |
| 8 years | (3) | 95 | (3) | 54 |
| HIGH SCHOOL: | (3) | 119 | (3) | 71 |
| All | | | | |
| 1 to 3 years | 65 | 148 | 27 | 79 |
| 4 years | 58 | 140 | 25 | 76 |
| COLLEGE: | 73 | 162 | 31 | 85 |
| All | | | | |
| 1 to 3 years | 95 | 220 | 37 | 101 |
| 4 years or more | 79 | 184 | 33 | 88 |
| | 112 | 255 | 41 | 117 |

[1] Restricted to persons reporting $1 or more of wage or salary income and less than $50 of other income for native whites and Negroes.
[2] Total money income.
[3] Not available.
[4] Includes persons reporting "No years of schooling completed" (not shown separately).

[25] See footnote 21; for age detail, see sources referred to in table 8.

increase, for example, in the value of a college education for white males by about $140,000 between 1939 and 1949 reflects the increase in prices as well as changes in the underlying relationships.

In 1949 white males had an expected lifetime income of about $157,000, as compared with $69,000 for nonwhites. For both groups additional schooling was associated with increases in lifetime income; but the gains were much more striking for whites than for nonwhites. The difference between the lifetime income of elementary-school and of high-school graduates was $53,000, or 39 percent, for whites as compared with only $13,000, or 16 percent, for nonwhites. Similarly, the income difference between white high-school and college graduates was $114,000, or 61 percent, as compared with a difference of $38,000, or 34 percent, for nonwhites. Viewed alternatively, the average nonwhite elementary-school graduate in 1949 had an expected lifetime income that was about 61 percent of that expected by the average white with the same amount of schooling. At the high-school level this ratio dropped to 51 percent, and among college graduates it was only 44 percent. These figures lend further support to the conclusion cited earlier that the association between income and education is closer for whites than for nonwhites.

## II. Income and Education: Veteran, Nonveteran Differences, 1947–59

While World War II was still in progress, the Congress enacted the "GI bill of rights," designed to assist veterans in reestablishing themselves in civilian life. A most important part of this program was the provision of Government-financed education intended to improve permanently the economic status of veterans. Nearly 8 million veterans of World War II accepted the education and training benefits provided under the act. Over 2 million received college or university training at Government expense, and an additional 3.5 million received free education below the college level at elementary and secondary schools, vocational and trade schools, technical institutions, and business schools—the largest program ever undertaken by the Federal Government to provide financial aid to individuals for their education and training.[26]

The impact of the GI bill on the educational attainment of veterans is shown in table 5. In 1947, when most of the former servicemen were in the initial phase of their training under the GI bill, veterans were already a more highly educated group than nonveterans. This was, of course, to be expected since many men were re-

[26] U.S., The President's Commission on Veterans' Pensions, *Readjustment Benefits: General Survey and Appraisal*, Staff Report No. IX, Part A, 84th Cong., 2d sess., House of Representatives Committee on Veterans' Affairs, House Committee Print No. 291, 1956.

jected for military service because they were of low intelligence. There was no difference in the proportions of younger veterans and nonveterans (25–34 years of age) who had completed college; but a larger proportion of the veterans had been exposed to some college training, even if they did not graduate. By 1952 this picture had changed markedly. The proportion of college graduates among younger veterans increased from 7 percent to 12 percent, as compared with an increase from 6 percent to 9 percent for younger nonveterans. At the lower educational levels, the gains for veterans were equally striking.

Since older veterans (35–44 years of age) did not make as much use of the education and training provisions of the GI bill as did the younger ones, the older group's educational attainment did not change as much. The most significant change for the older veterans was a sharp drop in the proportion who quit school upon completion of the eighth grade and a rise in the proportion of high-school graduates. Between 1947 and 1952 there was no change in the proportion of college graduates among older veterans.

**TABLE 5.—Percent distribution of male veterans of World War II and of nonveterans, by years of schooling completed, by age, United States, 1947 and 1952**

| Years of schooling completed | Veterans of World War II | | | | Nonveterans | | | |
|---|---|---|---|---|---|---|---|---|
| | 25–34 years | | 35–44 years | | 25–34 years | | 35–44 years | |
| | 1947 | 1952 | 1947 | 1952 | 1947 | 1952 | 1947 | 1952 |
| Number of veterans (thousands) | 6,351 | 8,428 | 2,035 | 4,120 | 4,043 | 2,472 | 7,791 | 6,070 |
| | PERCENT | | | | | | | |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| ELEMENTARY SCHOOL: Total | 24 | 20 | 37 | 27 | 40 | 43 | 48 | 41 |
| Less than 5 years [1] | 3 | 2 | 4 | 2 | 9 | 14 | 8 | 8 |
| 5 to 8 years | 21 | 18 | 33 | 25 | 31 | 29 | 40 | 33 |
| HIGH SCHOOL: Total | 58 | 56 | 40 | 49 | 45 | 39 | 37 | 44 |
| 1 to 3 years | 24 | 22 | 18 | 20 | 21 | 17 | 19 | 20 |
| 4 years | 34 | 34 | 22 | 29 | 24 | 22 | 18 | 24 |
| COLLEGE: Total | 17 | 23 | 20 | 23 | 13 | 16 | 14 | 15 |
| 1 to 3 years | 10 | 11 | 8 | 11 | 7 | 7 | 7 | 8 |
| 4 years or more | 7 | 12 | 12 | 12 | 6 | 9 | 7 | 7 |
| NOT REPORTED | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 |

[1] Includes persons reporting "no years of schooling completed," not shown separately.

SOURCE: U.S. Department of Commerce, Bureau of the Census. *Current Population Reports*, Series P-20, No. 15, Educational Attainment of the Civilian Population: April 1947, table 3; and Series P-20, No. 45, School Enrollment, Educational Attainment and Illiteracy, October 1952, table 15.

Although the GI bill was instrumental in raising the educational level of millions of younger veterans, table 5 suggests that some of them would have completed additional schooling even in the absence of the Government program. Note that in 1952 the proportion of college men was the same (23 percent) for the two age groups shown. Since relatively few of the veterans in the older age group made use of the education and training provisions of the GI bill, it can be assumed that the younger veterans used the benefits to attain a level of education that was customary at the time and that they would have attained this level had military service not interrupted their normal education. This conclusion is, of course, conjectural, but it has been suggested also by others who have examined this question in greater detail.[27]

Although millions of veterans extended their education under the GI bill, an equally large number did not take advantage of this opportunity. A comparison of the educational attainment of veterans who did and who did not accept these benefits is shown in table 6. It is

**TABLE 6.—Preservice and postservice educational attainment of veterans of World War II and of the Korean conflict by use of GI training benefits**

[Excludes veterans with service-connected disabilities for which they accepted Veterans' Administration compensation]

| Years of schooling completed | Veterans who accepted GI training | | Veterans who did not accept GI training [1] |
|---|---|---|---|
| | Preservice educational attainment | Postservice educational attainment [1] | |
| Number (thousands) | 7,260 | 7,260 | 8,788 |
| | PERCENT | | |
| Total | 100 | 100 | 100 |
| ELEMENTARY SCHOOL | 16 | 16 | 25 |
| HIGH SCHOOL: | | | |
| Total | 63 | 48 | 61 |
| 1 to 3 years | 23 | 19 | 29 |
| 4 years | 40 | 29 | 32 |
| COLLEGE: | | | |
| Total | 21 | 37 | 13 |
| 1 to 3 years | ---- | 16 | 6 |
| 4 years or more | ---- | 21 | 7 |

[1] As of September 1955.

SOURCE: U.S., The President's Commission on Veterans' Pensions, *Readjustment Benefits: General Survey and Appraisal*, Staff Report IX, Part A, 84th Cong., 2d sess., House Committee on Veterans' Affairs, September 1956, app. B, tables 5 and 8.

[27] In a paper read before the annual meeting of the Southern Sociological Society on Apr. 6, 1961, Dr. Charles B. Nam, education analyst, Bureau of the Census, stated: "One general conclusion which can be reached from this analysis is that the number of college-trained men in the population was increased substantially because of the postwar education of veterans, but that, even if the benefits of the GI education and training programs had not been available, the rising secular trend in the formal educational composition of the male population would have continued unabated and at the same general level."

quite clear that veterans who took postservice training were on the average much better educated initially than those who did not. Only 13 percent of the veterans who did not use the GI bill for additional education or training were college men, and only one-third had completed high school. In contrast, 21 percent of the veterans who did take additional training had completed one or more years of college before they entered the service, and 40 percent were high-school graduates. By September 1955 over one-third of the veterans who accepted GI training were college men.

The shifting patterns of educational attainment for veterans and nonveterans were accompanied by changes in income differentials (table 7). As we shall see later, however, the income differences do not appear to be attributable entirely to education.

In 1947, younger veterans had somewhat lower incomes than nonveterans despite their greater educational attainment. Thus, any selective factors which may have produced higher incomes for veterans were not operative immediately after the war. The lower incomes of veterans at this time may have been due to several factors, including the greater work experience of the nonveterans as a result of their civilian employment during the war and also to the loss of civilian employment during 1947 by many veterans who went to school part time or who served in the Armed Forces during part of the year. By 1948 veterans and nonveterans had the same average incomes, and in every year thereafter veterans experienced relatively greater income gains, reaching a maximum differential of 30 percent in 1955. Because of the changing age composition of veterans within the age group 25–34 during recent years, it is difficult to make meaningful comparisons between veterans and nonveterans in this age group since 1955.

The veterans who were 25–34 years old in 1947 had by 1959 moved into or through the 35–44-year age group. As a result, the income differential between veterans and nonveterans within this age group was beginning to increase markedly. Until 1954, veterans who were 35–44 years old had only slightly higher incomes than did nonveterans. In 1956, the differential increased to 15 percent, and in 1959 it rose still further, to 25 percent.

Nonveterans have a greater tendency to lose time from work than do veterans, presumably because of ill health or because they work at less skilled jobs and are more subject to layoff. Table 7 shows that the average income of veterans is about 20 percent higher than that of nonveterans even when account is taken of the differential effects of part-time employment.

TABLE 7.—Median incomes of male veterans and nonveterans of World War II, by age and extent of employment, United States, 1947–59

| Year | Median total money income | | | | Ratio of veterans' income to nonveterans | |
|---|---|---|---|---|---|---|
| | 25–34 years of age | | 35–44 years of age | | | |
| | Veterans | Nonveterans | Veterans | Nonveterans | 25–34 years of age | 35–44 years of age |
| ALL WORKERS | | | | | | |
| 1947 | $2,401 | $2,585 | $2,689 | $2,900 | 93 | 93 |
| 1948 | 2,734 | 2,692 | 3,045 | 3,046 | 102 | 100 |
| 1949 | 2,828 | 2,562 | 2,984 | 2,935 | 110 | 102 |
| 1950 | 3,058 | 2,626 | 3,291 | 3,234 | 116 | 102 |
| 1951 | 3,359 | 2,875 | 3,647 | 3,595 | 117 | 101 |
| 1952 | 3,631 | 3,065 | 3,934 | 3,602 | 118 | 106 |
| 1953 | 3,948 | 3,183 | 4,118 | 3,857 | 124 | 106 |
| 1954 | 3,978 | 3,073 | 4,227 | 3,818 | 129 | 111 |
| 1955 | 4,330 | 3,294 | 4,483 | 3,946 | 131 | 114 |
| 1956 | 4,675 | 3,712 | 4,853 | 4,220 | 126 | 115 |
| 1957 | 4,984 | 4,041 | 4,985 | 4,279 | 123 | 117 |
| 1958 | 5,010 | 4,171 | 5,225 | 4,306 | 120 | 121 |
| 1959 | 5,423 | 4,481 | 5,629 | 4,513 | 121 | 125 |
| YEAR-ROUND FULL-TIME WORKERS | | | | | | |
| 1955: | | | | | | |
| Percent | 81 | 72 | 81 | 78 | | |
| Median income | $4,630 | $3,854 | $4,679 | $4,319 | 120 | 108 |
| 1956: | | | | | | |
| Percent | 83 | 72 | 80 | 78 | | |
| Median income | $4,944 | $4,180 | $5,122 | $4,554 | 119 | 112 |
| 1957: | | | | | | |
| Percent | 82 | 70 | 80 | 74 | | |
| Median income | $5,221 | $4,466 | $5,321 | $4,792 | 119 | 111 |
| 1958: | | | | | | |
| Percent | 76 | 66 | 77 | 70 | | |
| Median income | $5,453 | $4,804 | $5,609 | $4,844 | 114 | 116 |
| 1959: | | | | | | |
| Percent | 77 | 70 | 79 | 73 | | |
| Median income | $5,798 | $5,122 | $6,000 | $5,023 | 113 | 119 |

SOURCE: U.S. Department of Commerce, Bureau of the Census. *Current Population Reports*, Series P–60, annual issues.

The close association between education and income shown in the preceding tables suggests a possible causal relation between these variables. This view, however, is not supported by the facts available from a study made in 1955 by the Bureau of the Census for the President's Commission on Veterans' Pensions.[28] In this study it was found that in 1955, at a time when the income differential between young veterans and nonveterans was at a peak of 31 percent (see table 7), there was only a 4-percent differential between the average income of veterans who participated in the educational program under the GI bill and those who did not. Specifically, the figures show that nondisabled veterans of World War II in the 25–34-year age group who received educational benefits under the GI bill had median earnings of $4,400 in 1955, as compared with a median of $4,200 for those who did not received such benefits[29] and $3,300 for nonveterans. Thus it appears that although veterans who did not receive GI training benefits

[28] President's Commission on Veterans' Pensions, Staff Report IX, pt. A, op. cit.
[29] Ibid., p. 126.

had much less formal education than those who did receive these benefits (table 6), the average income difference between the two groups was not very great. On the other hand, both groups of veterans had considerably higher average incomes than nonveterans had. Conceivably the full impact of the additional training was not yet reflected in 1955, and if the same study were repeated today we might find that veterans who took additional training have far higher incomes than those who did not take such training. Evidence on this point, however, is lacking at present.

# CHAPTER 10

# The Nation's Educational Outlay

*Rudolph C. Blitz**

Most of this paper was written at Johns Hopkins University during the spring semester of 1960 while the author was on leave from Vanderbilt University. The leave was financed by a grant from the Ford Foundation. The author expresses indebtedness to Simon Kuznets, who was most generous with both his ideas and his time. He also expresses appreciation to Mrs. Constance Nathanson, who, as a research assistant, was a great help; her initiative and intuition, unencumbered by formal training in economics, uncovered many leads and new vistas.

AN INVESTIGATION of educational expenditures as a proportion of gross national product necessarily starts with a definition of the scope of education.[1] Narrowly considered, education is training in specific skills for sale in the marketplace; more broadly, it is training in skills and training for integration and participation in the life of the community as long as this training is done in some formal manner. An even broader concept of education would cover all aspects of social life. Clearly some limit is needed.

In part I the basic conceptual problems are explored; in part II the scope of the calculations is presented; and in part III the findings are discussed briefly.

## I. Some Conceptual Issues

Educational expenditures as one type of investment in human capital are primarily of interest here. However, for practical reasons the statistical categories of educational outlay will have to be both broader and narrower in some respects than can be justified under a rigorous definition of educational investment in human capital and will certainly not satisfy a purist.

### FORMAL VERSUS INFORMAL EDUCATION

This chapter, for example, will treat all expenditures on public and private elementary and secondary education, including such programs

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[1] The reason for using gross national product rather than national income and the way in which my concept of gross national product differs from the conventional one will be discussed later in this chapter.

as athletics and music as expenditures on formal education. The expenditures will not, however, include the costs of athletic coaching outside the regular school curriculum, of operating athletic clubs, or of music instruction in private homes.[2]

The costs of the school curriculum, which may also cover such items as driver education, athletic instruction, civics teaching, or religious instruction, should be accepted as stated, in view of the fact that the community has decided by a sociopolitical mechanism that this training is necessary for the social and occupational development of its citizens. Thus the statistical categories of educational outlay used here will represent a measure of what may be called "formal education." This is both a broader and a narrower concept than the usual concept of educational investment outlay in human beings—broader because of the considerations just discussed, and narrower because the cost of internal training programs and on-the-job training programs offered by firms are not included. The calculations are limited to the base years 1955–56 and 1957–58, the most recent academic years for which information from the Office of Education's Biennial Survey of Education is available.

## GROSS VERSUS NET INVESTMENT IN EDUCATION

The educational outlays discussed in this chapter should be viewed as gross investment in human beings, since no attempt will be made to allow for the formal or informal education of persons who die or retire from the labor force. A net measure would have to make allowance for this depreciation of the stock of human capital. A few comments are in order here about the concepts of gross and net investment in education. The concept of net investment in the education of human beings is grasped most clearly if we temporarily discard the idea of informal acquisition of knowledge and consider a world where education is acquired by formal training only, where workers do not "appreciate" or "depreciate" before the final day of retirement from the labor force. However, even then both the *content* of specific formal education and the educational composition of the labor force will change over time. The problem of changes in content of formal education is similar to that of replacing an old piece of capital equipment with an improved model. Moreover, the content of formal higher education changes more rapidly than that of the elementary grades, reflecting the advances in science and technology that create obsolescence and depreciation in education, as in capital equipment. To the extent that the proportion of the people in the total labor force with more advanced formal education increases, to that extent the prob-

[2] The issue of school feeding programs, health programs, etc., will be discussed separately.

lem of the calculation of plus or minus "net investment" in *formal* education will become more complicated. Moreover, with an increase in the working lifespan of the population, the differences are widened between the quality of the education of retiring workers and that of their replacements and of net additions to the labor force.

Formidable as these difficulties are, it is really the informal acquisition of further skills and knowledge after formal education is completed that constitutes the greatest obstacle to any meaningful calculation of net investment in education. Much informal acquisition of knowledge is deliberate—through reading, observation, conversation, conferences, and travel—and may involve outlays of time and money. Other knowledge, however, is acquired pari passu with the performance of the job or in a completely unplanned manner.

The relationships between formal and informal education are highly complex, but two important trends, moving in opposite directions, can perhaps be discerned. In Western countries, with the spread of formal education, the weakening of family ties and of the apprenticeship system and the disappearance of rural isolation, a substitution of some formal for informal education has taken place. But these different methods of absorbing knowledge are also complementary to the extent that the spread of literacy has immensely facilitated acquisition of informal education. The greater the class and job mobility, the greater will be the opportunities for and significance of informal education, which can be transmitted from the "formally more educated members" of the community to "the formally uneducated" members through social and vocational association.

The value (productivity) of informal education is reflected in promotions and rising income of members of the labor force as they gain more experience. It has to be realized, however, that the time path of a person's income reflects many factors besides increase in experience and productivity, and perhaps eventual decline in productivity and efficiency. Social mores, increases in personal good will, pensions, and tax considerations will all influence personal income.

Because of the difficulties of determining an appropriate allowance for education depreciation, no attempt will be made to calculate a measure of net investment in education. My calculations will be limited to gross concepts, which are subdivided as follows:

*Gross educational investment in human beings*, defined as current direct and also indirect costs (to be discussed later) but excluding investment in new schools and educational equipment. Depreciation of buildings is counted as part of direct costs.

*Gross total educational investment in both human beings and educational plant*, defined to include, in addition to above costs, the investment in educational plant.

The notion of gross investment implies the possibility of educational disinvestment by a process of nonreplacement. An exploration of the choices open to society, if it were to decide on educational disinvestment, will reveal a few peculiarities of educational investment in contrast to inanimate investment. The educational investment of the past is a partial explanation of the technology and the standard of living of today, including the present level of income that students forgo. Possibly substantial intellectual disinvestment could occur without resulting in an *eventual* decline in gross national product if it were gradual enough to allow for certain factor adjustment and technological modification, but it would have severe retarding effects on the rate of economic *growth* and on technological progress.

It is customary to think of a stationary economy as one with zero net investment in physical capital. What about human capital? Since a given stock of educational capital would not be completely absorbed by merely operating the productive plant in existence but would continue to produce some new ideas, we would still have advances in technology, although *net investment* both in physical capital and in education would be zero. As long as we had some technological progress through replacement we would not live in a truly stationary state. Therefore, the truly stationary state requires either zero net investment in physical capital and disinvestment in human capital at a rate sufficient to neutralize technological progress or, alternatively, disinvestment in physical capital at a rate sufficient to counteract the technological progress and the potential increase in aggregate output generated by the fixed stock of human capital.[8]

## TWO TYPES OF EDUCATIONAL OUTLAYS

Gross educational investment may be discussed in two broad categories; namely, *direct costs*, which cover outlays for operation and maintenance of educational facilities, and *indirect costs*, which cover earnings forgone during the period of training.

*Direct costs.*—Direct costs comprise a number of different categories of outlays that involve the use of resources for the education of students and include both current costs and capital outlays (the earlier distinction between the two types of gross investment is relevant here).

[8] The rate of production of new ideas would, of course, be to a large extent a function of the amount of educational capital already in existence at the time educational net investment would be reduced to zero. If the cutoff were to take place in the United States today, the existing research facilities would continue operation at the present level of capacity and the output of new ideas would be large. If the cutoff had taken place at the time of the English economist David Ricardo, when the educational capital was very small, the subsequent output of new ideas would have been meager. His model, which defines a stationary state merely in terms of zero net investment in inanimate capital, corresponded closely to the realities of the early nineteenth century; but today zero net investment in inanimate capital would no longer be a sufficient condition for a stationary state.

Excluded, however, should be the cost of research separately budgeted, as well as the costs of auxiliary activities, such as school feeding and school housing programs.

Conceived broadly, the purpose of institutions of higher learning is the advancement of scientific truth and human knowledge. These functions embrace both research and teaching. We are interested here primarily in the economic costs of efforts to disseminate the stock of knowledge in existence at any one time—the function of teaching. We are not interested here in the costs of society's efforts to increase over time the stock of knowledge, which is the function of research. "Organized research" looms large in the budget of institutions of higher learning, and the amounts so budgeted are growing rapidly. Only a token amount of research can be justified as a necessary concomitant of teaching proper. Graduate students have to get some research experience as part of their training, but this accounts for only a small fraction of the total research undertaken by institutions of higher learning, and in the statistics of the U.S. Office of Education this portion of the research cost is conventionally carried under the heading, "Instruction and Departmental Research." Costs of "Organized Research"—of research separately budgeted—should be excluded, as well as costs of auxiliary activities of schools and colleges. (A functional analysis of the costs of student higher education is presented in Chapter 11.)

Direct current costs of student education are represented by outlays for teachers' salaries, maintenance, and supplies. Data on these costs are collected and published by the Office of Education biennially both for elementary and secondary schools and for colleges and universities.

In addition to these direct outlays for which statistics are readily available, depreciation, interest, and the benefit of certain tax exemptions will have to be imputed to educational institutions as a cost. These imputations are called for in order to account more fully for resources used directly by educational institutions.

1. *Depreciation.*—It is the established accounting practice for nonprofit educational institutions, which is followed by all public and private schools, with the exception of commercial vocational schools, not to allow for depreciation as a part of *current cost*. This item will therefore have to be imputed as a cost, and the conventional gross national product increased by the same amount.

2. *Interest on capital outlay.*—Only to the extent that the educational plant has actually been financed by bonds is interest charged as an expense. Interest has to be imputed for the balance of the capital outlay and correspondingly added to gross national output. Interest is the cost of every capital outlay. It measures the return this capital outlay could have obtained in an alternative use. Econo-

mists sometimes impute interest on capital of business enterprises and deduct this amount from accounting net profits for the purpose of obtaining a measure of true profits. Nonprofit educational institutions by definition do not show any net profit on their books.

8. *Exemptions from property taxes and sales taxes treated as subsidies to educational institutions.*—Tax exemptions granted to educational institutions should be viewed as a subsidy from the Government to the educational sector. For example, if a tax exemption should amount to 3 percent of the educational outlay, $100 million spent on education would allow the educational sector of the economy to engage a volume of factors of production for which other sectors of the economy would have to pay actually $103 million. If the educational sector were required to pay these taxes and received from the Government a subsidy exactly equal to the amount of these taxes, then the total outlay of the educational sector would reach $103 million. An alternative way of visualizing the problem is to assume at first that schools and colleges are paying taxes like all other enterprises. A subsequent tax exemption would release funds to schools and colleges for use in attracting additional factors of production in an amount equal to the taxes saved.

Before discussing the appropriate national income accounting of tax exemptions, we shall consider the simple case of an outright cash subsidy. In conventional national income accounting, outright cash subsidies from the Government to the private sector of the economy are not treated as payments corresponding to purchases of current output.[4] In order to obtain the market value of the output of the subsidized sector, the subsidy must be deducted from the total payments which the factors of production received for producing this output in the subsidized sector. The factor cost of this sector will exceed the value of the output by the amount of the subsidy.[5]

Unfortunately, what has just been said about the conventional handling of subsidies in national income accounting has only limited applicability to subsidies to educational institutions whether given in

[4] Subsidies are not included in the net purchases made by the Government. They will affect, however, as is their explicit intent, the allocation of resources. The total allocation of resources to any subsidised sector of the economy will be equal to the value the market puts on the output of the subsidised sector plus the subsidy received by this sector from the Government.

[5] The concept of gross national product is basically one of the value of the output at market prices. If the gross national product is calculated from the output (market value) side, the subsidy may *not* be included in the net purchases of the Government. If the gross national product is calculated from the income (factor cost) side, the subsidy will have to be deducted from the gross factor income in order to obtain the market value of the output. ". . . Net national product should also contain this adjustment, since it also is a valuation in terms of market value. National income, however, should not exclude subsidies, since it is designed to measure payments to the factors of production for their contribution, and these do include the subsidies that the producer passes on to the factors of production." (Richard Ruggles, *An Introduction to National Income and Income Analysis*. New York, McGraw-Hill Book Co., 1949. p. 118.)

cash or as tax exemptions. Most educational services are not priced in the market, nor do educational institutions show any profits (positive or negative) on their income statements. Therefore the assumed value of the output is by convention taken as identical with the actual costs of the factors employed by educational institutions.[6] In the case of a cash subsidy to the educational sector, no deduction is made from the gross factor income.

Next to be considered is the point that the subsidy in question here actually is not a cash subsidy but rather an indirect subsidy—a tax exemption—and its effect therefore has to be imputed.[7] The imputation of a value to the tax exemption attempts to measure the relative advantage which the educational sector has vis-a-vis other sectors in the economy in the purchase of services and materials as a result of the tax exemption. For a certain outlay the educational sector can buy more services and materials than other sectors as it is not required to pay taxes.

To the extent that schools are freed from paying certain taxes on their cost of operation, their costs are transferred from the nontaxpaying to the taxpaying sectors of the economy. Consider the case of two firms, A and B, each having a payroll of $1,000 per month, which constitutes their only cost of operation. Now let us assume that subsequently a payroll tax of $50 is imposed on each firm, and that their respective outlays will now increase to $1,050. Consider next the case of firm A being relieved of its tax obligations and at the same time firm B's tax obligation being doubled. The outlay of firm A would now be once more $1,000 and the outlay of firm B would be $1,100. Firm A is now receiving a subsidy at the expense of firm B. To measure the value of this subsidy, it would seem appropriate to add to the actual outlay of firm A (standing for educational institutions) an imputed tax of $50 and to impute a deduction of $50 to firm B (standing for the rest of the economy).[8] Our calculation, therefore, will increase the educational outlay by the imputed value of the tax exemption and will decrease the outlay of the rest of the economy by a corresponding amount. This means that the value of one subcategory in the gross national product is raised and the value of another subcategory in the gross national

[6] The basic concept for the educational sector is really one of "gross factor income" rather than one of gross product. A governmental subsidy to the educational sector is, therefore, on a different footing from subsidies to other sectors of the economy.

[7] This imputation, however, is quite different from the imputation of value of, say, an agricultural product produced and consumed by farmers, which does not clear through the market. In the case of the farmer the value of output produced is greater than the one recorded by the market mechanism.

[8] If schools were required to pay State and local taxes, the tax rate could be lower than the one actually prevailing. Therefore to use the actually prevailing tax rate for an imputation of the subsidy schools are receiving in the form of this tax exemption exaggerates the magnitude of the subsidy somewhat.

product is lowered. Therefore, the value of the gross national product itself will not be affected by this operation.

*Indirect costs.*—The problems encountered in an attempt to calculate income forgone by students warrant some detailed discussion for three reasons: (1) The concept of "income forgone" is both statistically and also conceptually ambiguous and elusive, but, once accepted, calls for a major modification of the conventional national income framework; (2) any imputation of this kind, no matter how modest and conservative, is bound to affect significantly the aggregates for the Nation's outlay on education; (3) the discussion should clarify certain peculiarities about educational investment and economic growth, which may not be entirely obvious. The following discussion of the concept of income forgone is supplemented by a detailed explanation of the calculation of income forgone, in appendix B, and therefore the discussion here will be confined to analytical issues.

A distinction needs to be made between the income forgone by an individual student and by the total student population. The individual problem can be solved in *ceteris paribus* fashion if the requisite statistics are available. The income forgone by the entire student population constitutes a more difficult problem. Clearly, if the entire student body or a large portion of it were shifted into the labor market, the marginal product would fall. We simply do not know with any degree of accuracy what would happen if a large number of uneducated people were to be added to the labor market.* The problem leads to a paradoxical observation. It may be possible to achieve a much more accurate calculation of the income forgone by students for an underdeveloped country than for an industrially advanced country, in spite of the fact that the statistics are apt to be of poorer quality in the first than in the second case. In the underdeveloped country only a small proportion of the school-age population actually attends school, but in the advanced country the majority of the school-age population is in school. Thus a simple *ceteris paribus* calculation would be more accurate in the first than in the second case.

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*Because of these difficulties, one authority uses a flat maintenance allowance for the income forgone by students. P. J. D. Wiles in "The Nation's Intellectual Investment" (*Bulletin of the Oxford Institute of Statistics*, August 1956), p. 285, imputes for the United Kingdom as income forgone by students 15–18 years of age a maintenance allowance of £100, and £200 for students 18 and over.

The relevant marginal product here, however, would be a "long run" marginal product. This implies that the transfer of the students into the labor force would be anticipated and that capital equipment would be allowed to adjust accordingly. It also implies that capital resources and teachers now employed in the educational sector would be transferred out of the educational sector and would be added to the cooperating factors in other sectors of the economy.

*See also* Mary Jean Bowman, ch. 6, and Richard S. Eckaus, ch. 8 of this publication.

The concept of income forgone both for the individual student and for the students as a group is based on the notion that people at different levels of education have before them the alternative of continuing their schooling or of earning an income which is approximately equal to the income of others with similar educational attainment. If they choose the first alternative, they become, so to speak, self-employed. This notion is clear enough when applied to the individual. If, however, it is applied to the group, the meaning of certain educational requirements for certain jobs is much more difficult to interpret. Certain educational achievements may be a prerequisite for jobs, not because of the need of certain technical knowledge or the improved ability in learning processes because of past learning, but merely because employers rely on educational achievements as an index of native intelligence, curiosity, perseverance, and stability, or perhaps as an index of social status. To the extent, then, that educational achievement serves these purposes, the concept of income forgone becomes much more elusive. In this case much of education would really turn out to be without basic significance, except for the function of providing information; the private rate of return to education would be higher than the social rate of return.[10] To the extent that educational requirements do not fulfill any intrinsic need of the job, the social income forgone is greater than the private income forgone. There are indeed many highly skilled and very remunerative jobs, which require little formal education for efficient performance, although a high school or even college education is a prerequisite for many of them.

A transformation of society which would result in a large-scale diminution of the student body and an increase in the labor force would lead to an easing of many educational requirements. This trend then could counteract to a certain extent the decline of the marginal product resulting from a large influx into the labor force.

There remains the question of the proper treatment of the incidence of unemployment within the concept of income forgone. The issue is important for two reasons: (1) The incidence of unemployment is extremely high among young workers.[11] (2) It is not clear whether

[10] Great external returns on education, such as the beneficial effect of educated parents on children and of an educated environment on the individual in general, have been discussed so widely that there is no need to go over this old ground here. We are dealing here with the one factor that may make the private rate of return higher than the social rate because it bears on the concept of income forgone.

[11] Theodore W. Schultz, in Capital Formation by Education, *Journal of Political Economy*, 68: 575, December 1960, cites the *Economic Report of the President, January 1960*, table D–18, which shows that in 1959 the total unemployed equaled 5.2 percent of the total employed, whereas for the group 14–19 years of age the percentage was 11.8.

Average unemployment rates among young people in the United States for October 1948 and October 1955 were: For those enrolled in school, age 14–17 years, 4.22 percent; age 18–24, 4.75 percent. For those not enrolled in school, age 14–17 years, 11.7 percent; age 18–24, 5.4 percent. Calculated from *Current Population Reports*, Series P–50, No. 64, Labor Force, January 1956, p. 2.

unemployment of this youngest group is a different phenomenon from unemployment among other segments of the labor force. Over 90 percent of the full-time workers of high-school age live at home, and most of these have left school because of some adjustment problem in the school environment. In view of all this, there is a very strong presumption that their "intensity of jobseeking" is considerably below the "average intensity" which prevails among the rest of the labor force.

Schultz adjusts the income forgone by an allowance for unemployment according to an average rate of unemployment in the labor force. Certainly allowance should be made in some fashion for the incidence of unemployment when one is dealing with the income forgone on the part of the individual student.

In treating the notion of income forgone for the entire high-school and college-student group, that is to say, with a potential additional labor force of about 10.5 million, we may work either within the framework of the real, imperfect world, or within a framework of an ideal, frictionless world, which allows us an approximate measure of the potential productivity of this addition to the labor force under ideal circumstances. Unless one assumes some ideal state of affairs, the whole notion of income and productivity forgone would become extremely hazy. I therefore propose to calculate the income or productivity forgone on the assumption of a frictionless world without unemployment. (See app. B.)

## II. Scope of Calculation

The estimates given in this part of the chapter use the foregoing categories of cost, both direct and indirect, and include the imputed amounts for interest, depreciation, and taxes. The institutions represented in the estimates are public and private—elementary and secondary schools, colleges and universities, special schools for the mentally and physically handicapped, commercial vocational schools, and residential schools for exceptional children. The estimate also covers the costs of training programs for interns and residents in medicine, for Government executives, and for the military.

Executive training programs are included in the calculations only to the extent that these programs are conducted at universities and colleges. The cost of instruction would be shown as part of the budget of universities and colleges, but these figures do not show the total cost of these programs. They fall short of the salaries of the executives participating in them.

I have no statistics on internal executive programs. Most of these may be viewed as akin to upgrading and therefore should not be included. Others, however, like the IBM school, are formidable and by rights should be included.

The source of the data and the methods of estimating costs, which supplement the usual statistical data on educational outlays, are described briefly below. The section headings and items are numbered to correspond with the items in tables 1 and 2.

**TABLE 1.—The Nation's outlay on formal education, 1955–56 and 1957–58**

[In millions]

| Type of institution | 1955–56 | 1957–58 |
|---|---|---|
| Total gross educational investment in people | $36,980 | $44,539 |
| Total direct costs (see below) | 18,987 | 23,331 |
| Total indirect costs (see below) | 17,993 | 21,208 |
| CURRENT COSTS, DIRECT | 18,987 | 23,331 |
| 1. Public elementary and secondary schools | 8,568 | 10,716 |
| 2. Private elementary and secondary schools | 1,266 | 1,642 |
| 3. Commercial vocational schools | 196 | 223 |
| 4. Special residential schools | 23 | 30 |
| 5. Public colleges and universities | 1,324 | 1,712 |
| 6. Private colleges and universities | 959 | 1,188 |
| 7. Imputed value of depreciation and interest: | | |
| Elementary and secondary schools, public | 1,912 | 2,392 |
| Elementary and secondary schools, private | 288 | 352 |
| Colleges and universities, public and private | 712 | 896 |
| 8. Imputed value of property tax exemption: | | |
| Elementary and secondary schools, public | 795 | 885 |
| Elementary and secondary schools, private | 120 | 132 |
| Colleges and universities, public and private | 300 | 335 |
| 9. Imputed value of sales tax exemption | 8 | 8 |
| 10. Imputed costs of books, supplies, and travel: | | |
| High-school students (5 percent) | 561 | 676 |
| College and university students (10 percent) | 614 | 702 |
| 11. Special defense programs, exclusive of basic training | 1,100 | 1,100 |
| 12. Other direct costs, Federal | 241 | 342 |
| CURRENT COSTS, INDIRECT | 17,993 | 21,208 |
| 13. Earnings forgone by high-school students | 11,211 | 13,519 |
| Earnings forgone by college and university students | 6,139 | 7,024 |
| 14. Earnings forgone by medical interns and residents | 143 | 165 |
| 15. Military pay to students | 500 | 500 |

**TABLE 2.—Gross total educational investment in people and physical facilities, 1955–56 and 1957–58**

[In millions]

| Physical facility | 1955–56 | 1957–58 |
|---|---|---|
| Total | $40,422 | $48,959 |
| Total investment in people: | | |
| 1–15. Current costs, direct and indirect [1] | 36,980 | 44,539 |
| Total capital outlay for plant expansion | 3,442 | 4,420 |
| 16. Elementary and secondary schools | 2,748 | 3,290 |
| 17. Colleges and universities | 686 | 1,122 |
| 18. Public institutions for delinquents | 8 | 8 |

[1] See table 1.

## CURRENT COSTS, DIRECT

1. *Public elementary and secondary schools.*—The data on these schools, from the U.S. Office of Education's *Biennial Survey of Education in the United States, 1954–56*, chapter 1, table 9, do not include expenditures for auxiliary services such as transportation and school lunches. The schools for which the information is reported do not include Federal schools for Indians, nor Federal schools on Federal installations, nor residential schools for exceptional children. For data on the residential schools, see 4 below.

2. *Private elementary and secondary schools.*—The figures are from the same source as those for public elementary and secondary schools. They are estimated by the Office of Education on the basis of expenditures per pupil in public schools.

3. *Commercial vocational schools.*—Only a very rough estimate can be made of the gross output of commercial vocational schools, based on the number of these schools and on their payrolls, reported under the State unemployment insurance program. A recent vocational training directory [12] lists 7,300 such schools. In 1955–56 their total payrolls amounted to over $85 million, exclusive of payrolls of 720 beauty-operator and barber schools, which are grouped differently in the Standard Industrial Code. A large number of the commercial vocational schools teach accounting and secretarial skills (1,260). In addition, the directory includes flying schools (475); schools of art, music, drama, and related subjects (400); nursing schools, schools for medical technologists not affiliated with universities (3,800); and mechanical and technical schools (630). Some of the students in art schools and flying schools undoubtedly engage in these programs for recreation. For these students the educational outlay constitutes consumption outlay rather than investment. Quantitatively, however, students taking these courses for recreation constitute an insignificant number, and no special allowance needs to be made for them.

The gross output for these schools may be approximated by deriving the equivalent of a gross sales figure on the assumption that a rough correspondence exists between the budgets of the commercial vocational schools and those of the public schools. In 1955–56 the current costs of public schools were divided as follows: instruction and administration, 71.2 percent; operation, 9.1 percent; maintenance, 3.9 percent; school transportation, 4.3 percent; other school services, 5.1 percent; and fixed charges, 6.4 percent. If we assume that in addition to the over 70-percent instructional and administrative costs about half

[12] Nathan M. Cohen. *Vocational Training Directory of the United States.* Arlington, Va., Potomac Press, 3d ed., 1958.

of the noninstructional costs are made up of various labor costs, the total labor costs approximate 85 percent. The $85 million payroll of the commercial vocational schools accordingly would represent 85 percent of the current budget of those schools—a total current cost of $100 million in 1955–56. To this amount is added $60 million for imputed costs; items comparable to those included for public schools, making a total of $160 million for 1955–56.

We have no payroll data for the barber and beauty-operator schools. If we use the average gross sales of the commercial vocational schools for which we have payroll data to impute gross sales for the barber and beauty-operator schools, schools which account for about 10 percent of the total number of schools, the aggregate commercial vocational school figure would be raised by 10 percent, or to $176 million, including imputed cost items for 1955–56.

It was assumed that in 1955–56 the $12 million payroll of the commercial correspondence schools amounted to 60 percent of their gross sales and thus we obtained a total of $20 million for those schools; and a total of $196 million for the combined gross sales of the commercial vocational and correspondence schools. The same procedure was followed in deriving the estimates for 1957–58. As this item is a relatively small one, the substantial margin of error to which the estimate is subject would not affect our overall findings.

4. *Special residential schools.*—There are three possible methods of handling the costs of residential schools for physically or mentally handicapped children and for delinquents: (*a*) complete inclusion of all costs of operation of such schools, (*b*) complete exclusion of these costs,[18] (*c*) inclusion of the costs that may be roughly classified as instructional costs. I have chosen method (*c*) because I believe it takes into account all relevant educational outlays while omitting other costs such as cost of medical care.

Assuming that the average current cost per student in residential schools for exceptional children is similar to that in ordinary public schools ($294.22 in the school year 1955–56, according to the *Biennial Survey of Education in the United States, 1954-56*, ch. 2, p. 110), we multiplied that cost by the number of students in the residential schools in that year—80,000—and thus obtained $23 million as the estimated expenditure for these schools in 1955–56. In 1957–58 the average current cost per student was $341.14, and the number of residential-school students 86,500—an approximate expenditure of $30 million in that year.

5. *Public colleges and universities.*—Data for the academic year 1955–56 on current educational and general expenditures of publicly

[18] This is the method followed by one authority in the most recent and comprehensive study on educational expenditures in Great Britain. John Vaisey. *The Costs of Education.* London, George Allen & Unwin, 1958. p. 19.

controlled colleges and universities are from the *Biennial Survey of Education, 1954–56*, chapter 1, table 56, and exclude the amount expended for organized research.

6. *Private colleges and universities.*—Data on privately controlled colleges and universities are from the same source as the data on the publicly controlled ones and also exclude the amount expended for organized research. (For both public and private colleges and universities, organized research expenditures came to $506 million for 1955–56.)

7. *Imputed value of depreciation and interest.*—Figures on the original value of school property in the United States in the school year 1955-56 (*Biennial Survey of Education*, ch. 2, p. 24) and in 1957–58 (estimated) are as follows:

| Type of institution | 1955–56 | 1957–58 |
|---|---|---|
| | In billions | |
| Public elementary and secondary schools | $23.9 | $29.9 |
| Public and private colleges and universities | 8.9 | 11.2 |
| Total | 32.8 | 41.1 |

To determine the distribution of physical assets of public elementary and secondary schools, Schultz calculates depreciation and implicit interest by Rude's method.[14] [15] He calculates that 20 percent of their assets are in land, 72 percent in buildings, and 8 percent in equipment. There is no depreciation in the value of land. The depreciation of buildings is calculated at 3 percent per year. Although buildings are assumed to have a lifespan of 50 years, a period that would warrant only 2 percent depreciation, 3 percent is imputed to that factor to make some allowance for obsolescence due to population shifts. Ten percent depreciation is imputed to equipment; to this is added implicit interest of 5 percent—a total of 8 percent for depreciation and implicit interest.

Figures on depreciation and interest for private elementary and secondary schools have been estimated by Vladimir Stoikov of Princeton University.[16] He estimates property values of private schools in the United States in 1955–56 at $3,600 million, and the implicit rent of these properties at $288 million. Adding outlays for school plant in the next biennium, he estimates implicit rent on private schools at $352 million for 1957–58.

For colleges and universities, Schultz imputes only 2 percent for depreciation of buildings; but since, on the other hand, the asset distribution in land, buildings, and equipment is 15 percent, 70 per-

[14] Theodore W. Schultz, op. cit., p. 579.
[15] Robert Rude. *Assets of Private Nonprofit Institutions in the United States, 1890–1948.* National Bureau of Economic Research, April 1954 (unpublished).
[16] Unpublished figures.

cent, and 15 percent, respectively, the overall interest rate for depreciation and implicit interest again comes to 8 percent.

8. *Imputed value of property tax exemption.*—Harris estimates the replacement value of real estate used by colleges and universities in the United States at $20 billion, compared with the original cost of $9 billion.[17] Imputing 1.5 percent for property tax exemption, the value of the exemption is estimated at $300 million. Applying this estimate to public elementary and secondary school real estate, I obtained a replacement value of $53 billion and a 1.5-percent imputed property tax of $795 million. Similar computations on 1957–58 data, including additions to plant in the period 1956–58, indicate a replacement value of $59 billion for elementary and secondary schools and $22.3 billion for colleges and universities, which at a 1.5-percent rate suggests a property tax exemption of $885 million for elementary and secondary schools and $335 million for colleges and universities. According to Stoikov's estimates for the replacement costs of value of real estate used by private elementary and secondary schools, previously mentioned, the value of the property tax exemption for these schools is $120 million for 1955–56 and $132 million for 1957–58.

It will be noticed that depreciation and interest are imputed on original cost, but imputed property taxes on replacement value. This procedure corresponds to that used in the Department of Commerce's national income statistics.

9. *Imputed value of sales tax exemption.*—A small additional amount is included as the value of sales tax exemptions; the figures, though approximate, indicate the general order of magnitude of the value of this tax exemption.

10. *Imputed costs of books, supplies, and travel.*—The costs of books, supplies, and travel to and from school were calculated according to the procedure used by Schultz. Expenditures for these items were estimated at 5 percent of earnings forgone for high-school students and 10 percent for college students.

11. *Special defense programs, exclusive of basic training.*—The defense budget of the United States, running well over $40 billion, is so large that even a small proportion of this spent on training and education would, by inclusion or exclusion, affect the aggregate figures significantly. Therefore, the nature of defense expenditures on training and education needs to be discussed. (The Biennial Survey of Education makes explicit allowance only for the Service academies.)

The problem here is somewhat different from the one that concerned Kuznets in his study of the Nation's output during a war period.[18]

[17] Seymour E. Harris. "Broad Issues in Financing," in *Financing Higher Education, 1960–70*. New York, McGraw-Hill Book Co., 1959. p. 35–73.

[18] Simon Kuznets. *National Product in Wartime*. New York, National Bureau of Economic Research, 1945. p. 7.

Kuznets was concerned with the military output during a period of actual war, when no significant portion of productive factors, including labor ("personnel"), once absorbed by the military sector of the economy, is released to the civilian sector, even though those factors may be useful to it.

The problem here is one of a peacetime economy with a large military budget where personnel is periodically released from the Armed Forces to the civilian sector. Skills acquired during military training, such as pilot and mechanic training, can be put to civilian use, although their transferability is rarely complete. A study conducted by the Air Force in 1955 showed that of 5,000 enlisted men with a great variety of skills, separated from the service in 1950, 17 percent held jobs related to their Air Force experience.[19] Moreover, as I have suggested earlier, the cost of all formal education that contributes anything to later professional advancement should be included in our calculations if possible. Military training schools, even if they have no "usefulness" to the civilian sector, fall into this category.

Even if one were to ignore the problem of consistency, a decision to exclude all military training expenditures from our calculations would merely invite a new set of problems and paradoxes. Much education that takes place in the civilian sector and eventually leads to increased "civilian earning capacity" is actually geared—under the prevailing conditions of a large military budget—to the requirements of military production. This suggests that exclusion or inclusion of educational outlays merely on the basis of military or civilian supervision and budgeting would be arbitrary.

The cost of all military training programs is included with the exception of basic training, because under the conditions of a peacetime military draft, basic training is a compulsory requirement and does not add to a person's earning capacity. On the other hand, participation in additional education and training programs is not compulsory in the same manner as basic training and also tends to increase the income of participants.[20] The estimate also covers the pay of personnel while attending school.[21]

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[19] Harold Wool. "The Armed Services as a Training Institution" in Eli Ginzberg, *ed.*, *The Nation's Children*, vol. 2, Development and Education. New York, Columbia University Press, 1960.

[20] This treatment is arbitrary in two respects: In a society with a strong ideal of a soldier citizen and of martial virtues, basic training would have to be viewed as an integral part of "formal education," even though not "productive" in a pecuniary sense, and would constitute merely an extreme case of divergence between cost and productivity. Moreover, basic training is a necessary prerequisite for participation in more advanced military educational programs, whose costs are included here.

[21] It has been impossible to devise a formula that would allow for "procurement" cost or "attrition" of equipment used for training purposes or to calculate depreciation of military training installations. My figures for military educational programs therefore fall short by a substantial amount.

Since the outlays for these military educational programs are actually substantial, statistics may be cited to illustrate the importance of these programs within the military framework and also to the civilian sector of the economy. There are approximately 400 specialties for enlisted personnel in the Navy and the Marine Corps, and more than 900 in the Army. Some historical trends in changes in military skills can be observed from table 3.

TABLE 3.—Percentage distribution of enlisted jobs, by major occupational group[1]

| Major occupational group | Percent of enlisted jobs | | |
|---|---|---|---|
| | At end of World War II | During Korean Conflict | Dec. 31, 1958 |
| Electronics | 6.2 | 9.6 | 13.5 |
| Other technical | 6.9 | 6.9 | 7.4 |
| Mechanics and repairmen | 21.3 | 22.6 | 25.8 |
| Administrative and clerical | 15.3 | 20.8 | 20.6 |
| Crafts and services | 26.7 | 22.7 | 19.4 |
| Ground combat | 23.6 | 17.4 | 12.9 |

[1] SOURCE: Wool. The Armed Services as a Training Institution, *The Nation's Manpower*, vol. 2, Development and Education, Harold Ell Ginsberg, ed. a New York, Columbia University Press, 1960. p. 166.

An important feature shown by this table is the steady decline of the relative importance of the category "Ground combat" and the increasing importance of "Electronics." As to the number of men involved, the following figures may be cited: in 1955 alone, 430,000 men received training in civilian-type specialties (this excludes training in purely military skills, flying training, and professional training of officers).

The figures shown, which were obtained from the Office of the Secretary of Defense, represent "current cost of education," as well as costs of food, clothing, and medical care of students, and so forth. Some of these items are "fringe benefits" of military service. A portion of these should be shown actually under indirect costs rather than under direct ones, but this breakdown cannot be effected; and the present breakdown does not distort the aggregate results. The figures for the armed services are those for 1959, as 1955–56 and 1957–58 data were not available, but the 1959 outlay does not differ drastically from the figures for those earlier years.

12. *Other Federal direct expenditures on training and education.*—A substantial number of educational and training programs are carried on by various agencies of the Federal Government, and the costs of operation of these programs are included to the extent that the figures are available.

Some of the more important Government educational outlays are for: education of dependent children overseas; for education of American Indians in Federal schools; for distribution of Federal surplus property to educational institutions; for apprenticeship programs; for

safety training in mines; and for education programs in Federal correctional institutions.[23]

## CURRENT COSTS, INDIRECT

13. *Earnings forgone by high school and by college or university students.*—Earnings forgone by high school and college or university students are based on a number of empirical studies of the actual earnings of the school-age population in different periods. For 1955–56, the estimate derived is $1,456 per high school student and $2,099 per college or university student (see app. B). Applying to these estimates the 4.39-percent rise in average gross earnings in all manufacturing industries between 1956 and 1958, the average earnings forgone per high school student in 1957–58 was estimated at $1,519, and the average, per college or university student, at $2,139.

When these figures are multiplied by the number of high school students (7.7 million in 1955–56 and 8.9 million in 1957–58) and by the number of students in colleges and universities (2,996,000 in 1955–56 and 3,284,000 in 1957–58), the estimates are derived of the total earnings forgone. The earnings forgone by high-school students are estimated at $11,211 million in 1955–56 and $13,519 million in 1957–58. For college and university students the resultant estimates are $6,139 million in 1955–56 and $7,024 million in 1957–58.

14. *Earnings forgone by medical interns and residents.*—Although my calculations allow for the income forgone by medical interns and residents, they do not allow for other training programs for certification, such as the programs for certified public accountants, mechanical engineers, and architects because they are on a different footing. Such programs are not comparable to the programs for medical interns and residents because they are not requirements in the sense that interning is for a medical career. Apparently because of this, there exists no substantial income differential in those three fields between persons who take part in the special programs and those who do not.

On September 1, 1955, there were 9,603 persons serving medical internships in the United States. (This and the following figures, with one exception to be noted, are taken from the annual survey of such internships and residencies published by the American Medical Association.)[24] From this total, I substracted the number of grad-

[23] Such programs are discussed in *Federal Funds for Education 1958–59 and 1959–60* (U.S. Department of Health, Education, and Welfare, Office of Education, Bulletin 1961, No. 14).

[24] Graduate Medical Education in the United States. *Journal of the American Medical Association*, 162: 277–290, Sept. 22, 1956.

uates of medical schools in foreign countries who were interning in this country (1,859), leaving 7,744. Approximately half of these interns were serving in hospitals affiliated with medical schools and were receiving an average monthly cash stipend of $121. The other half, in nonaffiliated hospitals, were receiving an average monthly cash stipend of $169. The average of the two is $145.

About 8 out of each 10 hospitals provided full maintenance for interns in addition to the stipends, and almost all of the remaining provided partial maintenance. I valued maintenance at $120 per month, taking into consideration the fact that a small number of hospitals provided no maintenance.

Adding the monthly cash stipend to the value of the maintenance, a figure of $265 was obtained as the average intern's income per month, or about $3,180 per year.

To obtain the income forgone by the intern, I subtracted this figure, $3,180 from $4,921—an estimate of the yearly income of a person with equivalent training—an estimate based on the median salary in the academic year 1955–56 for 9 months of teaching at the assistant-professor level.[34]

I increased this figure by $1,300 to take account of the 3-month summer session and then added 10 percent to represent the difference between salaries in academic and nonacademic jobs, and arrived at a total of $6,843. Subtraction from this total of the average income earned in a year gave $3,663 as the average yearly income forgone by the interns. This figure was then multiplied by the number of interns, 7,744, to give the total income forgone—$28.4 million. (The 1957–58 figure is an adjustment of the 1955–56 estimate to allow for the change in the number of interns between the two periods.)

The income forgone by medical residents was calculated by a method parallel to that used for interns. On September 1, 1955, there were 21,425 individuals serving residencies in the United States. From this figure we subtracted 4,174, the number of residents from foreign countries, leaving a total of 17,251 residents. Resident programs (surgery, internal medicine, etc.) were grouped in eight income classes and the number of programs were distributed in roughly normal fashion among the classes.[35] If we assume that the residents also are normally distributed (an assumption that is certainly open to question), then we may take the midpoint of the distribution, or

[34] This estimate was obtained through a study of 772 institutions, reported in "Salaries in Higher Education," *NEA Research Bulletin*, 36: 90–95, October 1958, published by the National Education Association.

[35] All information on residencies is quoted from "Graduate Medical Education in the United States," op. cit., and another article with the same title, giving more recent figures, in the *Journal of the American Medical Association*, 171: 665–674, Oct. 10, 1959.

$250, as our estimate of the average stipend paid to residents. To this figure we add $100, representing the value of maintenance. This maintenance value is somewhat lower than that for interns, since only 56 percent of the hospitals provided full maintenance for residents and 25 percent partial maintenance.

The average monthly income of the residents, then, was calculated as $350, and the average per year was $4,200. The estimate of the total income forgone by the residents was based on the reported net income in 1949 of general practitioners in the United States under the age of 35—$9,054.[26] (This is the most recent information I have found in which income is given by age.) Incomes of general practitioners are now at least 20 percent higher than they were in the early fifties,[27] and I therefore increased the 1949 figure by 20 percent, finding a net annual income for general practitioners under 35 years of age of $10,865. From this figure I subtracted my estimate of medical residents' income, $4,200, to obtain the actual income forgone by residents. I then multiplied this final figure, $6,665, by the number of residents and arrived at $115 million. If we add to this figure the figures previously obtained for income forgone by interns, $28 million, we get a grand total for income forgone in medical education of $143 million.

15. *Military pay to students.*—Information on military pay in 1959 was obtained from the Department of Defense. My calculations are based on pay averages for 18,000 officers and 124,000 enlisted men, constituting the average annual number of students. The figures do not include any military reserve programs or schools. The pay of student military personnel is included here because they are withdrawn from other tasks while in school but continue to receive the same pay.

## CAPITAL OUTLAY FOR PLANT EXPANSION

16. *Elementary and secondary schools.*—Data on expenditures for plant expansion of elementary and secondary schools in the academic year 1955–56 are quoted from the *Biennial Survey of Education, 1954–56*, chapter 1, table 9. For 1957–58, comparable data, unpublished, are quoted from tabulations prepared by the Office of Education for the *Biennial Survey of Education, 1956–58.*

17. *Colleges and universities.*—Data on expenditures for plant expansion of colleges and universities in the academic year 1955–56 are quoted from the *Biennial Survey of Education, 1954–56*, chapter 4,

[26] William Weinfeld, "Income of Physicians, 1929–49." *Survey of Current Business*, vol. 31, July 1951, U.S. Department of Commerce. p. 9–26.

[27] Wallace Croatman. Are You Better Off Than the Typical G.P.? *Medical Economics*, 24: 28, April 1957.

table 2. For 1957–58, comparable data, unpublished, are quoted from tabulations prepared by the Office of Education for the *Biennial Survey of Education, 1956–58.*

18. *Public institutions for delinquents.*—Data on capital expenditures for institutions for delinquents are quoted from Robert L. Rowland, *Statistics on Public Institutions for Delinquent Children, 1956.* Statistical Series No. 48, 1958 and No. 59, 1960. Children's Bureau, Social Security Administration, U.S. Department of Health, Education, and Welfare.

No figures are available at present on capital outlay for education programs carried out by the Armed Forces. Therefore the total calculated for capital outlay for plant expansion does not include such outlay.

## III. Findings and Concluding Observations

The Nation's total investment in people through education for the academic year 1955–56 is estimated at $37.0 billion, and for 1957–58 at $44.5 billion (table 1). When capital outlays for school and college plant are added, these sums are increased to $40.4 billion and $49.0 billion, respectively (table 2).

Current costs of education are divided about equally between direct and indirect costs in each of the years. The earnings forgone of high-school students more than equals the total direct institutional costs of public elementary and secondary schools. Earnings forgone of college students by far exceed the direct costs of colleges and universities. Direct institutional expenditures of the colleges and universities totaled $2.3 billion in 1955–56 and $2.9 billion in 1957–58. If we add to these direct institutional expenditures the imputed depreciation and interest and the value of property tax exemptions, the amounts are increased to $3.3 billion and $4.1 billion. Earnings forgone of college and university students are estimated at almost double these amounts, or $6 billion for 1955–56 and at $7 billion for 1957–58.

What share of our national resources does investment in education claim? As was suggested earlier, the conventional gross product estimates are not wholly adequate to permit a direct answer to this question without first adjusting gross product figures to reflect the imputed educational cost items (table 4). The adjusted estimate is 5 percent higher than the conventional gross national product estimates. Educational investment in human beings amounted to 9.6 percent of the adjusted gross national product in 1957–58 and 8.6 percent in the biennial year immediately preceding. When the costs of

plant expansion are added, the share of resources devoted to education is increased by an additional 1 percent; for example, for 1957–58 from 9.6 percent of the adjusted gross national product to 10.6 percent.

The investment in education may be viewed in still another way, namely, as a share of the total gross investment, both public and private. Table 5 summarizes these estimates and indicates the items that may be added to the conventional gross private domestic investments to arrive at a more inclusive approximation of investments, including both direct expenditures and the opportunity costs of investment in education. The national total thus arrived at for the academic year 1955–56 is $129.9 billion, of which $65.3 billion is the gross private domestic investment, $27.6 billion the gross public investment, and $37.0 billion the direct and indirect costs of education as an investment in people.

In 1955–56 and also in 1957–58, we were investing about 30 percent of our gross national product (as adjusted) for future growth. In more customary national-product accounting, private investment is shown as about 16.0 percent of the national gross product, and public and private investment at 22.7 percent. Educational investment is equal to about one-third of the total investment. This makes it probably the largest single component of all investment in the United States.

**TABLE 4.—Gross national product, adjusted to compute share devoted to formal education**

[Amounts in billions]

| | 1955–56 | 1957–58 |
|---|---|---|
| Gross national product (conventional accounts) | $408.7 | $439.7 |
| ADD: Depreciation on school property, and interest paid on such property [1] | 2.9 | 3.6 |
| DEDUCT: Interest paid on school bonds (included in annual cost) | .2 | .3 |
| ADD: Income forgone: | | |
| High-school students [1] | 11.2 | 13.5 |
| College and university students [1] | 6.1 | 7.0 |
| Medical interns and residents [1] | .1 | .2 |
| Adjusted gross national product | 428.8 | 463.7 |
| Educational expenditures, direct and indirect: | | |
| Amount | 37.0 | 44.5 |
| Percent of adjusted gross national product | 8.6 | 9.6 |

[1] See table 2 for estimates of depreciation and interest and for income forgone.

SOURCE: Gross national product estimates from Department of Commerce *Survey of Current Business*, July issues. Figures are for the quarters October through September of the designated years.

## TABLE 5.—Gross private and public investment, adjusted

[In billions]

| Type of investment | 1955–56 | 1957–58 |
|---|---|---|
| Total gross investment as adjusted for educational investment | $129.9 | $133.3 |
| Gross private investment (conventional accounts) | 65.3 | 61.1 |
| Gross public investment (conventional accounts) [1] | 27.6 | 27.7 |
| Gross educational investment (adjustment) | 37.0 | 44.5 |
| Current costs, direct [2, 3] | 19.0 | 23.3 |
| Current costs, indirect [3] | 18.0 | 21.2 |
| | Percent | |
| Gross educational investment as a percentage of total gross investment (adjusted) | 28.5 | 33.4 |

[1] Francis M. Bator. *The Question of Government Spending*. New York, Harper & Bros., 1960. p. 156, table 13.

[2] See table 1. In addition to the three types of income forgone listed in table 4, military pay to students has to be included here.

[3] The addition of the total imputed property tax and sales tax exemption is, strictly speaking, incorrect. If these taxes were shifted to the educational sector, other taxpayers would have to pay so much less. Part of these taxes could be shifted away from consumption outlays and part of them could be shifted from private investment outlays. To the extent that the latter would take place, we would have merely an intrasectional shift in the investment sector and to that extent the figure is exaggerated.

# Part III

## FINANCIAL RESOURCES FOR HIGHER EDUCATION

# CHAPTER 11

# Student Higher Education and Facilities of Colleges and Universities: Projections

*Selma J. Mushkin and W. Robert Bokelman**

## I. Expenditures and Income of Colleges and Universities for "Student Higher Education," 1970–75

PROJECTIONS OF EXPENDITURES by colleges and universities for "Student higher education"[1] and of the institutions' sources of income for that purpose are presented here as a backdrop for subsequent chapters on financing of higher education. The projections reflect the estimator's judgment of the amounts required, under the conditions assumed, to assure educational opportunities for the increasing number of talented young people in this country and to permit the colleges and universities to discharge their greatly enlarging responsibilities.

The underlying assumptions and the computations based upon them are presented in summary form below. Projection for a decade and even longer is necessarily an adventure into the unknown. The estimates presented are derived from and consistent with the assumptions made. Under conditions other than those assumed, college and university finances would develop differently in detail, and perhaps in broad outlines.

### STUDENT ENROLLMENTS

Total enrollments, reported in the Office of Education's series on fall enrollments of degree-credit students, are projected on three different bases by Conger (ch. 1 of this publication). His projections for aggregate United States are summarized in table 1 below.

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*Pt. I of this chapter was prepared by Selma J. Mushkin, economic consultant for the Division of Higher Education; and pt. II by W. Robert Bokelman, Chief of the Business Administration Section, College and University Administration Branch, Division of Higher Education, U.S. Office of Education.

[1] Student higher education represents essentially teaching costs and "overhead" costs allocable to teaching. In the terms of the Office of Education's expenditure definitions, student higher education includes costs of instruction and departmental research, and that portion of expenditures for general administration, libraries, and physical plant allocable to instruction. It excludes from the amount for total educational and general expenditures those expenditures for organized research and overhead connected with such research and expenditures related to other organized noninstructional activities.

TABLE 1.—Enrollments, fall 1957 and 1960, in colleges and universities, aggregate United States; and 3 illustrative estimates of enrollments, 1970 and 1975

[In thousands]

| | 1957 | 1960 | 1970 | 1975 |
|---|---|---|---|---|
| Actual | 3,068 | 3,610 | | |
| I. Trend projection | | | 7,007 | 8,677 |
| II. Fathers' attainment projection | | | 6,001 | 7,140 |
| III. Constant-rate projection | | | 5,241 | 6,082 |

The three enrollment projections form the basis of the illustrative estimates developed here of expenditures by colleges and universities for student higher education and of sources of income.

The long-term trend toward greater expansion in public institutions than in private institutions, it is assumed, will continue. For purposes of the estimates it is assumed that two-thirds of the enrollment increase between the academic years 1957–58 and 1970–71 and 70 percent of the additional expansion between 1970–71 and 1975–76 would occur in publicly controlled colleges and universities.[8] An alternative assumption of a uniform increase in enrollments in both public and private colleges would change the estimates very little. Similarly, a somewhat higher rate of expansion in enrollment in public institutions than that assumed here would not change the estimates markedly.

## GENERAL ASSUMPTIONS

Salaries paid to faculty and others employed by colleges and universities and costs of equipment, books, scientific instruments and apparatus, heating, and so forth, necessarily are influenced by trends in general employment and in price and earnings. Income received by colleges and universities is perhaps even more directly affected by such trends. It is assumed in the projections presented here that the economy will continue to grow in the period ahead and that a high level of employment will be maintained, with a maximum rate of 4 percent unemployment.

The 1970 and 1975 projections assume that output per person employed will increase at the historical trend rate of 2 percent per annum; that the labor force will grow at 1.7 percent per annum; and that price rises will average 1.4 percent per annum.[9]

[8] See Selma J. Mushkin, ch. 14, for discussion of changes in the proportion enrolled in public and private colleges and universities during the 1950's.

[9] Combining a single estimate of labor force growth with three estimates of college enrollments (with a spread of about 1.8 million between the "low" and "high" enrollment estimates) implies different definitions of "full employment." A single gross national product figure was used for simplicity of presentation, but it should be recognized that larger college enrollments may, in a single year period, reduce the potential gross national product, at full employment levels.

These assumptions and the estimates of gross national product parallel those presented by the President's Council of Economic Advisers before the Joint Economic Committee of the 87th Congress. The estimated figures on the gross national product for the years used in projecting expenditures for student higher education and the institutions' income are:

| Year | Gross national product (Billions) |
|---|---|
| 1957 | $445 |
| 1960 actual | 504 |
| full employment level | 535 |
| 1970 | 880 |
| 1975 | 1,130 |

## EXPENDITURES FOR STUDENT HIGHER EDUCATION

The financial accounts of colleges and universities do not routinely provide a separate accounting of expenditures for each of their major functions—student higher education, research, and public services. For the purposes of this chapter, expenditures for student higher education are projected in more detail than are the other functions named. As used here, expenditures for student higher education include expenditures for instruction (and departmental research) and the portion of expenditures for general administration, libraries, and maintenance of physical plant that is attributable to instruction. Accordingly, from the category of expenditures typically reported in financial accounts, namely, "educational and general expenditures," the following items have been excluded: organized research, extension courses for nondegree students, other public services and related activities, and also the part of administrative, plant-operation, and library expenses that is attributable to organized research and public services. Expenditures for auxiliary activities, scholarship aid, and capital outlay are also excluded. Student higher education expenditures of colleges and universities as defined here are estimated at $2,364 million for 1957–58 for the aggregate United States. Educational and general expenditures, as reported that year, amounted to $3,634 million.

Student higher education expenditures in turn are divided into (*a*) personal service expenditures, and (*b*) expenditures for commodities or contractual services. The personal service component, which represents payrolls and fringe benefit outlays for persons employed by the colleges and universities, was computed at 75 percent of the total expenditure for student higher education.[4] The commodity and contractual service component represents the expenditures

[4] This percentage represents the weighted average percentage of payrolls associated with instructional costs and of payrolls for all educational and general purposes. The weights used were: (*a*) instructional expenditures, and (*b*) other expenditures for student higher education, including expenditures for administration, plant maintenance, and libraries.

for books, apparatus and equipment, cleaning materials, heating, lighting, travel, and so forth.

The amounts spent in the base year 1957–58 for student higher education and the illustrative estimates of expenditures for 1970–71 and 1975–76 are shown in table 2.

TABLE 2.—Expenditures for student higher education, colleges and universities, aggregate United States, academic year 1957–58; and 3 illustrative estimates of those expenditures, 1970–71 and 1975–76, according to enrollment projections

| Illustration, by year | Enrollment (in thousands) | Expenditures (in millions) | | |
|---|---|---|---|---|
| | | Total | Personal service component | Commodity and contractual service component |
| 1957–58 | 3,068 | $3,364 | $1,773 | $591 |
| 1970–71: | | | | |
| Illustration | | | | |
| I | 7,007 | 9,148 | 7,531 | 1,617 |
| II | 6,001 | 7,834 | 6,449 | 1,385 |
| III | 5,241 | 6,841 | 5,632 | 1,209 |
| 1975–76: | | | | |
| Illustration: | | | | |
| I | 8,677 | 12,492 | 10,346 | 2,146 |
| II | 7,160 | 10,280 | 8,514 | 1,766 |
| III | 6,082 | [illegible] | 7,134 | 1,480 |

In the development of the expenditure estimates the wide differences among colleges and universities in educational programs and in staffing have not been taken into account; the institutional pattern of higher education is assumed to remain essentially unchanged. Geographic differences among institutions and differences in rates of growth have also been ignored, although there is evidence that some States—Arizona, California, and Florida, for example—have been experiencing a rate of increase in enrollments that is a good deal higher than that obtaining in other areas of the country. The techniques of projection used here deal with aggregates and nationwide averages, and probably conceal some important financial problems.

*Expenditures for faculty and for other personal services.*—The most important item in educational outlays necessarily is faculty salaries. A recent report by Committee Z of the American Association of University Professors states:

> If the economic status of the profession is unsatisfactory, the growing mass of students will nevertheless, somehow, continue to be taught. But what they will receive in the process will turn out to be no more than a caricature of an education. Of all products, education is one of the most easily diluted, and unless the academic profession is kept sufficiently attractive to gifted teachers and researchers, more or less unobtrusive adulteration will be the inevitable consequence.[6]

[6] The Economic Status of the Profession, 1960–61: Annual Report by Committee Z. *AAUP Bulletin*, 47: 101, June 1961.

The President's Committee on Education Beyond the High School estimated in 1957 that average faculty salaries would have to be increased by 75–80 percent to restore teaching to a competitive position in the professional labor market, and that to maintain this position, once restored, would require additional increases. The Committee recommended doubling the average salaries in 5–10 years.[6] This recommendation has been widely broadcast, and the increase is generally accepted as a goal to strive toward.

The estimates of payroll expenditures of colleges and universities are computed so as to allow separately for (*a*) faculty and other college and university salary increases large enough to permit these positions to become more attractive and to compete effectively for the talents of gifted persons with alternative employment opportunities; and (*b*) sufficiently increased average salaries in the future to enable faculty compensation to hold its improved competitive position. The base-year salary levels, accordingly, are computed to allow for a readjustment-increase of 50 percent over 1957–58 average salaries. (It must be recognized that salaries increased by 15–20 percent during the period 1957–58 to 1960–61.) Although the 50-percent increase is admittedly an arbitrary figure, it corresponds to the increase that Harris estimates as required to restore the relative income status of full professors in outstanding universities to its position of the 1930's.[7] The base figure, adjusted for the 50-percent rise, is increased further to allow for a 2-percent-per-annum rise in the average productivity of all the workers in the civilian labor force and also for an assumed average rise in prices of 1¾ percent per annum. The allowance of 2 percent productivity gain per annum is made to retain the competitive position of faculty salaries, whether or not faculty productivity is increased. Thus in a sense the further assumption of an increase of 20 percent in student-faculty ratio for the academic year 1970–71 and of 25 percent for 1975–76 is independent of the salary increase used in the projections.

In the projections, staffs for instructional and administrative purposes were increased less than proportionately to enrollments for the academic years 1970–71 and 1975–76. The assumptions used in developing the staffing figures are based on those outlined by the Office of Education in a report on the future financial needs of higher education.[8] That report assumes that the number of staff members

[6] U.S., The President's Committee on Education Beyond the High School, *Second Report to the President*. Washington, D.C., July 1957. p. 6.

[7] Seymour E. Harris. Financing of Higher Education: Broad Issues, in *Financing Higher Education, 1960–70*, Dexter M. Keezer, ed. New York, McGraw-Hill Book Co., 1959. p. 71.

[8] U.S. Department of Health, Education, and Welfare, Office of Education, *Ten-Year Objectives in Education; Higher education staffing and physical facilities, 1960–61 through 1969–70*, Washington, D.C., 1961. p. 9.

engaged in instruction and administration will rise with the increased enrollment, allowing, however, for a higher student-staff ratio during the decade of the 1960's of about 20 percent. The report says:

> The 20-percent rise in student-staff ratios is assumed in spite of the likelihood that an increase in the proportion of graduate students and an increase in curricular diversities corresponding to continuing increase in knowledge would tend to produce a change in the other direction. A larger rise in the projected student-staff ratio could not, in our judgment, be assumed without building into the academic structure a planned reduction in quality of instructional service.[9]

In making the estimates presented here, a 20-percent rise in student-staff ratio is assumed to occur by 1970–71 and an additional rise of 5 percent in the period 1970–75. As a consequence of the combination of assumptions (the rise in productivity and price and the larger increase in staff relative to enrollment increases during the last 5 years of the projection compared with 1970–71), expenditures per student enrolled are higher in 1975–76 than in 1970–71.

*Expenditures for commodities and contractual services.*—Expenditures other than payroll costs are projected on the assumption of a growth in such expenditures proportionate to increases in enrollment, with a further allowance for an underlying general price rise. Although per-student expenses for library, administration, and other services may be reduced as a consequence of increased enrollment, and may therefore bring about lower costs per student, these savings would be offset by the higher costs accompanying new instructional methods, such as costs of equipment.[10]

## SOURCES OF SUPPORT FOR STUDENT HIGHER EDUCATION

The major issue in this chapter is not whether we can afford to finance the projected expenditures in 1970–71 and 1975–76 (see table 2), but rather what the relative shares in the financing will be for students, governments, and private philantrophy, and how far the total approximation of projected incomes will go toward financing the required expenditures.

*Base-year income distribution.*—A preliminary step in the projection of income available to pay for student higher education is to

[9] Ibid., p. 9.

[10] John Dale Russell, in commenting on an early draft of this chapter, wrote: "I have a hunch that we shall be using more commodities per student and spending more for such services per student than in the past. We shall find many ways of enriching and improving the instruction of students through audiovisual aids, travel grants, better library facilities, etc. In the past we have been severely limited in budgeted expenditures for the kinds of teaching aids that research has shown to be highly advantageous. My own idea is that there should be a modest allowance for some increases in the kinds of commodities and services that will enable the colleges to do a more effective job of teaching students."

approximate the amounts contributed by each of the several sources in the base year 1957–58. The sources of funds used for the three major functions of colleges and universities are not separately identified in the basic data. However, reports from these institutions to the Office of Education provide data on their current income for "educational and general purposes"; these data exclude amounts received from auxiliary enterprises and those received for scholarships and other student aid. Funds designated for organized research are also separately identified and are excluded, and income from "organized activities relating to educational departments" is limited to the excess of this income over expenditures for those departments. With these adjustments a beginning can be made toward identifying the funds available for student higher education. The amounts estimated for 1957–58 for student higher education, by source of support, are shown in table 3.

**TABLE 3.—Current income for support of student higher education, by source, in colleges and universities, aggregate United States, academic year 1957–58**

[Amounts in millions]

| Source | Amount | Percent |
|---|---|---|
| Total | $2,363.9 | 100.0 |
| Tuition and fees [1] | 856.1 | 36.2 |
| Gifts and endowment earnings [2] | 346.8 | 14.7 |
| State and local funds [2] | 1,001.3 | 42.4 |
| Federal funds [3] | 95.5 | 4.0 |
| Other [2] | 64.2 | 2.7 |

[1] The amount of income from student tuition and fees as reported in Biennial Survey data for 1957–58 is $939.1 million. To this amount is added tuition and student fees set aside in plant funds, $21.1 million. An estimated $47.6 million for scholarship aid (estimated at two-thirds of scholarship income, excluding transfers of income and remissions of fees), is deducted from tuition; and $56.5 million, the estimated amount of income from tuition for extension non-degree-credit courses also is deducted. *See* Richard Goode, ch. 17, for explanation of the two-thirds' adjustment.

[2] Income from sources other than student tuition and fees, proportionately reduced to correspond to the difference between student higher education expenditures and total income as reported in the Biennial Survey.

[3] Federal funds paid to colleges and universities, less funds for organized research and for agricultural experiment stations and extension work. The estimate used here represents a reconciliation of Biennial Survey data and an independent estimate by Penrose Jackson (School Finance Section, Office of Education), based on amounts reported by Federal agencies in a survey of Federal activities related to education (unpublished data, U.S. Department of Health, Education, and Welfare, Office of Education). It should be recognized that Federal funds in addition to the $95.5 million are spent for higher education, but that these additional amounts are either for purposes other than student higher education, such as organized research, or are paid to students and do not go directly to the colleges and universities as Federal aid.

*Tuition payments.*—In the projections in tables 4 and 5, tuition per student enrolled in public and in private colleges and universities is increased as a first approximation in proportion to the increase in average family income, or at an assumed rate of 3.4 percent per annum—a rate consistent with the underlying general economic assumption. It is assumed, however, that the increase in the number of children in families in the future not only would somewhat reduce the college attendance (see Brazer and David, ch. 2 of this publication) but also would exert some downward pressure on tuition increases. Arbitrarily the estimated tuition payments were reduced by 10 percent to allow for the larger family size.

*Gifts and endowments earnings.*—Gifts to colleges and universities for "current income accounts" and earnings on endowments have increased considerably in recent years, but have declined relative to other sources. In projecting amounts received through gifts and endowment earnings, it is assumed that the pattern of growth evidenced in recent years would persist in the future. The growth in gifts and endowment earnings to more than $1 billion by 1970–71 and more than $1.3 billion by 1975–76, under illustration I, assumes essentially a sustained drive to stimulate giving by alumni, corporations, and others. The Council for Financial Aid to Education has estimated that such giving would increase by more than $1 billion during the 12-year period from the academic year 1957–58 to 1969–1970. Fund raising of this magnitude for current expenditures for student higher education alone will imply almost a tripling of gifts and endowment earnings in the next decade.

**TABLE 4.—Current income of colleges and universities for student higher education, by source, academic year 1957–58; and 3 illustrative estimates of that income, 1970–71 and 1975–76**

[In billions]

| Source | 1957–58 | Estimate, by year, and illustration | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1970–71 | | | 1975–76 | | |
| | | I | II | III | I | II | III |
| Total | $2.4 | $9.1 | $7.8 | $6.8 | $12.5 | $10.3 | $8.6 |
| Total 1st approximation of income | | 6.9 | 5.9 | 5.2 | 9.4 | 7.7 | 6.5 |
| Tuition and fees | 0.9 | 2.6 | 2.2 | 2.0 | 3.7 | 3.1 | 2.6 |
| Gifts and endowment earnings | .4 | 1.1 | .9 | .8 | 1.3 | 1.1 | .9 |
| State and local funds | 1.0 | 2.9 | 2.4 | 2.1 | 3.8 | 3.1 | 2.6 |
| (Without tax rate increases) | (1.0) | (2.0) | (2.0) | (2.0) | (2.6) | (2.6) | (2.6) |
| Other [1] | .1 | .4 | .4 | .3 | .6 | .5 | .4 |
| Additional amount needed | | 2.2 | 1.9 | 1.7 | 3.1 | 2.5 | 2.1 |

[1] Includes income from Federal Government, which amounted to $95.5 million in 1957–58.
Totals may not add because of rounding.

**TABLE 5.—Percentage distribution of current income of colleges and universities for student higher education, by source, academic year 1957–58; and 3 illustrative estimates of that income, 1970–71 and 1975–76**

| Source | Percent of estimate, by year and illustration | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1957–58 | 1970–71 | | | 1975–76 | | |
| | | I | II | III | I | II | III |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Total 1st approximation of income | | 75.7 | 75.6 | 75.5 | 75.3 | 75.3 | 75.2 |
| Tuition and fees | 38.2 | 28.0 | 28.2 | 28.5 | 29.6 | 29.9 | 30.2 |
| Gifts and endowment earnings | 14.7 | 11.7 | 11.7 | 11.7 | 10.5 | 10.5 | 10.5 |
| State and local funds | 42.4 | 31.3 | 31.0 | 30.7 | 30.5 | 30.2 | 29.8 |
| Other [1] | 6.7 | 4.6 | 4.6 | 4.6 | 4.7 | 4.7 | 4.7 |
| Additional amount needed | | 24.3 | 24.4 | 24.5 | 24.7 | 24.7 | 24.8 |

[1] Includes income from Federal Government.
Totals may not add because of rounding.

*State and local governmental funds.*—As a first approximation of the amounts of State and local funds made available for student higher education, these funds were projected on the basis of experience since 1950. State and local funds for this purpose per student enrolled in public colleges and universities remained relatively uniform from biennium to biennium. Over the whole period, these per student contributions increased on the average only 1.2 percent a year. Although these public funds are not exclusively used to finance public institutions, and the amount of State support of private institutions is growing, the historical data suggest a close parallel between the growth in public funds and in the number enrolled in public institutions. State and local funds accordingly are projected to rise in proportion to the number of students enrolled in public colleges and universities, with an added adjustment corresponding to the average increase in per student funds over the period since 1950. The figures thus computed are compared with the amounts that State and local governments will raise for student higher education if their tax effort remains at the 1957–58 level.

Several studies of State and local finance suggest that State and local tax bases can be expected to expand roughly in proportion to increases in the gross national product. Accordingly, there would be a 1-percent increase in tax base for each 1-percent rise in the gross national product. The growth in the economy would increase the $1 billion contributed in 1957–58 by State and local governments for student higher education to $2 billion by 1970–71 and $2.6 billion by 1975–76. A large share of the State and local funds estimated in the illustrations shown in table 4 could be raised without imposition of new State and local taxes or increases in rates of existing levies. There is every indication that States and localities have increased their support of institutions of higher education more than proportionately to the expansion of the economy in the past, and further increases may be anticipated, calling for greater tax effort.

*Other sources.*—For the purpose of arriving at a first approximation of the projected amounts of college and university support from sources other than those already discussed, Federal Government funds and other miscellaneous amounts of income are increased in proportion to the estimated increase in the gross national product and adjusted by an index of enrollment increases to reflect the differences in fund requirements arising from the different levels of enrollment projected.

*Total first approximation of incomes and additional amounts needed.*—As a basis for projecting an approximation of the *total* income available for student higher education in 1970–71 and 1975–76, as shown in tables 4 and 5, the various sources of funds now used

have been projected, as indicated earlier, on the assumption that tuition charges will be increased in proportion to the rise in family incomes; that States and local governments will continue to make at least as great a tax effort for student higher education as they have in the past; and that other funds for that purpose, both private and public, will be enlarged in amounts consistent with the growth in the national economy and with past trends.

No change in the basic structure of financing has been assumed in determining the total first approximation of amounts of income available by source of funds. However, some change in the structure of financing is needed, as is indicated by the additional sums required to finance the total costs of student higher education (tables 2 and 4). These requirements will presumably have to be met through greater efforts by individuals and by private and public agencies if the quality of education is not to be impaired.

## ESTIMATED TOTAL EDUCATIONAL AND GENERAL EXPENDITURES

In table 6 projected expenditures of colleges and universities for student higher education are combined with estimates of research expenditures in these institutions and with rough allowances for their public service outlays to provide estimates of total educational and general expenditures for 1970–71 and 1975–76.

The projected increases in expenditures of colleges and universities patently will require substantial increases in their income. However, economic growth will enlarge the resources available for this financing; the gross national product by 1975 will exceed $1 trillion if our stock of manpower and equipment is fully utilized. Out of the enlarged income flow, the country can well afford to finance higher education for the growing number of students. As a Nation, we can

**TABLE 6.—Educational and general expenditures of colleges and universities, academic year 1957–58; and 3 illustrative estimates of these expenditures, 1970–71 and 1975–76**

[In billions]

| Function | Expenditures, by year | | |
|---|---|---|---|
| | 1957–58 | 1970–71 | 1975–76 |
| Total educational and general | $3.6 | $11.1–$14.3 | $15.3–$21.2 |
| Student higher education [1] | 2.4 | 6.8– 9.1 | 8.6– 12.5 |
| Research [2] | .8 | 3.5– 4.4 | 5.7– 7.5 |
| Public services and other organized activities [3] | .4 | 0.8– 0.8 | 1.0– 1.2 |

[1] See table 2 and accompanying text for discussion of estimates and underlying assumptions.
[2] Estimates of research outlays are those presented by Herbert Rosenberg in ch. 18 of this publication.
[3] Assumes a rate of increase proportional to gross national product for outlays between 1957–58 and the 1970's.

ill afford to fail to commit the resources and funds required to fulfill our national manpower needs for professionally trained people. The highest of the estimates of student higher education expenditures presented here calls for an increase from one-half of 1 percent of gross national product in 1957–58 to 1.0 percent by 1970–71 and 1.1 percent by 1975–76. The highest of the estimates of total educational and general expenditures calls for an increase from 0.8 percent of gross national product in 1957–58 to 1.6 percent by 1970–71 and 1.9 percent by 1975–76.

## II. Needs for Facilities, 1961–75

Several important factors contribute to the critical need for expansion of physical facilities for institutions of higher education. A larger college-age population is a certainty. There is every reason to believe that a continually increasing proportion of college-age youth will seek a college education and will remain longer in order to earn more advanced degrees. Also, the vastly increased emphasis on advanced study and research calls for new, costly equipment and other facilities not formerly required in many institutions of higher education. These evidences of increased need, plus a backlog of obsolete and temporary buildings in need of replacement and repair, form the basis for the projection of needed physical facilities as set forth in this chapter.

To what extent rising costs will be offset in the future by the development of less costly construction materials and techniques and better utilization of present plant facilities (sometimes brought about through academic and instructional reorganizations) is difficult to assess. These and other developments may emerge to alter estimates of unmet needs.

Physical facilities costs as projected here include costs of equipment for the building, site development, and auxiliary items such as sidewalks and parking lots, as well as actual building costs.

In the past, the physical facilities costs have accounted for approximately 20 percent of the total annual expenditures for higher education. Current annual expenditures for higher education facilities approximate $1.25 billion.

It is in the national interest to provide adequate physical facilities for the accommodation of every student properly admissible to our colleges, universities, and professional schools in the years ahead. These include all instructional, research, residential, and auxiliary facilities requisite to each institution's performance of its full functions.

The achievement of this objective will require major efforts as follows:

1. An increase in residential and service facilities sufficient to accommodate expanded enrollments of both single and married students who live on campus.

2. An increase in instructional facilities—classrooms, laboratories, libraries, and equipment, quantitatively sufficient for the needs of expanded enrollments and qualitatively sufficient for the ever-changing requirements of an advancing culture.

3. Rehabilitation, renovation, and new construction to wipe out the accumulated backlog of wornout, outmoded, and unsuitable facilities now in use and to maintain facilities in satisfactory condition as they depreciate.

4. Expansion of research and graduate instructional facilities and equipment, in keeping both with the growing needs of the Nation for research and for highly trained manpower and with the mounting potential of undergraduate enrollments from which graduate students and research personnel in increased numbers will be drawn.

## THE INCREASING STUDENT LOAD

Facilities needs, like staff needs, are related specifically to enrollments, though in neither case is the relationship direct. Shifts in the proportions of resident and commuting students, of married and single students, and of graduate and undergraduate students will affect facilities needs, as will also modifications in institutional calendars, scheduling, and utilization of space.

The need to accommodate increasing numbers of students accounts for only a part of the upsurge in requirements for physical facilities. The provision of special kinds of space and equipment appropriate to particular instructional functions represents a growing burden on the colleges and universities, many of which will need to replace makeshift arrangements that they have had to use even in some areas of graduate instruction and research. Proper facilities for graduate programs, it should be noted, are generally more costly than those for undergraduate.

New developments in both subject matter and methods of teaching are continuously generating new needs for physical facilities. The increasing emphasis on foreign language study, for example, will require the construction of language laboratories for the application of new learning techniques. Particularly expensive space and equipment are required in the physical sciences, where knowledge of established subjects is expanding rapidly and where whole new fields of study are evolving. The purchase and installation of a nuclear

reactor today represents an investment of funds greater than would have been spent for a whole scientific establishment half a century ago.

Much attention is being focussed also on new media of instruction and on new techniques in the use of special media, such as television and audiovisual devices. While these developments hold some hope for savings in instructional costs, a point we shall discuss later, we must consider also the requirements that such use could generate for specially constructed facilities.

Medical and dental training facilities are currently being utilized to capacity, but the number of physicians and dentists graduating yearly is not sufficient to maintain current standards of service to our increasing population. To maintain a satisfactory population-physician ratio of 757 to 1, the output of physicians would have to expand greatly.[1] It has been estimated that between 14 and 20 new medical schools will have to be built if the existing population-physician ratio is to be upheld. The financial cost involved here is great since the construction of a medical school requires a capital investment of between $10 and $20 million, depending on whether a teaching hospital is already available or must be included in the investment. The factor of urgency also enters into the consideration inasmuch as there is a lag of 10 years between the planning of a school and the production of its first graduating class.

Contributing further to the need for medical training facilities is the need for dental schools. According to projections of trends in the supply, the number of dentists in practice in 1975 will total only 96,000, which is about 15,000 fewer than will be needed to assure that dentists will be as widely available as now.[2] To forestall such a shortage will require by 1970 facilities capable of graduating 6,180 dentists annually. This is about 2,700 more per year than are now in prospect, and will require a 75-percent increase in training capacity.

The preparation of many professional and semiprofessional technicians also requires specific kinds of facilities, other than those we have already mentioned in connection with the advanced training of scientists, engineers, physicians, and dentists.

Colleges and universities have increased their organized research activities tremendously since the end of World War II. In the academic year 1957–58 approximately 20 percent of their total educational and general expenditures went toward the support of organized

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[1] The Advancement of Medical Research and Education. U.S. Department of Health, Education, and Welfare. Washington, D.C., June 1958. (Final report of the Secretary's Consultants on Medical Research and Education.) *See* William H. Stewart, ch. 4 of this publication, for discussion of the Nation's health manpower needs.

[2] U.S. Department of Health, Education, and Welfare, Public Health Service, *Physicians for a Growing America*, Report of the Surgeon General's Consultant Group on Medical Education, PHS Pub. No. 709, 1959. p. 67.

research.[3] This is twice the percentage so expended in 1945–46. Although the major portion of these expenditures is underwritten by foundations, industry, and the Federal Government, the main burden of providing physical facilities needed to carry on research normally falls on the institutions themselves. Since organized research activities are expected to continue to increase, colleges and universities will have to devote a significant portion of their funds to equip, construct, and rehabilitate the facilities in which college and university researchers carry on their work.

Still other factors will influence requirements. More and more institutions are catering to a year-round student enrollment and will have to make additional capital outlays to counteract the resulting more rapid deterioration of buildings and to provide a more satisfactory environment for summer work such as air conditioning, even as they thereby accommodate more students. There is also a need for housing for married students and associated auxiliary facilities, such as nursery schools, university laboratory schools, health centers, and dining areas.

## SPECIAL FACTORS RELATING TO RESIDENTIAL REQUIREMENTS

The growing numbers of married students on college campuses in recent years has caused institutions to make increased investments in residential facilities for such students. A study by the Association of College and University Housing Officers shows that nearly two out of five institutions responding to their questionnaire have assumed responsibility for married students' housing by constructing at least some of the necessary facilities.[4]

There is ample evidence that colleges and universities consider the accommodation of married students a permanent responsibility. The Office of Education's physical facilities survey reveals that 4.6 percent of college and university expenditures for construction of housing during 1951–55 was for married students.[5] Institutions estimate that during 1956–70, 9.7 percent of their expenditure for housing will be for married students. Since about 2½ times as much residence space is required for a married student as for a single student, and since increasing numbers of married students are attending colleges and

[3] *Financial Statistics of Institutions of Higher Education, 1957–58.* U.S. Department of Health, Education, and Welfare, Office of Education, September 1960. *See also* Herbert H. Rosenberg, ch. 18 of this publication, for further discussion of research in institutions of higher education.

[4] *Survey: Married Students' Housing.* Report of Research Committee, Association of College and University Housing Officers, July 1957.

[5] W. Robert Bokelman and John B. Rork. *College and University Facilities Survey, Part 1: Cost and Financing of College and University Buildings, 1951–55.* U.S. Department of Health, Education, and Welfare, Office of Education, 1959.

universities, proportionate increases in housing expenditures are unavoidable. A factor that further complicates the task of financing residential facilities is the increase in the proportion of women students in colleges and universities, since dormitories for women are more expensive to construct than those for men.

Urban universities especially are faced with the responsibility of providing additional housing for their expanding student bodies, as they increasingly attract undergraduate and graduate students from outside their immediate areas.

Additional residential facilities will be needed by junior colleges, many of which have experienced increased enrollments. In 1961 about 240 of 276 private junior colleges in the Nation provide some residential facilities for their students, as did also a few of the 391 public junior colleges.[6] States where junior colleges abound, such as California and Texas, estimate that an increasing number of their public junior colleges will need to operate student dormitories. A number of States either are planning or will soon have to plan dormitories for their public junior colleges.

One decided economic advantage of the community junior college, its proximity to the students' homes, has tended to limit the need for dormitories and other physical facilities. Whether the number of junior colleges will continue to increase as rapidly as it has been increasing since World War II is not known. However, increase in the number of these institutions will continue to receive prime consideration by States as one method of alleviating the crowded conditions in existing colleges and universities. Students who complete the training available at the community junior college will either terminate their formal education at that point or transfer to a 4-year college or university. Transfer students will then strain the instructional and residential facilities of 4-year colleges.

Although junior colleges offer some opportunity for saving in total plant investment in dormitories, a rapid rate of increase in the number of junior colleges will nonetheless require substantial additional investments in instructional and general facilities.

## REVIEW OF RELATED STUDIES

Several research studies conducted at national and State levels furnish important clues to the magnitude of the investment that must be made in the Nation's higher education facilities in the years immediately ahead.

[6] Advance data from College and University Enrollment and Facilities Survey, 1961–65. U.S. Department of Health, Education, and Welfare, Office of Education.

A study made by Long and Black [1] projects 1957–58 enrollments to 1970 and, on the basis of this projection, estimates the additional physical plant facilities that will be required to accommodate the anticipated enrollments. The estimated increases over the 3,027,029 figure for 1957–58 enrollment range from a low of 2,017,000 to a high of 2,851,000 in 1970.

In addition to estimating the needs for expansion of facilities for the period 1957–70, Long and Black consider the cost of replacement of existing substandard facilities. Using a replacement rate of 2 percent per year, they estimate replacement of facilities other than residential to cost $240 million per year, and replacement of residential facilities $80 million per year. Adding the cost of replacement between 1957 and 1970 ($4.32 billion for facilities other than residential and $1.38 billion for residential) to the cost of facilities expansion, they estimate the total amount of funds needed for physical facilities at $12.19 billion to $15.26 billion, exclusive of the cost of additional land, equipment, and campus improvement.

A study published by the Council for Financial Aid to Education in 1959 [2] surveyed the plant needs of 885 leading colleges and universities during the 1957–67 decade. The estimated cost of buildings, equipment, and improvements for the 820 institutions that responded was $6.04 billion. With this figure as a base, it is estimated that the total cost of construction, equipment, and improvements for all institutions of higher education during the 10 years would be $11.5 billion, or approximately $3,834 per student increase in enrollment, exclusive of the costs of acquisition and improvement of sites and of replacement for deteriorated buildings.

In the second of its five reports of studies [3] dealing with physical facilities of institutions of higher education, the Office of Education included a chapter on projections of buildings needed through 1970. On the basis of assumptions concerning enrollments, additional instructional and residential needs, construction costs, and rehabilitation or replacement of buildings in 1970, this report estimates that for 1956–70 the cost of new construction needed to accommodate 2,823,000 additional students by 1970 will be $12.36 billion, or over $824 million per year for the 15-year period. Of the $12.36 billion needed for new construction, it is estimated that approximately $7.06 billion will be

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[1] John D. Long and J. B. Black. *Needed Expansion of Facilities for Higher Education, 1958–1970. How Much Will It Cost?* American Council on Education, Washington, D.C., 1958. See ch. 1 of this publication for projections by Louis H. Conger.

[2] Council for Financial Aid to Education, *Nearing the Breakthrough*. New York. The Council. June 1959.

[3] Robert W. Bokelman and John B. Rork. *College and University Facilities Survey. Part 2: Planning for College and University Physical Plant Expansion, 1956–70*. U.S. Department of Health, Education, and Welfare, Office of Education. 1960.

needed for instructional, research, general, and auxiliary facilities, and $5.30 billion for residential facilities.

Another Office of Education statistical study [10] indicates that 15 percent of the college facilities first occupied between 1940 and 1957 are unsatisfactory and should be razed. This high rate of obsolescence is due largely to the acquisition by colleges of temporary buildings under the Government's surplus disposal program immediately after World War II. Make-do measures during the money shortages of the depression and the materials shortages of the war period have produced a backlog of deferred replacements that cannot be indefinitely prolonged. The same study indicates that 12 percent of the buildings occupied before 1901 and still in use in 1957 should be razed; that 17 percent of those first occupied between 1901 and 1920 should be replaced; and that 5 percent of those first occupied between 1921 and 1940 are obsolescent.

If an adequate allowance were made for the cost of keeping facilities in satisfactory condition as they depreciate from time and normal usage, as well as an adequate allowance for replacing and rehabilitating facilities then obsolete and substandard, a computation based upon probable needs during the period 1958–70 places the estimated cost of such measures at $4.8 billion, or about $400 million per year.

In this study it was assumed that colleges and universities were constructing both instructional and residential facilities to accommodate the additional students during the 1956–58 period, but that funds to care for replacement, rehabilitation, and normal depreciation would continue to be deferred and that these factors would need to be cared for during the remaining 12-year period 1958–70. Therefore, the needed construction for accommodating additional students, estimated to cost $12.36 billion, was averaged over 15 years at $824 million per year. The cost of replacement, rehabilitation, and allowance for depreciation, estimated at $4.78 billion, was averaged over 12 years at $399 million per year. For the 12 years 1958–70, the average for buildings alone was determined to be in excess of $1.22 billion annually.

The report of the American Council on Education included summary data from research studies made by 15 States.[11] Data from six States (Florida, Indiana, Louisiana, Mississippi, New Mexico, and Tennessee) that had comparable data in each of the categories were compiled to obtain an estimate of what the cost peradditional student

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[10] Louis A. D'Amico and E. Eugene Higgins. *College and University Facilities Survey. Part 3: Inventory of College and University Physical Facilities, December 31, 1957 (a Preliminary Report).* U.S. Department of Health, Education, and Welfare, Office of Education, 1959.

[11] Long and Black, op. cit.

would be to meet the needs by 1970 for residential facilities and those other than residential. For these six States it was found that per-student need in other than residential facilities would average $1,938, and that the residential facilities cost per full-time student housed would average $4,635. It was estimated that one out of every three additional students would require housing.

Although the estimates reached in the studies mentioned naturally differ, they constitute conclusive evidence that the per-student investment in additional facilities required between now and 1970 is great indeed.

## BASIC ASSUMPTIONS OF THIS REPORT

To determine the cost of needed facilities for any target date in the future is a complex problem in statistical forecasting. Continued use of substandard and obsolete buildings has frequently delayed the construction of new buildings. A further complication is the fact that we must project into the indefinite future a rational balance among the types of facilities to be provided: classrooms and laboratories, residence halls, administrative office space, auditoriums, libraries, gymnasiums, hospitals, student unions, and other auxiliary facilities. The proportions in which investment must be divided among these, as well as the total amount required, are dependent upon a wide variety of factors.

Data are reliably established on two important factors to be considered in estimating future building requirements: the college-age population and the condition of buildings now in use. The trend in the proportion of college-age population actually going to college, though it cannot be forecast with certainty, is reasonably well established. Other factors in making cost estimates of physical facilities, such as space per student and cost per construction unit, can be established from data available on State, regional, or national levels. It is difficult, however, to assess to what extent better utilization of existing campuses will affect the total estimated cost, or the proportion of the college population of the future that will have to be housed. In projecting facilities costs these and many other factors can be used only through arbitrary assumptions based on the record of the past and on one's best judgment as to the future.

The following assumptions have been made in projecting to 1975 the total cost of necessary expansion and improvement of the facilities of the Nation's institutions of higher education.

***Basic assumptions pertinent to all three enrollment projections:***

1. **That on January 1, 1961, the gross area of instructional buildings was 408.3 million square feet, and the gross area of residential buildings was 229.9 million square feet.**

2. That because of obsolescence and substandard conditions, 12.3 percent of the instructional buildings—50.2 million square feet—and 10.5 percent of residential buildings—24.1 million square feet—need to be replaced.

3. That, in addition to the obsolete and substandard buildings mentioned above, 9.8 percent of instructional and related buildings (408,275,680 × 0.098) and 9.1 percent of residential buildings (220,925,000 × 0.091) are presently in rundown condition and functionally obsolete. These need to be returned to satisfactory condition as soon as possible. The number of additional square feet required for instructional and related buildings will amount to 40,011,017; for residential, 20,023,175.

4. That each additional full-time student will require an average of 160 square feet of space for instructional and related purposes. (This figure is based on 125 square feet per student as developed by the Office of Education's *College and University Facilities Survey, Part 2*,[23] and adjusted to apply to full-time students only.)

5. That any present excess capacity in residential facilities in some colleges and universities throughout the country is more than balanced by the serious overcrowding in many others—an inference based on data from page 4 of the *College and University Facilities Survey, Part 2*.

6. That institutions will continue to provide housing for one-third of the full-time students. This fraction was derived by analysis and extrapolation of residential-enrollment data also in part 2, page 4, of the *College and University Facilities Survey*.

7. That 90 percent of the full-time students will be single.

8. That 10 percent of the additional students furnished institution-owned housing will be married.

9. That each additional single student housed in institution-owned dormitories will require 287 gross square feet of space; each student family, 572 gross square feet.

10. That construction costs of buildings will increase at the rate of 1.8 percent per year. Thus a building costing an average of $20 per square foot in 1960 will cost $21.86 by 1965, $23.90 by 1970, and $26.14 by 1975.

11. That other capital costs, including costs of land, equipment and furniture, and campus improvements, will amount to 50 percent of building construction costs.

12. That the cost per square foot for replacement of obsolescent and substandard buildings, instructional and residential, will rise at the same rate as that of constructing a new facility.

13. That the cost of returning buildings to satisfactory condition will average 50 percent of the construction cost of new buildings.

14. That identifiable needs for specialized research—related facilities in medicine, dentistry, agriculture, engineering, and other professional fields over and above the growth assumed for increased enrollments—will require capital outlays in excess of $4.5 billion.

15. That obsolete and substandard instructional and residential buildings, as well as facilities presently in rundown condition and functionally obsolete, will be remodeled, modernized, or replaced by 1970.

[23] Bokelman *and* Rork, op. cit., p. 23.

16. That in addition to the obsolete, substandard, rundown, and functionally obsolete space expected to be remodeled, modernized, or replaced by 1970, 1 percent of the space in use between 1961 and 1970 will require modernization or rehabilitation each year and the rate will increase to 2 percent each year, beginning in 1971.

***Assumptions pertinent to enrollment projection I (trend projection):*** [18]

1. That total *fall* enrollment will increase from 3,610,000 in 1960 to 5,257,000 in 1965, to 7,007,000 in 1970, and to 8,677,000 in 1975.
2. That during this 15-year period, the proportion of *full-time* enrollment will decrease from an average of 65 percent of total fall enrollment in 1960 to 60 percent in 1975.
3. That total *full-time* enrollment will increase from 2,347,000 in 1960 to 3,389,000 in 1965, to 4,354,000 in 1970, and to 5,138,000 in 1975. Compared with 1960 this represents a *full-time* enrollment increase of 1,042,000 by 1965, 2,007,000 by 1970, and 2,791,000 by 1975.

***Assumptions pertinent to enrollment projection II (father's attainment projection):***

1. That total *fall* enrollment will increase from 3,610,000 in 1960 to 4,697,000 in 1965, to 6,001,000 in 1970, and to 7,140,000 in 1975.
2. That during this 15-year period, total *full-time* enrollment will vary from 62 to 67 percent of total *fall* enrollment.
3. That total *full-time* enrollment will increase from 2,347,000 in 1960 to 3,091,000 in 1965, to 3,843,000 in 1970, and to 4,395,000 in 1975. Compared with 1960, this represents a *full-time* enrollment *increase* of 744,000 by 1965, 1,496,000 by 1970, and 2,012,000 by 1975.

***Assumptions pertinent to enrollment projection III (constant-rate projection):***

1. That total *fall* enrollment will increase from 3,610,000 in 1960 to 4,367,000 in 1965, to 5,241,000 in 1970, and to 5,982,000 in 1975.
2. That during this 15-year period, total *full-time* enrollment will average from 65 to 68 percent of total fall enrollment.
3. That total full-time enrollment will increase from 2,347,000 in 1960 to 2,937,000 in 1965, to 3,522,000 in 1970, and to 3,966,000 in 1975. Compared with 1960, this represents a *full-time* enrollment *increase* of 590,000 by 1965, 1,175,000 by 1970, 1,619,000 by 1975.

*Factors that may alter the projections.*—Many unmeasurable influences may turn out to have a marked effect upon the projections resulting from the assumptions stated. Some of these are as follows:

1. Factors that may reduce needs for facilities:

   More effective space utilization, through changes in scheduling patterns, summer use, and weekend use.

   Development of more economical building materials.

   Development of more economical construction techniques.

   Advances in building design.

   Interinstitutional sharing of facilities.

   Increased use of new instructional media such as television and of new instructional methods.

[18] Projected fall and full-time enrollment data from Louis H. Conger, ch. 1 of this publication.

2. Factors that may increase needs and costs of facilities:

Inflation, as reflected in increased costs.

Additional functions assumed by institutions of higher education, such as adult education.

Emergence of new areas of study and research.

Accommodation of increased numbers of foreign students.

In considering the possible effects of any of the foregoing innovations in reducing the need for facilities, account must be taken of the delays in communication, the lag in adopting new approaches that is inevitably associated with human limitations, and the length of time responsible officials will need to give careful consideration to questions of change. They cannot, without abdicating their responsibilities, substitute entirely the experience of others for their own in matters of capital outlay. Therefore, most of the factors that now appear as rays of hope on the horizon are likely to become influential only in the later stages of the projections. Factors that may increase facility needs are likewise intangible and can be applied only to the longer range projection. Accordingly, projections have been made for 5-year intervals—1961–65, 1966–70, and 1971–75.

Based on the assumptions previously stated, table 7 indicates that approximately $23 billion to $33 billion, varying according to the enrollment attained, will need to be expended for higher education physical facilities from 1961 to 1975.

TABLE 7.—Projections of costs of needed facilities, cumulative according to 1961–75 enrollment projections

[In millions]

| Year | Projection I | Projection II | Projection III |
|---|---|---|---|
| 1961 | $2,213 | $1,671 | $1,610 |
| 1962 | 4,474 | 3,681 | 2,966 |
| 1963 | 6,768 | 5,426 | 4,662 |
| 1964 | 9,112 | 7,242 | 6,079 |
| 1965 | 11,244 | 8,999 | 7,910 |
| 1966 | 13,556 | 11,096 | 9,809 |
| 1967 | 16,106 | 12,771 | 11,185 |
| 1968 | 18,155 | 14,904 | 12,820 |
| 1969 | 20,771 | 16,566 | 14,563 |
| 1970 | 22,870 | 18,759 | 16,263 |
| 1971 | 25,247 | 20,095 | 17,705 |
| 1972 | 27,032 | 21,426 | 19,194 |
| 1973 | 29,542 | 23,368 | 20,170 |
| 1974 | 31,306 | 24,675 | 21,701 |
| 1975 | 33,319 | 26,613 | 23,202 |

The additional amount needed during any one 5-year interval may be expected to vary from a low of approximately $7 million for enrollment projection III in the 1971–75 period to almost $12 million for enrollment projection I in the 1966–70 period. For the entire 15 years the average of the amounts needed annually is $1.5 million for

projection III, $1.8 million for projection II, and $2.2 million for projection I. The 5-year figures and annual averages are given in table 8.

TABLE 8.—Projections of costs of needed physical facilities by 5-year intervals, 1961–75, according to enrollment projections

[In millions]

| Years | Projection I | Projection II | Projection III |
|---|---|---|---|
| 1961–65 | $11,244 | $8,999 | $7,910 |
| 1966–70 | 11,626 | 9,760 | 8,343 |
| 1971–75 | 10,449 | 7,853 | 6,949 |
| Total 1961–75 | 33,319 | 26,613 | 23,202 |
| Annual average | 2,221 | 1,774 | 1,547 |

# CHAPTER 12

# Who Should Pay for American Higher Education?

*Marion B. Folsom**

THE FINANCIAL SUPPORT of higher education *is a patchwork quilt.* This support is drawn from virtually every known source of educational assistance—individual gifts and foundation grants, tuition and other payments from students, Federal land-grant moneys, and State tax funds. In addition, many institutions receive funds from private business and industry and a growing amount of income from Federal agencies for research services rendered.

This patchwork quilt of financial support is *no jumble of confusion.* Instead, it is a significantly complete list of the groups that form the broad base of support for higher education in our society. Students, individual alumni, philanthropic foundations, private business and industry, and State and Federal Governments all share the responsibility of supporting our colleges and universities, and this is as it should be.

## BROAD SUPPORT ASSURES FREEDOM

If it is true that "*he who pays the piper calls the tune*," the integrity of higher learning is ensured by the fact that no one group is really paying the piper and thus no one group can "call the tune." This broad base of support ensures that our system will remain free of a single, limiting educational creed. And this, in a sense, is the *genius* of American education—that there is no single interest, no one creed or dogma, that might stifle the freedom and independence we as a people cherish.

Another reason why each of these groups should help support higher learning is that this is the only practical and equitable way. The support of each group is vital if we as a Nation are to meet the educational challenge in the years ahead. Just think of the immense job that must be done! Enrollments in institutions of higher education are expected by 1970 to be nearly 2½ times the enrollments of 1957–58, by 1975 to be about three times as large. Costs will rise even more. Even as we prepare to provide facilities and teaching

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staffs to meet the rise in enrollments, we must take action to enhance the quality of our national performance in higher education and to correct the relatively low salaries of college and university faculties and other teaching staffs.

In 1957–58, some $2.4 billion was spent throughout the Nation for teaching students in public and private institutions of higher education (including administrative and operating expenses allocable to teaching functions, but excluding research, nonteaching activities, and living accommodations). Of this total, $1.8 billion was paid for professional staffing, apart from research staffing and for other personnel costs.

Higher education teaching costs (as defined above) of $7–$9 billion are likely for 1970; by 1975 these costs may reach $8.5–$12.5 billion, if we consider only the increase in enrollment and in costs per student necessary to gain and retain a more competitive salary level for those on faculty and other instructional staffs of colleges and universities. However, marked changes are taking place in the responsibilities of the colleges and universities, and the quality of these institutions will have to be raised commensurately.

Ten and fifteen years from now the people of this Nation will have a greatly increased income out of which to pay for higher education. If a high level of employment is achieved, the gross national product of this Nation can be expected to be about double the 1957 level by 1970 and exceed $1 trillion by 1975. However, expenditures for teaching will grow much faster and require an increasing share of our national output. Even if average tuition payments rise proportionally to the increase in family income, and if all other sources of support are enlarged in amounts consistent with the growth in national output, additional funds of over $2 billion in 1970 and $3 billion in 1975 will have to be raised to finance current expenditure for teaching in these years.

With this kind of financing to be done, it would be entirely unrealistic to rely upon any limited base of support. No one group can begin to shoulder the entire load.

It has been proposed that students should pay the full cost of their college education. This is a dangerously beguiling idea, and the annual report of virtually every eastern university president played upon this theme last year. There have been countless techniques proposed to make this idea palatable—including some that come close to indenturing the student for life.

## TUITION CAN'T COVER FULL COST

The idea is not a new one. President Francis Wayland of Brown University, over a century ago, tried an experiment to see if education

could, as he put it, "be disposed of at cost." For what it may be worth—Wayland's conclusion was definitely in the negative—college education could *not* be disposed of at cost, even though he tried altering the product to give it greater sales appeal. He suggested that students pay by the lecture, and that professors live off the admissions they were able to attract.

This may seem a ludicrous illustration, but it drives home this point: that if education is dispensed as a commodity, all the laws of the market must apply, and we shall wind up offering, not the kind of education we believe to be valid, but the kind that will sell.

At the root of the student-pay-all proposal is the notion that the student benefits financially from his education—which is undoubtedly true. The variety of tuition rates for different schools within a university structure are not always attributable to differences in costs of instruction.

What is the real reason for relatively low tuition rates in seminaries preparing students to be clergymen, for example? Certainly we don't expect all clergymen to wind up penniless in small parishes. Rather we subsidize their education so that more young people can afford seminary tuition. Thus, we encourage young people to enter the clergy because *we benefit from having clergymen in our midst.* But it is important to realize that we as a Nation benefit from the existence of *all* groups of college graduates.

As an obvious example, we benefit from the work of physicians and are in great need of them. Yet the number of physicians has scarcely kept pace with our population, and it appears that there will have to be a step-up in the number of physicians trained each year if the number of physicians per 100,000 population is not to decline in the future. Thus the Nation will need from 15 to 20 more (*new*) medical schools in the next decade to produce needed medical personnel. Shall we say that the students will pay the increased cost of creating 20 full-scale medical schools? If we do, we shall long be wanting for doctors.

Or take the case of teachers. Is it only the young men and women who study to be teachers who benefit from that study? Or does society have an interest in *inducing* more young people to become teachers?

It seems to me obvious that all of society benefits from having young people "get educated," regardless of profession. A sample argument is this: In 19 cities where half the population had finished 11 to 12 years of school, per capita retail sales averaged $1,100; in 11 other cities where the median was only 8 to 9 years, average retail sales per year were only $917. That argument should impress at least the business community.

But a better argument, and one that should impress us all, is Thomas Jefferson's statement that "If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be."

## ALL BENEFIT—ALL SHOULD CONTRIBUTE

We as a Nation have far too much at stake to take the sanguine view that we shall have only as much education as our young people are willing to pay for. *Through reasonable tuition rates we must induce young people to get an education, because their education will be of benefit—directly or indirectly—to those who paid the difference between that tuition and the real cost of education.*

Now, if we are agreed that "society" must pay this difference, to what source in society should we turn? Well, as a starting point, how about individual alumni and friends? Certainly it is only right that we look to them for widespread support. But in spite of such generous support as the Mellons' $15 million gift to Yale University, no one seriously believes such gifts can meet more than a small fraction of the total costs of education.

As for foundations, even the massive benefaction of the Ford Foundation—undoubtedly the boldest stroke in the history of philanthropy—barely made a dent on faculty salaries, however great its symbolic value.

And business and industrial corporations? They can and should do much more than they are now doing. But even if we appraise this new source optimistically, business and industry can never provide a major degree of support.

All of these sources of support can, together, pay a significant portion of the cost of education, but they cannot provide the entire answer on a nationwide basis. We must look to a further, and potentially the most extensive, source—namely, the public.

Now I would remind you of a fact that is often overlooked—that the public has indirectly supported higher education in a very substantial way throughout its history by excusing higher education institutions from virtually all tax responsibilities. If property taxes were applied to the real estate of American colleges and universities, the cost would be immense. The privilege of tax exemption, then, is a principal form of support for higher education, and we should not overlook it.

## GOVERNMENT SUPPORT NEEDED

The Government has traditionally given direct support to higher education through many programs. And I believe that the Government *should* support higher education—to an even greater degree than it does now. As I pointed out before, the Nation as a whole benefits from an educated population and therefore should help encourage and

pay for this education. Also, from a practical point of view, I don't see how we can pay for the higher education that we *as a Nation* need, without digging into our collective tax pocket.

I say this, fully aware of the potential dangers of Federal aid. Yet I refuse to concede that Federal aid means Federal control, and there is ample evidence that this is a greatly exaggerated danger.

We must follow the thinking of the wise investor, who does not believe that his blue-chip common stock will fail him but who nonetheless hedges his investment—diversifies his portfolio—*just in case*. As a sensible people, we do not want to "put all our eggs into one basket." And I think it would be plainly unwise for American higher education to look to the Federal Government for more than a modest fraction of its support. Massive doses of Federal medicine could damage a basically healthy system of higher education.

I tried, therefore, during my term in Washington to analyze carefully only the real ills of our system and then prescribe only those steps that would stimulate normal and healthy recovery. We had the advantage of the recommendations made by the 1955 White House Conference on Education. We also had the recommendations of the very able committee appointed by the President to study education beyond the high school. We conferred with over a hundred educators from all phases of our educational system. The President presented to Congress proposals which resulted from these various deliberations. Congressional committees held lengthy hearings, with many educators and others testifying. The result was the National Defense Education Act, passed during the closing days of Congress in 1958.

## APPROPRIATE FEDERAL AID

The defense education program is the first real program of general Federal aid to education, and I think it is a good example of the appropriate role of the Federal Government. It provides leadership and encouragement without creating dependency upon the Federal Government as a source of financial support.

The Act states: "The security of the Nation requires the fullest development of the mental resources and technical skills of its young men and women." The programs established under the act have been designed to identify and educate more of the talented young people and to improve the means of teaching.

It has three major objectives: first, to reduce the current loss of able manpower from our schools and colleges; secondly, to give increased emphasis to the basic studies of mathematics, science, and modern foreign languages; and, thirdly, to help increase the supply of college teachers.

In regard to the first, it is estimated that of the upper 30 percent in high-school graduating classes, only half of the boys and one-third of

the girls become college graduates. This loss may be partly remedied by early testing of aptitude and by improved guidance for promising students to see that they make the most of their high-school education. Funds for this program provided on a matching basis by the State and Federal Governments should be authorized and the program extended to include elementary schools and 2- and 4-year college institutions.

As provided by the act, long-term student loans administered by the institutions, with 90 percent of the funds being advanced by the Federal Government, permit needy students to stay in college once they get there. The student loan program should be continued and put on a revolving basis, and the present ceiling on Federal contributions should be raised. The present feature which forgives indebtedness up to 50 percent of the loans to those who become public school teachers should be extended to include all school and college teachers.

When the National Defense Education Act was originally being discussed in Congress, it was proposed that the act provide for a limited program of Federal scholarships for able high-school graduates, the number to be allocated to the States on the basis of number of graduates. Under the proposal, the scholarships would be awarded to individuals by the States on the basis of merit and need, the amounts ranging from $100 to $1,000. This provision was stricken from the House bill on the ground that the loan provisions would make a scholarship program unnecessary. I still feel that there would be distinct merit in such a scholarship program, not only to assist able and needy youth to continue their education beyond high school, but to serve as an incentive for higher academic achievement throughout the entire high-school population.

In addition to providing student loans, the act bolsters instruction in mathematics, science, and languages in several ways. It encourages better State leadership by helping to establish State supervisors in science. These State supervisors have helped schools to pep up their science programs. As a result of the enactment of the Vocational Education Act of 1918, virtually every State in the Nation today has supervisors of home economics, agriculture, mechanical trades, and retailing. But at the time the National Defense Education Act was enacted, only eight States had supervisors in science. Obviously some encouragement was needed. The act also provides for more complete laboratory equipment through matching State and Federal funds for that purpose. It has served to enlarge programs for upgrading teachers of mathematics, science, and languages, and to encourage research into more effective methods of teaching these subjects.

The third major objective of the act is designed to increase our supply of critically needed college teachers by providing fellowship grants to graduate students and grants to the graduate schools. The act provides that these fellowships should be given only to institutions

which are expanding their present program or inaugurating new programs. Additional fellowships should be authorized for institutions that can use them within the existing capacity of established departments. There are now many vacancies in these graduate departments. With the great need for more young people to obtain graduate degrees, these fellowship grants would be extremely helpful. The program should be broadened to include students who plan to teach in public elementary and secondary schools as well as in higher education.

## NEW ACT PROVIDES LEADERSHIP

The National Defense Education Act is injecting a stimulus of about a billion dollars into our schools and colleges over a 4-year period—a healthy shot in the arm, to be sure. Congress in 1961 extended the act for 2 years beyond June 30, 1962. Yet it will increase the amount we currently spend on education by less than 2 percent. It is not going to kill local responsibility or support for our schools—far from it. Its matching provisions and other built-in stimuli are certain to result in increased local and State support for education. This is what one can truly call constructive Federal leadership—leadership without domination—stimulation but not suffocation. Educators have generally agreed that the results of the program have been satisfactory. Some recommend that the program be expanded to include assistance in the teaching of English as well as mathematics, science, and foreign languages, and also that the fellowship program for graduate studies be expanded.

The Government has an important responsibility to join private sources in support of higher education. The patchwork quilt of support is one of the fundamental strengths of our educational system. Major private sources of support serve as an anchor to windward against any drift toward Government control, and Government support will prevent education from becoming the privilege of the well-to-do. It is almost literally true that a young person of ability in the United States has spread before him every conceivable avenue of educational opportunity—the richest intellectual fare available in the history of mankind.

As in the past, the vitality of American higher education in the future will depend upon an ever-broadening base of support. That students, alumni, philanthropic groups, business, and industry must maintain and enlarge support through traditional avenues is self-evident. But higher education also must be supported in part by the American people, acting through their system of representative government. This should not be viewed with alarm, but as evidence of still broader strength for American higher education.

# CHAPTER 13

# The Federal Government Role in Higher Education

*Roy E. Moor**

THIS paper examines the part which the Federal Government may play in the story of higher education in the United States during the next decade. Basically, two questions are asked in the following pages: (1) On economic grounds, should the Federal Government assist higher education more fully? (2) If more assistance is given, what types of economic decisions will be necessary about the form of aid?

The attempt to answer these questions in an analytical manner represents an interesting—and constructive—intellectual exercise. It seems desirable for any society to examine the basic economic interrelationships between its government and its educational organizations.

However, no study can be made of higher education in the United States in the 1960's without recognizing one fact: this Nation is in a struggle for survival, and education is a principal source of strength for that struggle. Mobilization of intellectual resources in this decade can be more crucial to the Nation's future than was mobilization of physical resources in World War II. Without the mobilization of intellectual resources, President Kennedy has stated, ". . . the Federal Government will not be carrying out its responsibilities for expanding the base of our . . . military strength."[1] Under present conditions, these military circumstances seem almost infinitely more significant than any other considerations. However, the purpose of this chapter is to examine the economics of higher education. Let us turn, therefore, to the more strictly economic aspects of the Federal Government's role in higher education.

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[1] U.S., Message from the President of the United States relative to American education, 87th Cong., 1st sess., Doc. No. 92, Feb. 20, 1961. p. 1.

## I. Economic Aspects

It is useful, initially, to recognize the extent to which the Federal Government has already participated in the provision of higher education. Contrary to popular belief, the Federal Government has traditionally supported higher education to some degree in the United States and has done so increasingly in recent years as financial requirements have increased. No attempt will be made here to describe all the various Federal programs,[8] but it is important to note their scope. Federal aid to higher education dates back at least as far as 1787, when Congress granted lands for educational purposes in Ohio. This policy continued with almost every new State that joined the Union. The first and second Morrill Acts in 1862 and 1890 expanded the policy of financial assistance for land-grant colleges, and this assistance continues today. During the 1930's many of the present buildings on campuses of State universities and land-grant colleges were constructed with substantial assistance from the Works Projects Administration and other Federal recovery agencies. The Housing Act of 1950 authorized long-term loans at relatively low interest rates for construction of faculty and student housing, and a substantial number of colleges have taken advantage of these loans.

Federal aid to education has included not only assistance to States and institutions but also subsidies to students. Student grants were initiated in 1933 by the Federal Emergency Relief Administration and were continued under the National Youth Administration until 1943. After World War II the well-known GI bill of rights—the Servicemen's Readjustment Act of 1944—was enacted, and subsequent legislation extended similar aid to veterans of the Korean war. Some former servicemen are still eligible for these benefits, and many war orphans now reaching college age will also be helped.

### EXTENT OF PRESENT FEDERAL SUPPORT

At the present time the Federal Government carries on at least four categories of programs in the field of higher education.

The major category in terms of dollar amounts is, of course, research. In addition to the well-known research outlays of such agencies as the Departments of Defense, of Agriculture, and of Health,

[8] One volume on Federal Government programs for the support of higher education, Alice M. Rivlin, *The Role of the Federal Government in Financing Higher Education*, was published in 1961 by the Brookings Institution; another, by Homer D. Babbidge, Jr., and Robert Rosenzweig, entitled *The Federal Interest in Higher Education*, will be published in 1962 by McGraw-Hill Book Co., Inc. For a brief résumé of the entire history, see *Federal Aid for Education*, by Helen A. Miller, prepared for the Committee on Education and Labor, House of Representatives, 87th Cong., 1st sess., committee print, May 1961.

Education, and Welfare, the Atomic Energy Commission, the National Aeronautics and Space Administration, and the National Science Foundation, research funds are also granted by such agencies as the Departments of the Interior, of Justice, and of the Treasury, and by the U.S. Information Agency. In 1957–58 institutions of higher education in at least 31 States received more than $1 million from the Federal Government for research. In a number of instances the Government actually owns research facilities and arranges with universities to operate them. Grants may be made either to the institutions or to faculty, and the funds directly or indirectly affect many aspects of teaching; for example, research projects of graduate students.

Another category of Federal financial influence is in the general area of education and training programs. For example, the National Science Foundation conducts scientific educational institutes, which are designed to improve and update teaching, including college teaching. The National Defense Education Act provides for instruction in modern foreign languages. The International Cooperation Administration carries on educational programs in foreign countries, which are arranged through contracts with universities. The ICA also conducts educational missions and some engineering work through the medium of colleges. Other programs in this general area are carried on by the Reserve Officers' Training Corps; the Federal Extension Service, Department of Agriculture; and the Public Health Service, Department of Health, Education, and Welfare.

A third category of Federal participation in higher education is aid to students. The best example of this is the National Defense Education Act program of making loans to students. A number of fellowships are given by the Atomic Energy Commission, the Public Health Service, and the National Science Foundation. Some traineeships and professorial training programs exist, for example, those conducted by the National Institutes of Health; and some direct stipends are given for advanced ROTC training. Educational benefits also are granted under the Veterans' Administration program. In general, there are very few scholarships as such under Federal auspices at present.

In the fourth category—grants and loans for construction of facilities and research-related equipment; the Housing and Home Finance Administration grants funds for dormitories; the Atomic Energy Commission and the National Science Foundation grant materials and equipment; and funds for construction of research facilities are provided by the National Institutes of Health, Department of Health, Education, and Welfare.

Another category, which has seldom been examined in detail, includes the programs carried on under the Government Employees Training Act and related programs, through which various Government agencies give working experience to students during their college years. The Department of Defense also operates overseas military training programs and encourages a substantial amount of college work through correspondence.

Few of these programs are conceived as general assistance to higher education. Rather, they are programs designed to accomplish specific national purposes. Results of research, consulting advice, specialized training, and use of equipment and facilities are all marketable products that are purchased because they yield direct benefits to the Government. The educational institution is in the same position as any other commercial supplier and the price for the service can be determined by market factors.

Institutions of higher learning are engaged in the production and distribution of education to individual students, and the participation of the Federal Government in this relationship between colleges and their students is the subject of primary interest in this chapter. Ideally all Federal financial transactions with colleges should be divided into two classes: those involving a marketable quid pro quo and those that are planned to aid in supporting higher education. However, it is virtually impossible to make this division statistically (as many school administrators have discovered in their relations with the Government, their overseers, and their faculty). The reason is obvious: joint products and joint costs are involved, and any disentanglement must be largely arbitrary.

The Office of Education has recently attempted to list the types of Government programs that are most directly related to higher education, excluding those which are primarily research. This list is shown in table 1, along with the expenditures for each of the programs in the fiscal years 1959 and 1960. Table 2 shows, for the same 2 years, the amount of direct aid to students in fellowship and traineeship programs, the amount paid to institutions of higher education in the form of training grants, and the number of recipients reported. The definitional problems in any such statistical tables are obvious, but these compilations may suggest the order of magnitude of Federal aid for direct higher education. The tables, incidentally, include both undergraduate and graduate student aid. Substantial portions of the totals are for assistance to graduate students.

**TABLE 1.—Federal expenditures for higher education, excluding research, fiscal years 1959 and 1960 [1]**

[In thousands]

| Agency and program [2] | Amount, by year | |
|---|---|---|
| | 1959 | 1960 |
| TOTAL | $616,454 | $554,273 |
| DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | 122,246 | 166,352 |
| Gallaudet College | 834 | 1,090 |
| Howard University: | | |
| Construction | 286 | 881 |
| Operation | 1,475 | 1,476 |
| Staff Expenses | 209 | 209 |
| Curriculum | 2,667 | 2,874 |
| Training grants and fellowships, Institute of Mental Health | 19,892 | 22,640 |
| Traineeships for Public Health personnel and nurses | 8,496 | 8,807 |
| Rehabilitation training grants, OVR | 4,757 | 6,097 |
| Instruction in land-grant colleges and universities | 5,052 | 5,052 |
| Vocational education | 1,570 | 1,665 |
| Education in Public Health Service hospitals | 211 | 248 |
| Training grants and traineeships, Cancer Institute | 5,910 | 6,601 |
| Student loan fund, NDEA | 30,473 | 40,945 |
| Research training grants, NIH | 5,705 | 11,351 |
| Training grants, Heart Institute | 7,232 | 7,790 |
| Training grants, Institute of Allergy and Infectious Diseases | 1,758 | 3,535 |
| Training grants and traineeships, Institute of Arthritis and Metabolic Diseases | 2,256 | 4,385 |
| Training grants, Institute of Dental Research | 650 | 1,073 |
| Training grants and traineeships, Institute of Neurological Diseases and Blindness | 5,638 | 7,284 |
| Research fellowships, NIH | 10,003 | 14,384 |
| Resident and intern training in the clinical sciences at St. Elizabeths Hospital | 121 | 181 |
| Fellowships in programs for the education of the mentally retarded | | 985 |
| Rehabilitation research fellowships, OVR | 42 | 103 |
| Training at the Robert A. Taft Sanitiary Engineering Center | 318 | 476 |
| Experimental training grants to medical schools, NIH | 500 | 500 |
| Chaplain training at St. Elizabeths Hospital | 3 | 6 |
| Training State personnel in maternal and child health programs | 1,532 | 1,586 |
| Training State personnel in child welfare agencies | 1,133 | 1,142 |
| Training State personnel in public assistance agencies | 669 | 860 |
| NDEA fellowships: Institutional grants | | 2,350 |
| NDEA fellowships | | 2,320 |
| Counseling and guidance institutes, NDEA | 1,754 | 3,976 |
| Research and studies in language development, NDEA | 143 | 990 |
| Language development institutes, NDEA | 957 | 2,520 |
| DEPARTMENT OF COMMERCE | 3,493 | 4,384 |
| Training foreign meteorologists | 41 | 72 |
| Research and training in the National Bureau of Standards | 104 | 207 |
| Training foreign census technicians | 82 | 89 |
| Merchant marine schools | 3,266 | 4,016 |
| DEPARTMENT OF DEFENSE | 48,231 | 50,040 |
| Professional training for Army Medical Service officers | 168 | 208 |
| Federal Council on Medical Education for National Defense program | 405 | 473 |
| U.S. Air Force Institute of Technology—Nonresident training | 3,504 | 4,776 |
| Medical training for Navy personnel in civilian medical schools | 233 | 237 |
| Education at civilian institutions for Army personnel | 710 | 867 |
| Education at civilian institutions for Navy personnel | 4,636 | 5,008 |
| Professional training for Air Force medical officers | 72 | 85 |
| U.S. Air Force Academy | 15,770 | 15,882 |
| U.S. Military Academy | 12,401 | 12,112 |
| U.S. Naval Academy | 10,332 | 10,392 |
| DEPARTMENT OF STATE | 18,720 | 20,661 |
| Teaching and teacher training grants, Educational Exchange Program | 4,152 | 4,582 |
| University teaching grants, Educational Exchange Program | 2,017 | 2,227 |
| Study grants, Educational Exchange Program | 12,551 | 13,852 |
| DEPARTMENT OF THE TREASURY | 4,124 | 4,245 |
| U.S. Coast Guard Academy | 4,068 | 4,150 |
| U.S. Coast Guard officer specialized training | 56 | 95 |

See footnotes at end of table.

## TABLE 1.—Federal expenditures for higher education, excluding research, fiscal years 1959 and 1960 [1]—Continued

[In thousands]

| Agency and program [2] | Amount, by year | |
|---|---|---|
| | 1959 | 1960 |
| ATOMIC ENERGY COMMISSION | $6,425 | $7,829 |
| Fellowships in biology and medicine | 499 | 630 |
| School equipment and teacher training | 1,367 | 1,919 |
| Special schools and courses | 3,728 | 3,630 |
| Assistance to schools in reactor technology | 485 | 1,100 |
| Fellowships in nuclear science and engineering | 426 | 550 |
| FEDERAL DEPOSIT INSURANCE CORPORATION | 14 | 16 |
| Employee training in bank examining and auditing | 14 | 16 |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | 46 | 122 |
| Flight Research Center training program | 1 | 2 |
| Lewis Research Center training program | 18 | 44 |
| Space Flight Center training program | 0 | 10 |
| Ames Research Center training program | 13 | 33 |
| Langley Research Center training program | 14 | 33 |
| NATIONAL SCIENCE FOUNDATION | 49,887 | 52,132 |
| Science faculty fellowships | 2,327 | 2,261 |
| Special field institutes grants | 233 | 223 |
| Postdoctoral fellowships | 1,884 | 1,785 |
| Research participation grants | 2,472 | 4,134 |
| Special projects in science education | 301 | 311 |
| Academic year institutes for teachers | 8,787 | 9,211 |
| Graduate fellowships | 7,385 | 8,086 |
| Inservice institutes for teachers | 1,942 | 2,248 |
| Secondary school teacher fellowships | 1,475 | 1,300 |
| Summer conferences for teachers | 260 | 276 |
| Summer institutes for teachers | 22,348 | 21,759 |
| Supplementary training for science teachers | 473 | 538 |
| VETERANS' ADMINISTRATION | 363,268 | 248,492 |
| Readjustment training program | 347,427 | 232,598 |
| Vocational rehabilitation program | 8,875 | 6,389 |
| War orphans educational assistance | 6,966 | 9,505 |

[1] Compiled by Penrose B. Jackson, Federal Education Programs Branch, Office of Education, U.S. Department of Health, Education, and Welfare. Based on reports of Federal agencies to the U.S. Office of Education in its annual survey of Federal activities related to education and other sources. 1959 figures are actual expenditures; 1960 figures are estimated expenditures.

[2] Excludes research grants and contracts and value of surplus property transferred to educational institutions; includes payments to State and local governments, individuals, and to public and private institutions of higher education.

## TABLE 2.—Federal fellowship, traineeship, and training grant programs: amount of grants and number of individual recipients, fiscal years 1959 and 1960 [1]

| Type of program | Amount (thousands) | | Number of recipients | |
|---|---|---|---|---|
| | 1959 | 1960 | 1959 | 1960 |
| Fellowships | 36,901 | 47,070 | 12,567 | 14,735 |
| Traineeships | 12,752 | 18,321 | 5,147 | 10,787 |
| Training grants [2] | 93,885 | 118,028 | 66,391 | 71,128 |

[1] Compiled by Penrose Jackson, Federal Education Programs Branch, Office of Education, U.S. Department of Health, Education, and Welfare, based on reports of Federal agencies to the U.S. Office of Education in its annual survey of Federal activities related to education. 1959 figures are actual expenditures; 1960 figures are estimated.

[2] Number of recipients includes only those identified as individual trainees under training grants and contracts. Most agencies did not report number of individuals supported under such grants and contracts.

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One other statistical point should also be mentioned. The assumption is generally made that any additional Federal contributions to higher education should only consist of the necessary residual amounts after State and private sources of funds have been tapped to the fullest feasible extent. It is, of course, difficult to measure—or even to define—the amounts that should come from State and private sources, and it is equally difficult to judge how much should be added by the Federal Government. However, reasonable assumptions about these quantities, such as those found elsewhere in this publication,[3] suggest that the additional Federal contributions might amount to $2.0 billion by 1970 and $3.0 billion by 1975. The important point to note is that such amounts—while highly significant to higher education—would not bulk large in the total Federal budget. For example, the Bureau of the Budget recently made a series of forecasts of anticipated Government expenditure levels for the next decade.[4] It estimated that expenditures in 1970 would total between $84 billion and $123 billion. Current budget data suggest that the 1970 figures may be closer to the larger estimate. Eckstein has made estimates that are within the same range.[5] Even with the lowest estimated budget totals, an educational expenditure of $2.0 billion in 1970 would be only 2.4 percent of the total. With the higher estimated budget level, the educational outlay would be 1.6 percent of the total. The relative smallness of the potential educational expenditures obviously does not in itself represent a justification for these expenditures. However, a comparison with the estimated budget totals does place the educational expenditures in their context and lends perspective to the following discussion.

## JUSTIFICATION FOR FEDERAL SUPPORT

Two general types of justifications for Federal support of higher education will be indicated here: those based on economic factors and those involving equity considerations. The most fundamental economic argument is simply that the intellect of the young is an essential natural resource that must be developed and used to the fullest if the Nation is to maximize satisfactions for the citizenry. In this economic sense higher education becomes a process that produces capital in the form of improved intellectual equipment for future service in the society.

If reliance were placed solely on the free market economy to determine the inputs into this capital process, hindrances could prevent

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[3] See ch. 11 of this publication.

[4] U.S. Bureau of the Budget, *Special Study: Ten-Year Projection of Federal Budget Expenditures*, January 1961.

[5] Otto Eckstein. *Trends in Public Expenditures in the Next Decade.* Committee for Economic Development, Washington, D.C., April 1959.

full development of intellectual resources and cause waste of such resources. The most obvious hindrance is inability to meet the costs of production. Exploratory studies indicate clearly that intellectual potential lies in many other lodes of society besides those that can finance their own development.[6] Moreover, it cannot be assumed that the private economy will lend sufficient money to individuals who wish to invest in their own education, since the capital created by education is within the mind—not a separate piece of machinery upon which a lender can foreclose. In addition, private loans would create undesirable discrimination among groups of potential borrowers.[7] Finally, it should be mentioned that the decision maker typically controlling the flow of educational inputs is an 18-year-old who may be least impressed by the long-run returns on educational investment and most sensitive to both the educational hindrances and the alternative lures of the private economy.

The economic justification for Federal assistance to higher education is strengthened by examination of the output side of the educational process. Essentially this process involves the creation, stimulation, and elaboration of ideas. Yet ideas are not merely the commodity of education; they are also the basic ingredient for growth in a society. A continuing stream of new ideas concerning our world seems essential for continuing social and economic growth in the Nation. The more rapidly these ideas are created, the more rapidly we acquire the ability for future growth. But ideas must not only be produced, they must also be distributed. The wider the dissemination of ideas, the more extensive the benefits derived from them. The educational process is the technique designed to create and disseminate ideas.

The Federal Government must concern itself with higher education because the products of education are essential to the Nation's growth and well-being. It has to be recognized that the returns from investment in education accrue not only to the individual but also to the Nation of which he is a part. In effect, the social benefits from education exceed the private benefits—another reason why complete reliance cannot be placed on the free market allocation of resources to education. The benefits to the Nation come in many forms. The social costs from illnesses and inefficiences may be reduced. Basic research can be carried out that may itself yield no

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[6] *See*, for example, Charles C. Cole, Jr., *Encouraging Scientific Talent*. New York: College Entrance Examination Board, 1956; Glen Stice, William Mollenhopf, and Warren S. Torgerson, *Background Factors and College Going Plans Among High-Aptitude Public High School Seniors*, Princeton, N.J.: Educational Testing Service, August 1956; Elmo Roper, *Factors Affecting the Admission of High School Seniors to College*, Washington, D.C., American Council on Education, 1950.

[7] Just as Government loans would. For a further development of this subject, see William Vickrey, ch. 16 of this publication.

marketable product, but nevertheless provides a basis for subsequent development of useful products. In order merely to stay abreast in the international arms and diplomacy races, we must continually be receiving the new injections of ideas that education can provide. The institutions of democracy and free enterprise themselves need the strength that comes from education in order to survive in a world of change.

These benefits are national in scope, as is the educational process that provides them. A person may reside in one State, be educated in another, utilize his education in a third, and have the fruits of his training dispersed throughout all the States.

The other basic justification for Federal support of higher education is equity. There are arguments for maintaining income inequalities in the United States, but virtually all of these arguments have one aspect in common: they relate to the economic effects on the individuals who earn. Even if all of these arguments are accepted, it does not follow that income differences should create discrimination among children, who themselves cannot influence their family's income status. Even if society disregards the adult poor on the grounds that their poverty is their own fault, it cannot logically disregard the children of the poor on the same grounds.

In the United States we have gradually raised the level of guaranteed equal educational opportunities to include the high school. The forces that compelled us to raise the level to this height were, in effect, the increasing complexity of the world and the public need for more intellectual preparation of youth before entering it. Yet the world continues to grow more complex and the educational levels that meant intellectual maturity yesterday do not go far enough today. The same forces that raised equalitarian educational opportunities through the high-school grades may now necessitate providing similar opportunities at higher levels.

For the purposes of this chapter, these justifications for Federal aid to higher education will be accepted as sufficient. The next question then concerns the method of Federal aid. In examining this question, the assumption will be made that other current programs of assistance, both State and Federal, are to continue and that any new Federal aid will supplement, rather than replace, the existing programs. This may not be a totally acceptable assumption, since many persons argue for a reappraisal of all Federal aid to higher education and for a new, broader program that encompasses all current and proposed aid and is designed to meet purely educational needs. This approach has great merit, but it is not likely that Congress will consider it.

## II. Issues

Several types of decisions need to be made about additional Federal programs. One of these is whether the help should go to States, institutions or students. Another set of issues concerns how the funds should be allocated among the applicants. A third problem area involves the extent of Federal direction over the use of funds. Finally, there are a number of questions about specific techniques, once the more general decisions have been made. The following paragraphs indicate some of the factors to be considered in each group of issues.

### ALLOCATIONS TO STATES OR TO INSTITUTIONS

The question of whether Federal funds should be given to States or to institutions hinges on the issue of efficiency and the role of the private colleges. The advantage of granting Federal funds to States, rather than to institutions, is that the States can perform a major portion of the budgetary function. A State can assess the most effective educational uses for the Federal funds among all potential alternatives within the State. Hence, efficiency in the use of Federal funds may be greater than if one Federal agency had to choose among the competing claims of all the institutions in the Nation.

On the other hand, if funds are given to States, there may be a tendency to favor the allocation of funds principally to State institutions and to give less consideration to the requests of private colleges. Moreover, there are constitutional restrictions on the States in reallocating funds to private institutions. In order for private colleges to obtain Federal aid via State agencies, the colleges might also be asked to conform to certain inappropriate State requirements. There have been many instances, of course, in which States have given unqualified aid to private colleges. If, however, the use of State agencies as intermediaries would result in a relative concentration of Federal funds in State colleges, the effect would be to weaken the relative competitive position of private colleges in obtaining resources. For example, more faculty personnel would presumably be drawn toward State schools. Because of the great difficulty in measuring the quality of product turned out by educational institutions, it is impossible to assess accurately the relationships between costs and output or to assess the changes in overall efficiency which would result from a shift of resources from private to State colleges. The products of the two types of schools can probably be differentiated, but both types of products undoubtedly provide economic returns to the Nation. In the absence of objective evidence concerning these returns, it may be unwise to risk discrimination in favor of one educational product to the disadvantage of another.

## ASSISTANCE TO INSTITUTIONS OR TO STUDENTS

The choice between assistance to the institution and assistance to the student involves a different situation. If the educational process is viewed as creating a capital good that is of value to the Nation, then the institution becomes the producer of the capital and the student its carrier. On the one hand, financial aid to the institution may be used to reduce the costs that are passed on to the student; on the other, financial aid to the student may be passed back to the school to defray costs. In either case, the aid would seem to be used to meet the same costs and hence the technique used would be a matter of indifference so long as the aid can be restricted to the educational process (including, for example, board and room associated with the education).

One major qualification exists, however. Either the institution or the student may use the grants simply to replace other funds that would have been used in the educational process. A college may have less incentive to campaign for gifts if funds are available from the Government, and a student may use the Government grant instead of his own money, which would then be available for other uses. In effect, therefore, the Government might be subsidizing noneducational expenditures of a prospective donor or of the student. In practice, colleges seem unlikely to depend solely on their financial assets, both because costs of maintaining existing quality are rising steadily and because colleges probably have the usual business and social stimuli to increase output, both extensively and intensively. However, if colleges use Federal aid either to reduce student costs or increase quality with the same student costs, the Government will still be subsidizing noneducational student expenditures in the same way that it would with direct student grants. The only situation under which this result would not occur is if the colleges charged full costs to all students and then provided Government help only to those prospective students who could not otherwise meet the college costs. It seems more likely that the Government can avoid the noneducational use of funds if it supervises the distribution of funds and insures that they go only to students who need them for college costs.

This conclusion raises the next set of issues concerning Federal aid to education; namely, how to allocate the aid. If Federal grants are made to students, there are several logical reasons that support allocations only to those who are unable to pay the full costs of college education. As is indicated above, grants to anyone else means payment of noneducational costs. Furthermore, if the economic justification for Federal grants is accepted, that is, that the Nation receives economic benefits from education, then the corollary should also be accepted that the Federal Government ought to maximize the benefits

that the Nation receives from each dollar of Federal subsidy. Yet the net return that the Nation will receive from assisting those who can finance their own education is zero, since whatever national benefits accrue from the education would have been obtained without the subsidies. Because education provides personal as well as extrapersonal benefits, the assumption can be reasonably made that those who have both the intellectual and financial potential for college work will obtain the education for their own best interests. The waste of resources occurs with those who have intellectual ability but not the immediate financial ability to pay for the costs of education.

The principal objection to a means test is moral, not economic. In the case of educational assistance, several factors serve to blunt the usual objections to means tests. First, in colleges there is a long tradition of financial assistance to needy students, and the procedure seems to be generally accepted without social stigma. Secondly, the inadequacy of personal funds is not associated with responsibility for the inadequacy, since the individual, because of his youth, has not had an opportunity to enter fully into the labor force. Thirdly, not all high-school graduates who lack financial resources for college would obtain aid from the Government; presumably only those who have the highest apparent potential for college work would receive the aid. Therefore, some distinction is obtained by receiving the financial assistance (especially if a euphemistic title such as "national scholar" is attached to the grant). At the same time, the slothful person is prevented from capitalizing on his weaknesses. The conclusion can be drawn that a means test in education would not represent so invidious a device as it may in other fields.

The administrative feasibility of a means test should also be mentioned. In recent years tests of means, that is, of family financial ability to support a son or daughter in college, have been much more highly developed in the education field than is generally realized. Not only do some colleges ask families to provide Federal income tax information—which is by itself an inadequate indicator because it excludes certain income and ignores assets—but also extensive use is made of means tests such as those of the College Scholarship Service and the National Merit Scholarship Corporation. These tests seem to provide a reasonably accurate measure of true financial ability, and experience with them has been reported highly satisfactory.[8]

If Federal aid is to be given to students, the same logic that supports a means test—in effect, that the returns to the Nation are of paramount

[8] For some reason this experience has not been examined much in the education literature. At least 326 colleges and universities now participate in the College Scholarship Service and the number increases yearly. Modified means tests patterned after the College Scholarship Service computations are employed by a number of other institutions and several States in the distribution of their scholarship awards. See *College Board Review*, College Entrance Examination Board, Princeton, N.J., various issues.

importance—also supports allocating the funds to the students who have the greatest potential intellectual ability. The techniques of determining this potential ability involve educational, not economic, issues. However, assuming that the potential can be measured—and hence that rankings can be obtained—there is a further problem of the relative weights assigned to financial need and intellectual ability in selecting the students who receive aid. How is the allocation of funds to be made among those who meet the criteria both of need and of ability? If we adhere strictly to the economic justification for Federal aid, then the problem can be solved by starting with the student of greatest intellectual potential, giving him the minimum number of dollars that will be just sufficient—when added to his own financial resources—to pay for his education, continuing the procedure with the second most able student, and so on until the Federal allocation to education has been exhausted. This solution satisfies the requirement for getting the greatest potential return from the Federal educational investment, in the same way that a businessman selects new capital equipment on the basis of greatest potential returns, while trying to pay the lowest price for each piece of equipment.

There is a supplementary allocation question: Should Federal grants to students be allotted according to geographical areas? This is also a problem if grants are given to institutions rather than students. In a national economy as highly integrated as ours, there seems to be little sense in arbitrarily assigning Federal educational aid by areas. A student may receive and use his education in different areas from the one where his parents reside, and the national benefits from his education will probably be diffused throughout the entire society. Only if the greatest mobility of educational resources is allowed can students obtain the greatest returns for themselves and the Nation.[9]

It has been argued that high schools in different areas do not produce the same quality of raw material for college. If true, it does not follow that the Nation's best interests are served by having colleges accept inferior raw material, thereby necessarily lowering the standards of college production and final output. The problem concerns improvement at the high-school level. It is possible that the use of ability as the basis of Federal aid to college students may stimulate improvement in high-school training, both because increased college opportunitities would stimulate demand for better college preparation and because local pride would be at stake. At the same

[9] Seymour Harris, in a letter commenting on the draft copy of this chapter, wrote: "I think there is a good deal to be said for allocating scholarships to some extent on the basis of the number of people of college age in the State, even if this means that some students with high test scores in New York State will be eliminated and some with lower ones will be given scholarships from States like Arkansas or Mississippi."

time, the intelligence tests to determine the beneficiaries of Federal aid would presumably be designed to measure potential ability to benefit from college work, which may be somewhat different from quality of high-school preparation.

## SPECIFIC vs. BROAD BASE SUPPORT

Another range of issues in Federal aid to higher education concerns the extent of Federal direction over the use of funds. Granting that the funds should be used for higher education, should the Government then go on to specify the types of education? The logic of the economic justification for Federal aid might appear to support specific types of grants, since they can be concentrated in the fields that yield the greatest returns to the Nation. The catch is: Who has the omniscience to decide what types of education will best serve the Nation in the future? We can say that history strongly suggests the future value of education in providing economic growth. We cannot say that history also reveals which types of education will yield the greatest growth in the future. Yesterday, study of the Russian language might have been considered a highly esoteric pursuit; tomorrow, a knowledge of Marathi, Telegu, or Ilokano may be an essential prerequisite for effective American foreign policy. In the absence of knowledge, the best policy may be simply to allow the "invisible hands" to determine the allocation of educational resources. In effect, this places the burden on each individual, with his advisers, to decide what the nature of his own talents is and where they may be most effectively used in the future. The approach also avoids allegations of Federal dictatorship over the educational process.

It may be argued that the conclusion is not so clear cut as this. For example, many girls who receive a college education will marry and withdraw from the work force. However, as informed citizens and intelligent mothers, their contributions to the Nation's well-being and growth could be of primary importance. The same may be true of the students who enter the humanities and the teaching and ministerial professions, although the returns to the Nation may be measured largely in psychic rather than monetary values. Even if we assumed that the only immediate goal of our Nation is defense, it would be extremely difficult to specify all of the types of bulwarks that can be strengthened by education.

## OTHER ISSUES

In addition to the three general areas of problems indicated above in connection with Federal aid to higher education, a number of specific issues also exist. Only two of these, which are economic

in nature, will be mentioned here. One concerns whether the Federal aid should be in the form of tax reduction or of expenditure subsidy. If the assumption is made that the Federal Government intends to provide a specified number of dollars for the support of higher education—either through loss of revenue or direct outlays—then on both economic and equity grounds the case for direct subsidies would seem to be stronger. The aid can be concentrated on those students who may yield the greatest potential returns to the Nation. The aid can, at the same time, be concentrated on the students who have the greatest need for the assistance. From an administrative standpoint direct expenditures also have the advantage that the Congress can obtain more information about how the Federal money is being spent than it could if the ultimate decisions were in the hands of individual taxpayers and the results had to be inferred from tax returns. Finally, subsidies involve no qualifications in the concepts of income used to measure taxpaying ability, although it should be noted that the income concepts might be sharpened by consideration of personal educational outlays.[10]

Another specific economic decision is required on whether the assistance would be in the form of scholarships or loans. The loans would presumably have to be on more favorable terms than private borrowing in order to accommodate students who could not obtain private loans or who could not afford them. Both scholarships and loans would presumably stimulate additional education. If the same amount of funds were made available each year through either method, the net cost to the Government would be less under a loan program because of repayments of principal and interest. However, the net cost to the student, albeit spread over time, would be greater under loans than under a scholarship program, and this would serve to reduce entry into education to some extent.

Moreover, under a loan program, the process of selecting students for aid would be automatically altered, since only those who had ability, need, and expectation of high incomes after graduation would apply. Prospective students with ability, need, and a desire to enter low-paying professions would be discouraged from getting an education by the financial burden of future loan repayment. At the same time, a loan program would perform an allocative function. Eighteen-year-olds who either have not established their goals for the future or are willing to sacrifice them in order to get an education are encouraged by a loan program to aim only for the highest paying careers rather than the ones they might choose under a general scholarship plan. Under present conditions, a student prepar-

[10] For a further development of this subject, see Richard Goode, ch. 17 of this publication.

ing to enter a lower paying profession must have a personal motivation strong enough to offset some financial sacrifices. A loan program would set the odds even more against him.

It might be argued that the Nation needs most those who will contribute most to the gross national product, as determined by free market monetary returns. Under the loan procedure, discrimination would result against those who do not anticipate high monetary income. This group might include a wide variety of occupational groups who are relatively low paid, or whose contributions fall outside the market system, including ministers, teachers, writers, artists, social workers, nurses, and housewives. It is a social judgment whether discrimination should exist against these. One may entertain the suspicion that on the whole they might contribute as much increment in social value as any other segment of society.

Some have taken the position that though scholarships are appropriate at the undergraduate level, loans can be used for graduate students on the grounds that (1) the time lag before repayment will be less; (2) graduate study generally pays for itself in future professional income; and (3) the work is relatively more oriented to personal benefit and less to public benefit than are undergraduate courses. The first argument does not seem relevant if the problem concerns low future monetary income. The second one does not take into account the differences in future professional income from alternative types of graduate work, which may still create a change in the ordering of preferences after loan factors have been considered. The third argument cannot be documented either pro or con, but it seems highly doubtful if one thinks, for example, of the public benefits from graduate research.

In summary, there seem to be sound economic justifications for making additional Federal investment in the education process, since the process provides essential contributions to the national economy and the national welfare. In addition, such investments can also provide greater equality of opportunity without any reduction in incentives for private efforts. The investment can be arranged—either through institutions or students—to maximize the potential future returns to the Nation. The funds can be allocated to recipients in order to encourage students with both the greatest ability and the greatest need. The returns can be maximized without Federal direction over the specific educational uses to which the funds are put. Direct Government expenditures seem more effective than tax changes, and scholarships will probably be more effective than a loan program. If at least some of these generalizations are accepted, one final conclusion may be drawn: the time to begin considering the particular policies for future Federal aid to higher education is now.

# CHAPTER 14

# State Financing of Higher Education

*Selma J. Mushkin**

STATE FINANCING of higher education has its origin in the values and necessities of early America. Thomas Jefferson, father of the University of Virginia, argued that ". . . those persons, whom nature has endowed with genius and virtue, should be rendered by liberal education worthy to receive, and able to guard the sacred deposit of the rights and liberties of their fellow citizens, and that they should be called to that charge without regard to wealth, birth or other accidental condition or circumstance. . . ." The aims of public higher education are by and large the same today—an educated citizenry, social and economic opportunity, and development of productive talents.

The State governments early established State colleges and academies. Before the beginning of the 19th century, State colleges had been founded in Georgia, North Carolina, Tennessee, and Vermont. State governments in this period and later also encouraged the establishment of private colleges and aided them through tax exemption and direct grants. Rudolph, in his inquiry into the nature of 19th-century college financing, writes:

> Both tradition and lack of sufficient historical investigation still stand in the way of a complete understanding of the often crucial role which government played in the financial life of the American college. But where study has been done, it becomes clear how much it meant to many colleges to have large injections of State funds added to their resources.[1]

Bowdoin, Columbia, Dickinson, Hamilton, Harvard, Union, Williams, and Yale are among the colleges enumerated in that inquiry as recipients of early State grants. And there is some evidence that loans from the State governments to the church-related colleges of the Old South made it possible for many of these colleges to survive in the 1840's and 1850's.

"Seminary grants" under the Land Grant Ordinance of 1785 were made to Ohio and Miami Universities, and all new States got land

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*Economic consultant, U.S. Office of Education.

[1] Frederick Rudolph. Who Paid the Bills? an Inquiry Into the Nature of Nineteenth-Century College Finance. *Harvard Educational Review*, vol. 31, spring 1961.

grants for State universities beginning with the admission of Ohio in 1802. Grants authorized by the Morrill Act, now over a century old, encouraged the founding of additional State colleges. Today there exists in each State at least one land-grant institution of higher education.

In the older States, which developed from the original colonies, private colleges—Harvard, Yale, William and Mary, and others—already were established at the time of attaining statehood, and in those States the private institutions still outnumber public ones. In the Far West, by way of contrast, the major share of higher educational opportunities is provided by public institutions, although important and prominent private colleges and universities are located there. Between the Atlantic coast and the Far West the institutional pattern gradually shifts, thus creating the distinct regional pattern characteristic of higher education in this country today. This regional pattern explains many of the underlying differences in State policies with respect to higher education, the variations in public outlays for colleges and universities, and the differences in approaches to the emerging problems of higher education.

Almost all the State governments are now searching out ways and means to meet their threefold responsibilities for higher education: (1) to assure educational opportunities for the growing number of qualified students, (2) to develop manpower capabilities in numbers adequate to supply vital public services, and (3) to build the higher education potential so necessary to economic progress in the State. They are searching for ways to carry the financial load which these threefold responsibilities impose upon them. Well over 40 percent of the current expenditures for student higher education in the Nation's colleges and universities now are paid from State and local taxes. The proportion in public institutions is higher—about 1.5 times as high. About 60 percent of the plant funds of colleges and universities in the United States comes from State or local governments, and for public institutions this proportion rises to almost 80 percent. Although most State and local funds for higher education go to public institutions, some go to private colleges and universities, either directly, or indirectly through student scholarship support or tax exemption.

This chapter deals with some of the major financial questions confronting State governments in meeting the three responsibilities in the period ahead. It draws in part on State-by-State comparisons of outlays for higher education and of tax support, and in part on the work of recent State study commissions in States that have assessed their higher education problems on a comprehensive basis. The range of issues reported is wide. They run the gamut from such broad concerns as financial arrangements to improve the quality of higher education

to such detailed ones as techniques of budgeting funds [2] and of compensating local governments for properties removed from their tax base for use by State colleges.[3] The subject of this chapter is limited primarily to the larger financial issues.

A number of study groups have been appointed in the States to explore resources for higher education in relation to emerging requirements and to formulate action programs. In addition to comprehensive surveys in 8 or 10 States, a number of other studies have assessed particular aspects of higher education such as enrollment prospects, 2-year colleges, cooperative arrangements among institutions within a geographic area, and special problems of financing. Martorana and Messersmith, in a 1960 analysis of studies made in the States, identify 23 States whose legislatures have authorized statewide or interinstitutional studies of higher education, and 20 in which studies have been conducted under other auspices. Only in Alaska, Delaware, Georgia, Hawaii, Idaho, New Hampshire, and South Carolina were no studies on higher education reported either as completed or underway.[4] Moreover, in 8 States statewide coordinating boards have been established to promote continuing planning for public higher education, and in 37 States governing boards have been created, which have responsibilities for the control of all public institutions of higher education, or of certain types of institutions, such as teachers colleges.

Recommendations made in the reports on the comprehensive surveys follow a fairly uniform pattern. All the comprehensive studies urge action to: (1) provide greater educational opportunities for the growing numbers of young people, (2) improve the quality of higher education in the State, and (3) develop new educational centers for instruction, research, graduate study, and public service. All urge that the number of college places be increased, and most advocate additional financial assistance to students. To aid in improving the quality of education in the colleges and universities, these study groups advocate increased expenditures for faculty and equipment, introduction of new teaching methods, and expansion of facilities, either by the State or through interstate arrangements, for training students in professional and technical skills. To help foster centers of research and graduate study, new or expanded universities are proposed.

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[2] A. J. Brumbaugh. The Proper Relationships Between State Governments and State-Supported Higher Institutions. *The Educational Record*, 42: 173–178, July 1961; and also Malcolm Moos and Francis E. Rourke, *The Campus and the States*, Baltimore, Md., Johns Hopkins Press, 1959.

[3] Roy H. Owsley and Pauline Maris Mayo. *College and University Tax and "In Lieu" Payments to Municipalities.* Chicago, Ill., American Municipal Association Report No. 166, May 1948.

[4] S. V. Martorana and James C. Messersmith. *Advance Planning To Meet Higher Education Needs, Recent State Studies 1956–59.* U.S. Department of Health, Education, and Welfare, Office of Education Circular No. 633 1960.

# I. Providing Educational Opportunities

Perhaps the most urgent question before the States is, "How are we to finance educational opportunities for the growing numbers of our young people?"

## GROWTH IN ENROLLMENTS IN PUBLIC COLLEGES AND UNIVERSITIES

In the decade of the 1950's, when the U.S. population of college age increased about 1 percent per year, college and university enrollments rose by about 1.6 percent per year. In the last 5 years (1955–60) enrollments increased annually by 2.6 percent.

A large share of the increased enrollments took place in existing institutions, institutions with established traditions and aims. The decade of the 1950's was not a period of rapid increases in the total number of institutions, although there has been a rise in the number of junior colleges and branches of institutions. In contrast, earlier in our history, in the first part of the 19th century, large demands for college going were frequently met by establishment of new colleges.[6]

Between 1950 and 1960 the total number of institutions of higher education listed in the Office of Education's Directory of Higher Education increased from 1,808 to 2,011; these figures include junior colleges but not branches. The number of colleges and universities newly listed in a single year ranged from 20 in 1955 to 89 in 1950. Institutions dropped from the directory during this period also varied in number from 7 in 1959 to 78 in 1954. A review of the institutional listings suggests that of the newly listed private institutions, all but a few were seminaries or small colleges supported by religious groups. Many of these schools were ongoing institutions that requested listing for the first time with a view to possible use of the directory listings as a qualifying condition for public or private aid. Notable exceptions to this pattern were Harvey Mudd College in California and Brandeis University in Massachusetts. Most of the public institutions added to the directory during this period were junior colleges; only 11 degree-granting public institutions were newly listed. Six of these were in California; two in Louisiana; one each in Georgia, New York, and Oregon.

Wide differences exist among the States in the numbers of added college students and in the public institutions' share of these increases, as is indicated in table 1. In some States, such as Florida and California, the public institutions' share of enrollments has been relatively large and the number of added enrollees also has been large, compounding the State's problem in finding ways to meet its requirements.

[6] *See* Homer D. Babbidge, Jr., Introduction to this publication.

**TABLE 1.—Increase in public college and university enrollments as a percent of total increase in opening fall enrollments, and percentage change in enrollments in public and private institutions, 5-year period 1955–60, by State**

| State | Percentage of total increase in opening fall enrollments in public institutions | Percentage change [1] | |
|---|---|---|---|
| | | Public institutions | Private institutions |
| Alaska | 100.0 | 105.1 | ---------- |
| Nevada | 100.0 | 123.7 | ---------- |
| Wyoming | 100.0 | 30.0 | ---------- |
| Arizona | 98.5 | 78.4 | 48.8 |
| North Dakota | 98.5 | 50.1 | 14.6 |
| Louisiana | 97.1 | 46.6 | 2.7 |
| New Mexico | 95.4 | 61.4 | 34.4 |
| Colorado | 93.5 | 64.9 | 11.2 |
| Oklahoma | 90.8 | 28.6 | 8.9 |
| California | 87.4 | 53.4 | 32.3 |
| Montana | 87.3 | 42.3 | 33.6 |
| Washington | 86.9 | 49.0 | 19.9 |
| Minnesota | 86.3 | 68.4 | 18.5 |
| Mississippi | 85.9 | 41.3 | 25.4 |
| New Jersey | 85.4 | 178.1 | 9.3 |
| Oregon | 85.1 | 62.3 | 23.6 |
| Michigan | 82.6 | 36.1 | 25.7 |
| Wisconsin | 81.6 | 42.3 | 18.0 |
| Kansas | 81.4 | 35.7 | 33.1 |
| Florida | 77.6 | 74.5 | 24.0 |
| Indiana | 76.5 | 41.7 | 17.2 |
| Nebraska | 76.3 | 41.1 | 30.1 |
| Hawaii | 76.1 | 50.0 | [2] |
| Virginia | 74.6 | 39.2 | 23.5 |
| Tennessee | 71.4 | 54.8 | 27.0 |
| New Hampshire | 71.4 | 52.4 | 19.0 |
| Idaho | 71.3 | 36.5 | 32.7 |
| UNITED STATES | 68.4 | 42.5 | 24.9 |
| Illinois | 67.8 | 53.2 | 19.2 |
| South Dakota | 67.8 | 23.4 | 43.1 |
| Missouri | 66.9 | 47.4 | 16.3 |
| Maine | 66.8 | 62.3 | 49.0 |
| West Virginia | 66.7 | 25.0 | 41.1 |
| Kentucky | 66.6 | 44.4 | 32.9 |
| North Carolina | 66.3 | 45.3 | 23.8 |
| South Carolina | 64.6 | 41.0 | 24.0 |
| Delaware | 60.9 | 22.1 | 32.3 |
| Maryland | 59.6 | 37.4 | 24.5 |
| Rhode Island | 58.7 | 96.0 | 29.7 |
| Alabama | 57.3 | 15.3 | 23.3 |
| Utah | 56.3 | 25.5 | 23.3 |
| Vermont | 54.9 | 28.7 | 20.1 |
| Georgia | 54.5 | 16.0 | 23.4 |
| Ohio | 54.0 | 23.2 | 34.7 |
| Arkansas | 52.4 | 25.0 | 44.4 |
| Texas | 46.7 | 14.2 | 23.5 |
| Pennsylvania | 39.1 | 49.2 | 18.6 |
| Iowa | 35.4 | 19.2 | 41.2 |
| Connecticut | 25.0 | 21.0 | 38.2 |
| Massachusetts | 22.5 | 90.1 | 23.4 |
| New York | 21.3 | 21.0 | 21.0 |
| District of Columbia | 1.5 | 2.4 | 32.0 |

[1] Alaska, Nevada, and Wyoming have no private institutions. The relatively large percent of change in public institutions in New Jersey reflects the shift of Rutgers from a private institution to a State university during this period.

[2] No degree-credit enrollment in private institutions reported in 1955.

SOURCE: Compiled by Justin Lewis from data on opening fall enrollment (degree credit, resident, and extension), U.S. Department of Health, Education and Welfare, Office of Education, Research and Statistics Division.

The mounting charge on State governments has resulted not only from undergraduate enrollments but also enrollments in professional fields. For example, the expansion of training places for medical

students has increasingly become a public responsibility. Of the eighteen 4-year medical schools established since 1930–31, 13 are public and 5 private. In addition, public medical schools have increased their enrollments more than have the private ones. For example, during the period 1930–31 to 1955–56, public medical schools accounted for 987 new freshman places and private medical schools for less than one-third this number, or 299 new places.[6]

As we look ahead to the next 10 years, the population of college age is expected to increase by 1.9 percent a year, or a rate of increase almost twice that of the 1950's. Enrollments are expected to rise at even a faster rate, and again it is anticipated by most observers that a major share of the growth will take place in public institutions, with the concomitant problems of financing falling primarily on State governments. In the decade ahead, just as in the decade recently ended, some of the States will experience increases in college-age population and in enrollments two to three times those in other States. Projections of the population 18 to 24 years of age made by the National Education Association suggest increases between 1960 and 1970 varying from a low of 6.5 percent in West Virginia to perhaps as high as 133.3 in Arizona (table 2).

College going varies widely among the States. As Harris has indicated, there is very little correspondence between (*a*) the proportion of the total State population that is of college age, (*b*) the ratio of the State's college-going population to its total college-age population, and (*c*) the proportion of its college-going population that is enrolled in public colleges.

For example, Harris finds that West Virginia ranks first among the States in the proportion of its population that are of college age, but 46th in the ratio of its total college enrollment to its college-age population; 75 percent of this enrollment is in public institutions of higher education. By comparison, Arizona ranks 12th in the proportion of its population which are of college age, but sixth in the ratio of its total college enrollment to its college-age population; 97 percent of this enrollment is in public colleges and universities. Massachusetts, by contrast, ranks 36th in the proportion of its population which are of college age, but third in the ratio of its total college enrollments to college-age population; only 12 percent of its enrollment is in public institutions of higher education.[7]

[6] U.S., Staff Report to the Committee on Interstate and Foreign Commerce, *Medical School Inquiry*, Committee on Interstate and Foreign Commerce, House of Representatives, 85th Cong., 1st sess., p. 9 and 11.

[7] Based on revision of data from Seymour E. Harris. Financing of Higher Education: Broad Issues, in *Financing Higher Education 1960–70*, Dexter M. Keezer, *ed.* New York McGraw-Hill Book Co., 1959. p. 63. *See* American Association of Collegiate Registers and Admissions Officer, *Home State and Migration of American College Students, Fall 1958*, March 1959, for data on the inmigration and outmigration of students among the various States.

TABLE 2.—Percent change in population 18 to 24 years of age, 1960–70

| State | Projection A [1] | Projection B [2] |
|---|---|---|
| Arizona | 133.3 | 114.5 |
| Nevada | 111.5 | 131.1 |
| Florida | 107.1 | 96.1 |
| California | 98.2 | 98.0 |
| New Mexico | 90.4 | 87.2 |
| Delaware | 82.9 | 85.5 |
| Hawaii | 75.7 | 56.4 |
| Utah | 75.4 | 79.9 |
| Colorado | 70.7 | 76.9 |
| Idaho | 69.3 | 58.9 |
| Virginia | 66.0 | 58.8 |
| Montana | 64.5 | 61.0 |
| Louisiana | 64.2 | 61.5 |
| Maryland | 62.7 | 69.0 |
| Illinois | 60.7 | 57.7 |
| Connecticut | 60.2 | 58.1 |
| Texas | 59.8 | 62.1 |
| New Hampshire | 58.4 | 54.5 |
| Washington | 57.7 | 59.3 |
| Ohio | 57.3 | 65.3 |
| UNITED STATES | 57.3 | 57.3 |
| Georgia | 57.1 | 56.8 |
| New Jersey | 56.1 | 53.3 |
| Wisconsin | 55.6 | 58.3 |
| Indiana | 55.5 | 61.6 |
| Minnesota | 55.2 | 55.9 |
| South Carolina | 53.2 | 54.8 |
| Oklahoma | 53.0 | 40.7 |
| Alaska | 52.5 | 83.6 |
| Maine | 51.3 | 45.4 |
| Vermont | 51.0 | 39.4 |
| Michigan | 50.1 | 57.7 |
| Kansas | 48.9 | 55.2 |
| Kentucky | 48.0 | 39.6 |
| Massachusetts | 47.9 | 44.1 |
| Oregon | 46.6 | 54.3 |
| North Carolina | 46.5 | 45.3 |
| Alabama | 45.9 | 39.7 |
| Mississippi | 45.9 | 30.9 |
| Missouri | 45.7 | 52.3 |
| Tennessee | 41.9 | 42.2 |
| Rhode Island | 40.3 | 39.0 |
| New York | 39.8 | 45.6 |
| Iowa | 39.0 | 39.8 |
| Nebraska | 38.5 | 37.6 |
| Arkansas | 32.4 | 18.5 |
| Wyoming | 32.2 | 32.2 |
| Pennsylvania | 31.6 | 30.3 |
| North Dakota | 28.4 | 32.0 |
| South Dakota | 26.8 | 30.3 |
| District of Columbia | 26.2 | 33.4 |
| West Virginia | 9.7 | 6.5 |

[1] Based on Bureau of the Census population projections II and III and assuming that the amount of net migration during each 5-year period, 1960–65 and 1965–70, will equal the amount which occurred in 1955–60.
[2] Based on Bureau of the Census population projections II and III and assuming that the amount of net migration during each 5-year period, 1960–65 and 1965–70, will equal ½ the amount which occurred in the 1950–60 period population census.

SOURCE: 1960 data from Bureau of Census; projections prepared for the National Education Association in 1961 (unpublished).

## REGIONAL DIFFERENCES IN COSTS

Not only does college going vary among the States but also the amount of expenditures per student. A National Planning Association study gives the estimated cost in the academic year 1957–58 of

student higher education [8] per full-time student or equivalent for the United States and for each of 16 States (table 3).[9]

TABLE 3.—Estimated expenditures of public and private colleges and universities for student higher education per estimated full-time student equivalent, total United States and 16 selected States, 1957–58

| State | Estimated student higher education expenditures per estimatee full-time student equivlaent | | |
|---|---|---|---|
| | Amount | Percent of U.S. amount | Rank order of 16 States |
| Total: | | | |
| United States [1] | $879 | 100 | |
| 16 selected States | 917 | 104 | |
| California | 830 | 94 | 10 |
| Connecticut | 1,228 | 140 | 1 |
| Illinois | 1,070 | 122 | 4 |
| Indiana | 925 | 105 | 6 |
| Iowa | 799 | 91 | 13 |
| Massachusetts | 1,119 | 127 | 2 |
| Michigan | 1,033 | 118 | 5 |
| Minnesota | 801 | 91 | 12 |
| Missouri | 796 | 91 | 14 |
| New Jersey | 908 | 103 | 9 |
| New York | 1,080 | 123 | 3 |
| North Carolina | 813 | 92 | 11 |
| Ohio | 910 | 104 | 8 |
| Pennsylvania | 913 | 104 | 7 |
| Texas | 638 | 73 | 16 |
| Wisconsin | 759 | 86 | 15 |

[1] Includes Alaska and Hawaii; Canal Zone, Guam, and Puerto Rico.

SOURCE: Selma J. Mushkin *and* Eugene P. McLoone. *Student Higher Education: Expenditures and Sources of Income in 16 Selected States.* Washington, D.C. National Planning Association, March 1960, [processed.] p. 18.

The 16 States included in the study account for 70 cents of each dollar spent for student higher education in the United States and for two-thirds of total college and university enrollment. Approximately $880 per student is spent for this purpose in the Nation as a whole. The estimated cost per full-time student or equivalent ranges from $638 in Texas—an amount 27 percent below the national average—to $1,228 in Connecticut—40 percent above it. States with relatively high costs per full-time student generally are those with a large number of graduate and professional school students. For example, in New York, where such costs are high, 19.5 percent of the resident degree-credit students are graduate and professional school

[8] Student higher education expenditures represent the current costs of teaching and the overhead allocable to teaching. Expenditures for student higher education as defined here include expenditures for instruction and departmental research and the portion of expenditures for general administration, libraries, and physical-plant maintenance that is used for instruction. It excludes expenditures for extension courses for nondegree students, for other public services, and for organized research and overhead connected with such research, as well as expenditures related to organized activities and to educational departments' sales and services. It also excludes expenditures of auxiliary enterprises and those for student aid.

[9] Selma J. Mushkin *and* Eugene P. McLoone. *Student Higher Education: Expenditures and Sources of Income in 16 Selected States.* Washington, D.C., National Planning Association, March 1960.

students; and in Connecticut, another such State, 17 percent. Less than 6.5 percent of the students in Missouri and Texas, where costs per student are low, are students in graduate and professional schools. Similar estimates of costs per full-time student or equivalent have not been computed for all the States, and the necessary enrollment projections are not now available to apply such data in arriving at an approximation of expenditure requirements.

Some indications of the differences in financial loads arising from projected increases in population can be gained from data on teaching expenditures in colleges and universities per person 18 to 24 years of age in the population. These expenditures for student higher education in 1957–58 ranged from $54 in Alaska to $267 in Massachusetts.

Expenditures per person 18 to 24 years of age are highest in the New England States and lowest in the Southeast. Within the New England area there are marked differences resulting from a variety of contributing factors. In Maine, expenditures per person 18 to 24 years of age are 20 percent below the national average; in neighboring Vermont these expenditures are 76 percent above that average. In the Southern States, both those in the Southeast and the Southwest, the average expenditures for student higher education are below the national average. In 12 of the 16 Southern States such expenditures are 25 percent or more below the national average, and in 5 of the 12 at least 40 percent below it (table 4).

**TABLE 4.—Estimated expenditures of colleges and universities for student higher education, total and per person in the population 18–24 years of age, 50 States and District of Columbia, 1957–58**

| State | Student higher education expenditures | | | |
|---|---|---|---|---|
| | Amount (in millions) [1] | Percentage distribution | Per person 18–24 years of age | |
| | | | Amount per person [2] | Percent of average 50 States and District of Columbia |
| 50 STATES AND DISTRICT OF COLUMBIA | $2,294.8 | 100.0 | $147 | 100 |
| NEW ENGLAND | 198.2 | 8.6 | 228 | 155 |
| Maine | 10.1 | .4 | 118 | 80 |
| New Hampshire | 12.0 | .5 | 235 | 160 |
| Vermont | 8.9 | .4 | 259 | 176 |
| Massachusetts | 114.4 | 5.0 | 267 | 182 |
| Rhode Island | 12.1 | .5 | 152 | 103 |
| Connecticut | 40.7 | 1.8 | 212 | 144 |
| MIDEAST | 509.2 | 22.2 | 166 | 113 |
| New York | 268.6 | 11.7 | 204 | 139 |
| New Jersey | 46.9 | 2.0 | 103 | 70 |
| Pennsylvania | 135.8 | 5.9 | 152 | 103 |
| Delaware | 4.3 | .2 | 114 | 78 |
| Maryland | 33.8 | 1.5 | 125 | 85 |
| District of Columbia | 19.8 | .9 | 238 | 162 |

See footnotes at end of table.

TABLE 4.—Estimated expenditures of colleges and universities for student higher education, total and per person in the population 18–24 years of age, 50 States and District of Columbia, 1957–58—Continued

| State | Student higher education expenditures | | | |
|---|---|---|---|---|
| | Amount (in millions) [1] | Percentage distribution | Per person 18–24 years of age | |
| | | | Amount per person [2] | Percent of average 50 States and District of Columbia |
| GREAT LAKES | $490.7 | 21.4 | $162 | 110 |
| Michigan | 120.5 | 5.2 | 187 | 127 |
| Ohio | 114.0 | 5.0 | 139 | 95 |
| Indiana | 67.5 | 2.9 | 164 | 112 |
| Illinois | 143.6 | 6.3 | 173 | 118 |
| Wisconsin | 45.1 | 2.0 | 140 | 96 |
| PLAINS | 210.8 | 9.3 | 162 | 110 |
| Minnesota | 47.8 | 2.1 | 168 | 114 |
| Iowa | 38.9 | 1.7 | 170 | 116 |
| Missouri | 62.0 | 2.8 | 142 | 97 |
| North Dakota | 8.9 | .4 | 158 | 108 |
| South Dakota | 10.4 | .5 | 181 | 123 |
| Nebraska | 19.8 | .9 | 166 | 113 |
| Kansas | 33.0 | 1.4 | 173 | 118 |
| SOUTHEAST | 356.1 | 15.7 | 96 | 65 |
| Virginia | 38.0 | 1.7 | 92 | 63 |
| West Virginia | 19.7 | .9 | 125 | 85 |
| Kentucky | 24.7 | 1.1 | 86 | 58 |
| Tennessee | 35.6 | 1.6 | 105 | 71 |
| North Carolina | 49.2 | 2.1 | 104 | 71 |
| South Carolina | 19.0 | .8 | 75 | 51 |
| Georgia | 31.2 | 1.4 | 79 | 54 |
| Florida | 38.8 | 1.7 | 93 | 63 |
| Alabama | 24.7 | 1.1 | 81 | 55 |
| Mississippi | 16.6 | .7 | 80 | 54 |
| Louisiana | 42.6 | 1.9 | 142 | 97 |
| Arkansas | 16.0 | .7 | 106 | 72 |
| SOUTHWEST | 150.2 | 6.5 | 112 | 76 |
| Oklahoma | 28.3 | 1.2 | 134 | 91 |
| Texas | 100.0 | 4.4 | 110 | 75 |
| New Mexico | 9.4 | .4 | 99 | 67 |
| Arizona | 12.5 | .5 | 103 | 70 |
| ROCKY MOUNTAIN | 67.1 | 2.8 | 170 | 116 |
| Montana | 9.8 | .4 | 171 | 116 |
| Idaho | 8.0 | .3 | 138 | 94 |
| Wyoming | 4.8 | .2 | 172 | 117 |
| Colorado | 25.8 | 1.1 | 159 | 108 |
| Utah | 18.7 | .8 | 210 | 143 |
| FAR WEST | 312.1 | 13.6 | 159 | 108 |
| Washington | 40.7 | 1.8 | 165 | 112 |
| Oregon | 26.7 | 1.1 | 182 | 124 |
| Nevada | 2.5 | .1 | 99 | 67 |
| California | 237.2 | 10.3 | 170 | 116 |
| Alaska | 1.7 | .1 | 54 | 37 |
| Hawaii | 4.3 | .2 | 59 | 40 |

[1] Computed from U.S. Department of Health, Education, and Welfare, Office of Education, unpublished preliminary data compiled from *Statistics of Higher Education, 1957–58*, Biennial Survey of Education in the United States, 1956–58, ch. 4, sec. II, table 2. Does not include U.S. service schools and Canal Zone, Guam, and Puerto Rico. Comparable total for aggregate United States is $2,363,900.

[2] Population 18–24 years of age from 1960 Census of Population, Bureau of Census. (Counts of the college-age populations are made as of April 1960 and include nonresident students attending college in the State and exclude residents attending college in other States.)

While data on opportunities for college education, measured by numbers in the population or by expenditures for student higher education, emphasize variations among States, all States are confronted with the problems of expanding higher education. These problems are made more complicated in some States by the inmigration of population, and in others—principally in the poorer and sparsely populated States—by the need to move faster to make up for past deficiencies.

## STATE STUDY GROUP PROPOSALS

Each of the State study commissions that made comprehensive surveys seeks through its recommendations to make educational opportunities available to young people who can benefit from advanced education "without regard to wealth, birth or other accidental conditions or circumstances." As is indicated earlier in this paper, the ways proposed to achieve this objective are (1) expansion of the college plant, thereby assuring more college places; and (2) provision of financial aid to students to facilitate their college going.

*Increase in college facilities.*—Additional college places are sought through a number of different methods. One method is to build new State colleges and universities. Another is to encourage the creation of additional junior colleges, community colleges, and branches of existing State colleges and universities. A third is to enlarge enrollments in existing institutions, public and private, through expansion of college facilities and more effective use of existing facilities.

Capital outlays for facilities of State institutions of higher education are summarized in table 5.

TABLE 5.—Capital outlays[1] of State institutions of higher education, 1950–60

[In millions]

| Year | Amount of capital outlays | Year | Amount of capital outlays |
|---|---|---|---|
| 1950 | [2] $240 | 1956 | 380 |
| 1951 | 290 | 1957 | 484 |
| 1952 | 266 | 1958 | 598 |
| 1953 | 249 | 1959 | [3] 709 |
| 1954 | 243 | 1960 | [3] 675 |
| 1955 | 292 | | |

[1] Includes capital outlays financed from private and public sources.

[2] Estimated from reported data of spending for "education" to exclude that portion not for higher education and make coverage comparable to figures for later years.

[3] Includes Alaska ($2 million in 1959 and $0.7 million, 1960) and Hawaii, $3.3 million for 1960.

SOURCE: *Compendium of State Government Finances*, annual reports for 1950–60. U.S. Department o Commerce, Bureau of the Census.

The Michigan survey report, prepared for the State's Legislative Study Committee on Higher Education in 1958 by John Dale Russell, gives priority to community colleges as a way to meet the expanding

number of applicants and proposes a series of steps designed to improve the basis and increase the amount of State support of local communities in establishing and operating such facilities.[10] For example, the report recommends that a foundation program of community college support be adopted, with the State paying half the foundation program costs and that the existing program of State financial participation in construction of approved projects be continued. It takes a negative position on extension of college and university facilities through establishment of branches of the State-controlled colleges and universities. On the contrary, it urges that existing branches of the State-controlled institutions be reorganized as autonomous institutions and that new college and university facilities be separately organized.

The State study groups are divided on the best way to decentralize college facilities. In Pennsylvania, Virginia, and Wisconsin, in accordance with their study group recommendations, branches of the State university have been established in different locations. The New York and Pennsylvania reports urge establishment of both types of local institutions—junior and community colleges and also branches of the State university structure.[11]

The California report perhaps goes further than the others not only detailing expected future enrollments and the resulting college facilities required, and indicating locations for new units, but also setting priorities in expansion among types of institutions and specifying the educational functions of each type and the minimum, optimum, and maximum full-time enrollments in each.[12] The report recommends reaffirmation of the policy that "no new State colleges or campuses of the university, other than those already approved, shall be established until adequate junior college facilities have been provided" (p. 8). More specifically, this report recommends an increase in the current amounts paid to junior colleges out of State school funds from about 30 percent to about 45 percent by not later than 1975, and adoption of a continuing program of State grants or loans to school districts for construction of junior college facilities. The report also recommends creation of two new State colleges, to be in operation by 1965; completion of the three new State university campuses authorized by the

[10] John Dale Russell. *Higher Education in Michigan, the Final Report of the Survey of Higher Education in Michigan.* Michigan Legislative Study Committee on Higher Education, Lansing, Mich., September 1958. p. 175.

[11] *See* New York State: Committee on Higher Education. *Meeting the Increasing Demand for Higher Education in New York State, a Report to the Governor and the Board of Regents.* State Education Department, Albany, November 1960; *also* Pennsylvania: Committee on Education. *The Final Report.* Commonwealth of Pennsylvania, Harrisburg, April 1961.

[12] California: The Liaison Committee of the State Board of Education and the Regents of the University of California. *A Master Plan for Higher Education in California, 1960–75.* Sacramento, California State Department of Education, 1960.

State board of regents in 1957; and, in the future, diversion of some potential students from the Berkeley campus of the State university to other university campuses.

More effective and efficient utilization of college facilities is urged in each of the major study group reports. The Michigan report, for example, urges such improved utilization as a fiscal necessity, pointing out that the estimated amount that would be required each year over an 18-year period for physical facilities to keep up with the mounting enrollments would be more than the tax-appropriating bodies and philanthropic donors in the State are likely to provide on a continuing basis. The report concludes that: "There seems to be only one solution possible, namely to discover means by which the present ratio of plant facilities to student enrollments can be altered, without damage to the scope and quality of the educational program." [13]

The New York State committee, Henry T. Heald, chairman, reporting in November 1960 to the Governor of New York State and the board of regents, puts the problem of space utilization in this way:

> If the State university were to continue to follow historically accepted space utilization practices during the next 10 to 15 years, appropriations for new buildings to meet the enrollment demand would have to be greater than the grand total provided for college buildings by the legislature during the past century.[14]

Methods of improving utilization of space urged in State study reports include greater use of classrooms in late afternoons and evenings, lengthening of the school week and the school year, better planning of the size and distribution of rooms, and repackaging of course units to fit better into instructional periods available.

Aid to private institutions is proposed in a few States to facilitate expansion of enrollment opportunities. Even when direct financial aid is not extended to such institutions, they are regarded as an integral part of the State's educational capacity, and their facilities are relied upon to help meet emerging enrollment requirements in the State. It is true that the high-quality private college or university is a national institution which draws its students and its financial support from all sections of the Nation, but in most States the in- and out-migrations of students are more or less balanced. Notable exceptions are Massachusetts and New Jersey. In the few States that give direct aid to private institutions, under State constitutional and statutory provisions, such aid takes the form of support for (*a*) current operations, (*b*) scholarships, and (*c*) construction of facilities.

Pennsylvania, a State that has supported private nonsectarian colleges and universities over many decades, continues to stand first among the States in the size of its financial payments to such institu-

[13] John Dale Russell, op. cit., p. 57.
[14] New York State: Committee on Higher Education, op. cit., p. 82.

tions. In 1957–58, 14 private institutions in Pennsylvania received State support, and the aggregate of these payments amounted to almost $19 million. Payments are made to the aided institutions on a per student basis. The Governor's Committee on Education in its report points out the unique character of Pennsylvania's aid program, but emphasizes that no "measurable" program goals for it have been established over the years. The committee recommends that goals be set for the period ahead—goals that would give assurance of expanded enrollments in the aided private institutions.[15]

Eighteen States and Puerto Rico provide scholarships that students may use either at public or private institutions. New York State has by far the largest of these programs, and further expansion has been proposed by the Heald committee and also by the State board of regents.[16] In other States also, new and expanded scholarship programs are proposed.

Assistance given to privately controlled colleges for construction of facilities, when such assistance is available, is as a rule limited by the States to self-financing loans. However, aid to private institutions in meeting their specialized facility needs has been extended in other ways. For example, the new medical school at Seton Hall in New Jersey has been given the use of the city hospital for clinical teaching, and the University of Miami has a similar arrangement with Dade County.

*Financial aid to students.*—The availability of facilities is only part of the problem of assuring opportunities for college going; another, is the financial ability to go to college. An important factor facilitating larger college enrollments has been the improved accessibility of colleges—an accessibility that makes the student aware of potential resources for an advanced education and at the same time reduces the cost of his college going by permitting him to live at home while attending. Report after report from the State study groups emphasizes that, if opportunities for college going are to be provided to the greatest possible number of young people, institutions of higher education must be distributed widely throughout the State.

Historically the primary instrument used by States to insure educational opportunities is low or no student tuition. More recently attention has been given to the costs of attending college other than tuition charges, and policy issues have linked tuition charges and scholarships. State study commissions generally reaffirm a policy of low or no tuition, such as that set forth in the early State con-

[15] Pennsylvania: Committee on Education, op. cit., p. 19.

[16] New York State: The University of the State of New York. *Investment in the Future: The Regents Proposals for the Expansion and Improvement of Education in New York State 1961.* Albany, N.Y., the State Education Department, December 1960.

stitutions of the Midwestern States which recommend that tuition should be gratis and equally open to all. The California report introduces its recommendation on student fees with: "The two governing boards reaffirm the long-established principle that State colleges and the University of California shall be tuition free to all residents of the State." [17] In most States where no student tuition is required, however, fees are imposed as charges for specific services of benefit to the student, such as health, counseling, placement, housing, and recreational services.

Essentially there is at issue, as evidenced by the State reports, an important question of eligibility that relates not only to public higher education but to most other public services: Is the service to be available without charge to all qualified individuals who seek it, or only to those who demonstrate financial need? The notion that tuition charges be imposed where none had been levied before, or that they be increased, is contrary to widely accepted educational policies in many States and cannot be expected to gain easy acceptance.

However, publicly controlled colleges, between 1953 and 1960, increased student tuition and other charges each year on the average about 5 percent—a rate only somewhat less than the increase in private institutions. In the 7-year period 1953–60, tuition rates rose 47 percent in all institutions combined, and 36 percent in public ones. In many States increases in student fees came in response to the sharp pressure of advancing costs of higher education, despite the institutions' adherence to a general policy of charging no or low tuition.

Unlike other State reports, the New York report does not back into a recommendation for increases in tuition or student fees, but espouses a statewide tuition policy for all public institutions of higher education. It called for a uniform $300-a-year tuition charge "at all public colleges in New York State—including units of the State university, the community colleges, and institutions in the New York City college system." [18] In recommending this tuition charge, the committee has this to say: "Decisions on tuition made ten, twenty, or even a hundred years ago are no longer relevant and should be changed now that financial demands are mounting. . . ."

A tuition-rebate plan and increases in scholarship aid were recommended by the committee for students whose family incomes are low. The committee noted that "a tuition-rebate plan administered by student-aid officials of the various colleges in accordance with general specifications laid down by the legislature, and making special provisions for hardship cases, can prevent tuition from being a burden on students truly in need." [19] This recommendation was supported by

[17] California: The Liaison Committee of the State Board of Regents of the University of California, op. cit., p. 14.
[18] New York State: Committee on Higher Education, op. cit., p. 35.
[19] Ibid., p. 35.

the New York State Board of Regents [20] and adopted by the legislature in 1961.

While some States are expanding student assistance by means of scholarship grants through public colleges and universities,[21] others, as is noted above, have adopted statewide programs in which students may use the scholarship grants to finance their attendance either at public institutions or at private ones, as the student elects. In recognition of the nature of the costs other than tuition, to students attending college, California has proposed subsistence grants to State scholarship recipients, up to the amount required to defray living costs while the student is at college.

The amount of State scholarship support is shown in table 6 for States spending $1 million or more for scholarship aid. Financial aid to students through scholarships, fellowships, and awards tends to be much lower in the South than in the other areas of the Nation. In 1959–60 eight of the Southern States spent less than $3 per person of college age in the State for that purpose. Other States with low scholarship expenditures per person of college age were Massachusetts and Rhode Island, as well as Kansas, Ohio, and South Dakota (table 7).

**TABLE 6.—States spending $1 million or more for scholarship and other student aid, 1959–60**

[In thousands]

| State | Total | In public colleges [1] | Other programs [2] | Percentage change 1957–58 to 1959–60 |
|---|---|---|---|---|
| Total in States spending $1 million or more | $40,271 | $25,543 | $14,728 | 54 |
| New York | 9,906 | 125 | 9,781 | 48 |
| California | 4,770 | 3,678 | 1,092 | 93 |
| Illinois | 4,440 | 3,374 | 1,066 | 79 |
| Michigan | 4,028 | 4,028 | | 30 |
| Virginia | 2,239 | 1,335 | 904 | 22 |
| Wisconsin | 1,797 | 1,797 | | 26 |
| Louisiana | 1,617 | 731 | 886 | 54 |
| Oregon | 1,555 | 1,555 | | 121 |
| Florida | 1,406 | 1,365 | 41 | −12 |
| Ohio | 1,350 | 1,350 | | 68 |
| Colorado | 1,329 | 1,321 | 8 | 59 |
| Iowa | 1,313 | 1,313 | | 55 |
| New Jersey | 1,286 | 870 | 416 | 143 |
| Pennsylvania | 1,110 | 1,069 | 41 | 61 |
| Indiana | 1,069 | 1,069 | | 199 |
| Alabama | 1,064 | 861 | 203 | 80 |

[1] Represents scholarship aid and other student assistance expenditures of State colleges and universities.
[2] Additional State scholarship aid and administrative expenses connected therewith.

SOURCE: Computed from unpublished data compiled from State fiscal officers and from the Office of Education by the U.S. Department of Commerce, Bureau of the Census, for *Compendium of State Government Finances in 1960*.

[20] New York State: The University of the State of New York, op. cit., p. 31–32.
[21] Detailed descriptions of student aids are included in: Richard C. Mattingly, *Financial Aid for College Students: Graduate*, U.S. Department of Health, Education, and Welfare, Office of Education, Bulletin 1957 No. 17; and Theresa Birch Wilkins, *Financial Aid for College Students: Undergraduate*, U.S. Department of Health, Education, and Welfare, Office of Education, Bulletin 1957 No. 18.

**TABLE 7.—State scholarship aid[1] to students, per person 18–24 years of age in State, 1959–60**

| State | Amount per person 18–24 years of age[2] | Percent U.S. average |
|---|---|---|
| Vermont | $16.90 | 463 |
| Wyoming | 13.15 | 360 |
| Oregon | 11.01 | 302 |
| Delaware | 8.85 | 242 |
| Colorado | 8.16 | 224 |
| New York | 7.51 | 206 |
| Arizona | 6.84 | 187 |
| Michigan | 6.25 | 171 |
| New Mexico | 6.07 | 166 |
| New Hampshire | 5.89 | 161 |
| Iowa | 5.75 | 158 |
| Nebraska | 5.64 | 154 |
| Wisconsin | 5.57 | 153 |
| Virginia | 5.40 | 148 |
| Louisiana | 5.39 | 148 |
| Illinois | 5.34 | 146 |
| Montana | 4.77 | 131 |
| Hawaii | 4.58 | 126 |
| Oklahoma | 4.50 | 123 |
| Minnesota | 4.49 | 123 |
| West Virginia | 4.26 | 117 |
| Washington | 3.92 | 107 |
| UNITED STATES | 3.65 | 100 |
| Maryland | 3.51 | 96 |
| Alabama | 3.48 | 95 |
| California | 3.42 | 94 |
| Florida | 3.35 | 92 |
| Utah | 3.28 | 90 |
| Maine | 2.99 | 82 |
| Arkansas | 2.96 | 81 |
| New Jersey | 2.82 | 77 |
| Nevada | 2.74 | 75 |
| Indiana | 2.60 | 71 |
| North Dakota | 2.44 | 67 |
| Idaho | 2.25 | 62 |
| Mississippi | 2.22 | 61 |
| Connecticut | 2.13 | 58 |
| North Carolina | 2.00 | 55 |
| Tennessee | 1.86 | 51 |
| Missouri | 1.72 | 47 |
| Alaska | 1.71 | 47 |
| Georgia | 1.70 | 47 |
| Ohio | 1.65 | 45 |
| Massachusetts | 1.58 | 43 |
| South Dakota | 1.37 | 38 |
| Pennsylvania | 1.24 | 34 |
| Kansas | 1.22 | 33 |
| Rhode Island | 1.20 | 33 |
| Texas | 1.09 | 30 |
| Kentucky | .96 | 26 |
| South Carolina | .70 | 19 |

[1] Includes scholarship aid and other student assistance expenditures of State colleges and universities, and also additional State scholarship aid through other public programs and the administrative expenses connected therewith.

[2] Computed using population 18–24 years of age from 1960 *Census of Population*, U.S. Department of Commerce, Bureau of Census.

SOURCE: Computed from unpublished data compiled from State fiscal officers and from the Office of Education by the U.S. Department of Commerce, Bureau of the Census, for *Compendium of State Government Finances in 1960*.

*Improved methods of student selection.*—States continue to accept the principle that all high-school graduates should have access to higher education if they so elect. They recognize that opportunities for advanced education are not only a matter of accessible physical facilities and of student financial aids, but also of fitting the student

to the college and the college to the student. Dropouts that result from improper placements are wasteful, both of public funds and of student energies.

The California study group goes further than the others in recommending classification of applicants for admission and restrictions on State university enrollments. It recommends that (*a*) all high school graduates be eligible for enrollment in junior colleges, (*b*) State colleges select first-time freshmen from the top one-third of all graduates of California public high schools, and (*c*) the University of California select from the top one-eighth. In discussing the effect of the proposed admission policy on the opportunity of graduates of California public high schools to continue their education in publicly supported institutions in the State, the committee concludes that the plan, with its complementary provision for student transfers, "will not reduce the opportunity for students able and willing to meet the requirements for transfer to the upper division in the State colleges and the University of California." [22]

## II. Development of Manpower Capabilities

Not only do the States have a responsibility for assuring educational opportunities for their young people, the number of whom grows with each census, but they also have a responsibility for improving the quality of the higher education provided. The quality of such education determines whether the talents of the students will be developed so that "they are able to guard the sacred deposits of the rights and liberties of their fellow citizens." And because the quality of higher education determines the effectiveness of the services to the public—in medicine, in teaching, in the civil service—of persons who are college or university graduates, State governments necessarily have a vital stake in the quality of the graduates. It is clear that maintenance of the educational levels of prior years is not enough at this time of unmatched scientific progress and technological advance. States seek to develop the capabilities of the citizens through a series of measures—measures urged to improve quality of higher education; namely, (*a*) a broad range of opportunities for study beyond the high school, and (*b*) adequate financial support.

### MEETING MANPOWER NEEDS

A number of steps have been taken by the States to help meet the needs of their residents for the services of professionally and technically trained people, and additional steps are proposed by State study groups. Although these action programs differ, they have

[22] California: The Liaison Committee of the State Board of Education and the Regents of the University of California, op. cit., p. 72.

common purposes, and the differences largely reflect the peculiar demographic, geographic, economic, and educational characteristics of the States. Among the steps taken by the State governments, or proposed to them, are the following:

—Expansion of facilities for graduate and professional training.

—An increase in fellowships and other financial aids for graduate students.

—Expansion of facilities for technical and semiprofessional training.

—Interstate and regional cooperation in providing graduate and professional education.

—Statewide coordination of facilities for higher education, together with identification of the functions of each of the types of such facilities, and centralization of specialized high-cost facilities for graduate and professional training.

*Expanded facilities.*—In a number of States action has been taken since the end of World War II to expand facilities and opportunities for graduate and professional training. Because of the urgent needs for professional health personnel and the high cost of medical education, considerable attention is directed to this special area. I have noted earlier in this chapter the important part played by the public universities in expanding opportunities for medical education during the past decades. Establishment of new educational centers for the training of physicians, nurses, dentists, and others in the health professions is being urged by national, regional, and State groups.[23]

In New York State alone, which now has 10 medical schools, construction of "two or three new medical schools within the next 10 to 15 years" is proposed by the Heald committee.[24] Arizona, California, Connecticut, Indiana, Maine, Massachusetts, Michigan, Minnesota, Montana, New Jersey, New Mexico, Ohio, Rhode Island, and Texas have authorized or given consideration to new medical schools. State grants to private medical schools also are recommended in New York to enable such schools to expand their teaching facilities.

The expansion programs are not limited to schools training for the health professions. State colleges have been given university status in increasing numbers to emphasize graduate education, and additional graduate education centers have been recommended in some States. Teachers colleges in a number of States have been converted

[23] See Frank Bane. Organising Medical Education To Meet Health Needs. *The Annals*, American Academy of Political and Social Science, 337: 29–35, September 1961; also Report of the Surgeon General's Consultant Group on Medical Education. *Physicians for a Growing America*. U.S. Department of Health, Education, and Welfare, Public Health Service, Washington, D.C., 1959.

[24] New York State: Committee on Higher Education, op. cit., p. 37.

into liberal arts (general purpose) colleges, and in a number of others recommendations for such action are being discussed.

*Fellowship and loan programs.*—Several States have implemented, or are considering financial aid programs designed to encourage study in specialized fields. For example, California's study committee urges establishment of a new State graduate fellowship program to divert more college graduates into teaching and graduate study. In New York State which has a small graduate fellowship program, the Heald committee proposed "liberal financial aid" for undergraduate medical students and for interns and resident physicians at hospitals.

Typical financial aid programs now existing in several States are designed primarily to encourage training in the specialized fields of teaching, nursing, and medicine, and in some of these States student aid carries with it the obligation to work in the State for a designated period after graduation.

*Expansion of technical training programs.*—The concern of State governments with manpower needs is not limited to graduate and professional workers. The Council for the Study of Higher Education in Florida, reporting to the Board of Control of the State's institutions of higher learning, says:

> The projected developments of the Florida economy indicate the urgent need for expansion of technical, vocational, and semiprofessional programs of education to supplement degree programs in order that more Florida youth may qualify for a role in the developing technological economy of the State.[25]

The junior or community college in many places is looked upon as an appropriate institution to provide training in technical and subprofessional fields that require less than 4 years of college work. Earlier I described recommendations made to expand these facilities as a way of providing undergraduate study and the priority given to them in California, Michigan, and Pennsylvania. In some other States decentralization of undergraduate study is sought through establishment of university branches. The issue of State institutions versus local ones becomes more complex in the light of the requirements of technical and subprofessional training. For one thing, operating and capital requirements of technical curricula are 50 percent to 100 percent higher than of liberal arts ones.[26]

Moreover, a relatively small proportion of all students seek training in any one field during a year. And programs for training in such

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[25] A. J. Braumbaugh *and* Myron R. Blee. *Higher Education and Florida's Future*, vol. 1, Recommendations and General Staff Report. University of Florida Press, Gainesville, 1956. p. 9.

[26] William P. McClure. "Transition in Junior College Education," in *Financing Education for our Changing Population*. Committee on Educational Finance, National Education Association, Washington, D.C., 1961. p. 90.

fields as aeronautical technology, graphic arts, or industrial photography, can only be offered economically in large population centers.

*Interstate and regional cooperation.*—Increasingly there is recognition by the various States of the importance of interstate cooperation, both as an economy measure and as a step toward insuring high-quality education. Three regional education organizations have been established in the United States—the Southern Regional Educational Board, the Western Interstate Commission for Higher Education, and the New England Board of Higher Education. These organizations not only serve as agencies for the administration of interstate agreements in their regions but also, in cooperation with the Governors' Conferences and the Councils of State Governments as well as other groups, and have fostered cooperative planning and programming for educational opportunities in the States in their regions.[27]

Existing regional arrangements in the field of higher education usually cover professional education in medicine, dentistry, veterinary medicine, and in some instances public health and social work. Among the purposes of existing regional arrangements are the following: (*a*) to enable States without specified types of professional or graduate training facilities to provide educational opportunities for their residents, (*b*) to strengthen institutions providing regional professional or graduate programs, and (*c*) to save the costs that would be involved in construction of expensive facilities for such programs of their own. Under regional arrangements students from participating States enroll in colleges and universities in member States, with the home States paying agreed-upon amounts per student to the receiving institution. The students attending under these programs pay the same tuition fees as State residents.

The survey of higher education in North Dakota emphasizes the importance of interstate compacts and arrangements as a way to provide specialized educational opportunities in a State with a relatively sparse population. The report notes that "Under these contracts students can without extra financial burden to themselves attend institutions outside their own State to study programs not offered by colleges in their home State." [28]

*Statewide coordination.*—Viewing all institutions of higher education in the State as parts of a whole, a number of State study reports urge statewide coordination of facilities for such education.

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[27] See for example, U.S. Public Health Service, W. K. Kellogg Foundation, and American Dental Association. *A Study of Dental Manpower in the West*, Western Interstate Commission for Higher Education [1959?]; Southern Regional Education Board, Financing Higher Education Series, the Board, Atlanta, Ga.; Western Interstate Commission for Higher Education, *Proceedings of the Legislative Workshop on Financing Higher Education*, the Commission, Boulder, Colo., June 1958; and various reports of the New England Board of Higher Education.

[28] Ernest V. Hollis, S. V. Martorana, *et al. Higher Education in North Dakota, a Report of a Survey*, vol. 1. U.S. Department of Health, Education, and Welfare, Office of Education, October 1958. p. 84.

The objectives of this coordination are many. Among them are development of a greater diversity in educational programs, improvement in quality of specialized training, and reduction of needless duplication.[29]

Such coordination in a State, whether through voluntary action or official requirements by a central board of higher education, requires identification of the distinctive role of each institution. The Texas Commission on Higher Education, for example, has continued to emphasize the State's need for effective statewide coordination. Its report defines the role and scope of each public college and university in the State and suggests an appropriate allocation of functions among them.[30]

The California study report defines the functions of three types of institutions—universities, 4-year colleges, and junior colleges—as was indicated earlier in this chapter.

In the North Dakota report the recommendation on statewide coordination among institutions of higher education is stated as follows:

> The State board of higher education . . . should define the concept of a single statewide system and a policy for developing three types of institutions for achieving the stated objectives. These three types of colleges and their primary functions should be: (1) complex institutions of the university type, predominantly responsible for providing graduate and professional education; (2) 4-year, regional State colleges predominantly responsible for providing programs of teacher education; (3) 2-year colleges of the community-junior college type, predominantly responsible for approved specialized programs for technicians and semiprofessional personnel.[31]

In New York, a State that unlike California and North Dakota has relied upon private colleges and universities for the major share of its higher education, the task of coordination and statewide planning has not been neglected. The Heald committee urges a new alinement of the organizational structure of higher education in the State, expansion of responsibilities for planning, and creation of a Council of Higher Education Advisors "to recommend publicly and loudly what ought to be done to keep our system of higher education in line with our needs—statewise, nationally, and in view of the world situation."[32]

## ADEQUATE STATE FINANCIAL SUPPORT

Educational opportunities must be provided in the States for the growing numbers of talented young people, and professional and

[29] Ibid., p. 85.
[30] Texas Commission on Higher Education. *Report to the Governor of Texas and the Legislature of the State of Texas.* Austin, Tex., the Commission, December 1958.
[31] Ernest V. Hollis, S. V. Martorana, *et al.*, op. cit., p. 87–88.
[32] New York State: Committee on Higher Education, op. cit., p. 22.

subprofessional education must be developed to meet the needs for trained manpower. But college places of the appropriate kinds are not enough. The major issue confronting the States in the financing of public higher education is: "How are we to finance higher education of the quality required for today's complex society and tomorrow's even greater complexities?"

The Texas Commission on Higher Education poses the question in this way:

> . . . the Commission foresees the emerging challenge to public higher education in Texas in terms of qualitative rather than quantitative considerations. . . . It is not enough for the State to concentrate its attention on meeting the flood of enrollment. Quality must be considered, and indeed it must be emphasized.[8]

*State performance.*—Have the States in the past increased their funds for higher education in the amounts required to improve the quality of education at the same time as they enroll larger numbers of students? In current dollars, State and local funds going to colleges and universities in 1957–58 were 20 times as high as they were in the early 1920's and 3 times as high as they were after World War II. In the 4 years from 1953–54 to 1957–58, the increases in these expenditures averaged about 10 percent a year, and the increases in enrollment in public institutions averaged about 12 percent a year.

Historical comparison of State and local tax funds for higher education, however, is hazardous. Neither the data for State funds nor those for enrollments are statistically comparable. Definitions of the items reported are different from biennial survey to biennial survey, and the completeness of reporting varies. Moreover, State programs change, and they affect the data reported in different ways. Also, an appropriate base year is difficult to select because of the special circumstances existing in each of the years. (See app. C for further explanation of estimates of State and local funds for higher education.)

An analysis of the data for the most recent period, made by combining the available information in different ways, seems to suggest that State and local funds for higher education changed over the last 4-year period roughly by the amount required to accommodate the increased numbers of students in public colleges and universities and did not include a margin for improvement in quality. Using one series on enrollments in the computation, I found that state and local funds per student increased about 7 percent between 1951–52 and 1957–58. With another enrollment series, State and local funds per student were somewhat higher in 1953–54 than in 1957–58. And with still another

[8] Texas: Report to the Governor and the Legislature of the State, op. cit., p. 8.

enrollment series, State and local funds per student were 11 percent higher in 1957–58 than in 1953–54.[34]

Thus the States' performance in the past few years (measured by the amount of State and local funds per student enrolled in public institutions) indicates two things: (*a*) States and localities increased their tax effort for higher education, and (*b*) the increase was pressured by enrollment demands rather than by considerations of quality.

The larger scale of State and local financing for higher education corresponds to that for State and local expenditure for all tax-supported public services. During the period from fiscal year 1949–50 to 1957–58, State and local expenditures for all public services increased from $27.9 billion to $53.7 billion, and a further rise of over 13.5 percent occurred in the next 2-year period. Total State and local expenditures more than doubled in the decade of the 1950's and increased from 9.5 percent to over 14 percent of gross national product.

*Future State requirements.*—"Can the States finance higher education in the quantity demanded by its citizens and in quality adequate to meet the manpower needs of the State and Nation?" In part the answer to this question patently depends upon the costs of quality education, taking account both of those quality factors that will increase costs and those which may permit reductions. The necessary salary increases in the colleges and universities create an upward push on costs.[35]

State study report after report emphasizes the need for higher salary payments to faculty. For example, the Arizona and West Virginia reports urge better faculty salaries. North Dakota's 1958 report noting that North Dakota institutions were not paying faculty salaries comparable to those in other States, says:

> This fact has serious implications for the welfare of the higher education in the State. . . . The gravity of the situation is made worse by the fact that the level of faculty salaries over the Nation at large is coming to be recognized as dangerously low.[36]

The report recommends that the legislature raise the level of faculty salaries as rapidly as possible, and as a minimum "strive to reach and maintain an average for its faculties that is equal to the average salary level paid personnel of comparable ranks in institutions of like type in the North Central region of the Nation."

The Florida report urges an upward adjustment of salaries as necessary to attract and retain qualified staff in a highly competitive

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[34] The three enrollment series for public institutions were: (*a*) total opening fall enrollments; (*b*) opening fall enrollments for resident and extension students (degree and nondegree credit); and (*c*) academic-year enrollments for resident students.

[35] Sidney G. Tickton. *Teaching Salaries Then and Now—A Second Look.* New York. The Fund for the Advancement of Education, May 1961.

[36] Ernest V. Hollis, S. V. Martorana, *et al.*, op. cit., p. 87, 88.

market. The Council for the Study of Higher Education also recommended such an adjustment.[37] New York's Heald committee puts its findings on the subject this way: "Salaries have been too low for many years, with top-grade faculty members substantially subsidizing, in effect, the education of their students." [38]

While salary adjustments create an upward cost push, improvements in methods of teaching, reorganization of curriculums, and introduction of new techniques in the colleges and universities offer some opportunity for modifying the upward trend. Much new institutional research in the colleges and universities of the States promises improvement both in efficiency and in quality. However, it is generally recognized that the ongoing efforts have to be stepped up. The Heald committee, for example, recommends that the State help colleges and universities to improve their techniques of higher education and urges that a new agency be created in the State to help the institutions create, develop, and adopt new policies and procedures, and to encourage prompt use of new knowledge about administration and educational practices.

Future financial requirements can be defined somewhat more precisely than heretofore, within the framework of illustrative estimates presented in chapter 11 of this publication. If States increased their tax efforts approximately in proportion to the numbers of students enrolled in public colleges and universities, as indicated in table 4, chapter 11, State and local expenditures from tax funds would increase from $1 billion in 1957–58 to $2.9 billion in 1970–71 and to $3.8 billion in 1975–76. If they just maintained their 1957–58 relative tax effort for higher education, State and local support would rise from $1 billion to $2 billion in 1970–71 and to $2.6 billion in 1975–76. The differences between the amounts shown in table 4 and those that would be raised if tax effort were maintained at a constant rate would be added to the amounts required from other sources. If, however, they finance about one-half the current expenditures required, States and localities would have to raise about $4.5 billion in taxes for student higher education by 1970–71 and more than $6 billion by 1975–76.

Recent studies of the changes in State and local tax bases in response to changes in income permit us to translate these State and local contributions into tax rate increases. The studies by Netzer of the Chicago Federal Reserve Bank,[40] by Eckstein for the Committee for Economic Development,[41] and by McLoone of the Office of Edu-

[37] Brumbaugh and Blee, op. cit., p. 54.

[38] New York State: Committee on Higher Education, op. cit., p. 14.

[40] Dick Netzer. "Financial Needs and Resources over the Next Decade: State and Local Governments" in *Public Finances: Needs, Sources, and Utilization*, a Report of the National Bureau of Economic Research. Princeton, N.J., Princeton University Press, 1961.

[41] Otto Eckstein. *Trends in Public Expenditures in the Next Decade*. Washington, D.C., Committee for Economic Development, April 1959.

cation [42] indicate the sensitivity of State and local tax bases to changes in gross volume of national output. While these studies suggest somewhat different changes in State and local tax yields (at constant rates) in response to changes in State income and gross product, the three studies suggest that the State and local tax bases grow almost proportionately to the gross product. Hence a rise in State and local expenditure out of tax funds proportionate to gross national product would require no rate increase. A rise beyond this amount would call for increased taxes, or, stated differently, the growth in the economy will permit a doubling of State and local contributions to student higher education a decade hence without an increase in tax rates; State and local contributions in excess of these amounts will necessitate higher tax rates or new tax levies.

Writers on problems of financing higher education express sharply divergent views about the ability of the States to meet the mounting needs of higher education. Interstate competition in a highly mobile Nation, where people, goods, and property cross State lines without trade barriers, imposes real limits on tax action by a single State. States tend to be restricted in their tax policy by the taxes imposed by their neighbors. Moreover, there are large unmet needs for other public services of many kinds, and claims on the tax dollar multiply with the rapid development of metropolitan areas.[43] Because of the major reliance on property taxes and sales levies, general or selective, increased State and local taxation means heavier burdens on the low- and middle-income groups than would a comparable Federal tax load.[44]

*Interstate differences.*—Tables 8 to 10 present comparative interstate data on the financing of higher education. Table 8 shows the wide variations in the shares of State and local governments in the financing of educational and general expenditures (excluding research). Table 9 shows the estimated amount of State and local tax dollars for higher education per person 18 to 24 years of age in the States and in the regions; and table 10, the tax money as a percentage of gross personal income of all the residents in the States and in the regions.

Despite wide variations among the States in the share of public funds going toward the teaching of students in colleges and universities, and also the variations in tax effort, each of the State study

[42] Eugene P. McLoone. *The Effects of Tax Elasticity on the Financial Support of Education.* Doctoral dissertation, Urbana, University of Illinois, 1960 (unpublished).

[43] Seymour E. Harris, op. cit., p. 68, and Howard R. Bowen, "Where Are the Dollars for Higher Education Coming From?" in *1960 Current Issues in Higher Education,* Association for Higher Education, National Education Association, Washington, D.C., 1960.

[44] George A. Bishop. The Tax Burden by Income Class, 1958. *National Tax Journal,* 14: 4–58, March 1961.

groups concludes that their State can afford to finance an enlarged public program of higher education. Various indexes of the ability of a State to finance higher education are used in the reports on State studies.[48] These include (*a*) State expenditures for higher education per student or per capita; (*b*) State expenditures for higher education as a percentage of total State outlays or of total tax dollars; (*c*) State expenditures for higher education as a percentage of total personal income in the State. To gain a measure of relative ability, the indexes are compared with the State's own tax effort for higher education historically, and also with that of other States in the same region, with that of States of similar size, and with the Nation as a whole. Projections are made of personal income and of State resources to finance higher education, and changes in tax effort are computed on the basis of the relation of the estimated growth in expenditures for higher education to the growth in the economy of the State.

**TABLE 8.—Percent of college and university current income for student higher education from States and local governments, 1957–58**

| State | Percent of current income from States and localities [1] | State | Percent of current income from States and localities [1] |
|---|---|---|---|
| Montana | 74.8 | Colorado | 50.4 |
| Nevada | 74.8 | Wisconsin | 50.1 |
| North Dakota | 74.3 | Maryland | 49.0 |
| West Virginia | 73.4 | Alabama | 46.9 |
| Washington | 70.7 | Indiana | 46.6 |
| Wyoming | 69.6 | Utah | 45.0 |
| California | 69.1 | | |
| New Mexico | 68.3 | UNITED STATES | 43.7 |
| Idaho | 67.1 | | |
| Louisiana | 66.5 | Illinois | 42.0 |
| Arizona | 65.0 | Virginia | 41.9 |
| | | Georgia | 39.9 |
| Oregon | 64.3 | Kentucky | 39.0 |
| Michigan | 60.9 | North Carolina | 36.3 |
| Oklahoma | 60.4 | Tennessee | 35.7 |
| Hawaii | 59.5 | Missouri | 34.1 |
| Alaska | 59.3 | Ohio | 31.5 |
| Arkansas | 58.5 | Maine | 30.8 |
| Kansas | 57.3 | | |
| Florida | 55.6 | New Jersey | 29.5 |
| Mississippi | 55.4 | Vermont | 29.0 |
| Nebraska | 55.0 | New York | 26.0 |
| South Dakota | 54.8 | New Hampshire | 25.3 |
| | | Connecticut | 24.2 |
| Delaware | 54.2 | Rhode Island | 24.1 |
| Minnesota | 52.6 | Pennsylvania | 22.9 |
| Iowa | 52.5 | Massachusetts | 8.3 |
| Texas | 52.0 | District of Columbia | 6.6 |
| South Carolina | 51.8 | | |

[1] State and local funds reported by colleges and universities (less funds for research) as a percentage of total current income for educational and general purposes as adjusted to exclude funds for organized research and agricultural experiment stations and income for organized activities related to educational departments and sales and services of these departments after deduction of corresponding income items.

SOURCE: Computed from U.S. Department of Health, Education, and Welfare, Office of Education, unpublished preliminary data, compiled for *Statistics of Higher Education, 1957–58*, Biennial Survey of Education in the United States, 1956–58, sec. II, table 1; supplemented by information on grants to States from the U.S. Department of the Treasury, *Annual Report of the Secretary of the Treasury, for the fiscal year ended June 30, 1958*, and by other unpublished data from the Office of Education on State and local research funds.

[48] See, for example, James W. Martin and Kenneth E. Quindry. *Southern States and New Revenue Potentials*, Research Monograph Series No. 1, Atlanta, Ga., Southern Regional Education Board, 1960.

## TABLE 9.—State and local funds for higher education and scholarship expenditures, 50 States and District of Columbia, 1957–58

[Totals in millions]

| State | Total current and capital funds | Current funds, only | |
|---|---|---|---|
| | | Amount [1] | Per person 18–24 years of age [2] |
| 50 STATES AND DISTRICT OF COLUMBIA | $1,732.6 | $1,269.7 | $81 |
| NEW ENGLAND | 74.5 | 37.1 | 43 |
| Maine | 8.0 | 3.6 | 43 |
| New Hampshire | 6.6 | 3.7 | 72 |
| Vermont | 3.3 | 3.3 | 96 |
| Massachusetts | 18.1 | 11.4 | 27 |
| Rhode Island | 14.8 | 3.6 | 45 |
| Connecticut | 25.7 | 11.5 | 60 |
| MIDEAST | 216.9 | 166.7 | 54 |
| New York | 120.6 | 87.1 | 66 |
| New Jersey | 28.4 | 17.5 | 38 |
| Pennsylvania | 39.5 | 36.6 | 41 |
| Delaware | 4.4 | 3.2 | 83 |
| Maryland | 20.2 | 20.5 | 76 |
| District of Columbia | 1.8 | 1.8 | 22 |
| GREAT LAKES | 381.2 | 277.6 | 92 |
| Michigan | 107.4 | 90.7 | 141 |
| Ohio | 78.7 | 40.9 | 80 |
| Indiana | 49.8 | 35.5 | 94 |
| Illinois | 106.4 | 78.0 | 94 |
| Wisconsin | 42.9 | 29.5 | 91 |
| PLAINS | 165.6 | 137.2 | 106 |
| Minnesota | 44.8 | 33.5 | 118 |
| Iowa | 29.5 | 28.6 | 125 |
| Missouri | 29.1 | 21.5 | 80 |
| North Dakota | 9.9 | 8.7 | 155 |
| South Dakota | 7.4 | 7.2 | 124 |
| Nebraska | 17.1 | 14.7 | 124 |
| Kansas | 27.8 | 23.0 | 120 |
| SOUTHEAST | 282.8 | 219.6 | 59 |
| Virginia | 29.9 | 21.4 | 53 |
| West Virginia | 16.4 | 15.9 | 101 |
| Kentucky | 21.1 | 12.0 | 42 |
| Tennessee | 20.7 | 15.5 | 46 |
| North Carolina | 34.0 | 22.7 | 46 |
| South Carolina | 12.3 | 12.3 | 49 |
| Georgia | 19.8 | 17.9 | 44 |
| Florida | 37.5 | 27.1 | 65 |
| Alabama | 18.9 | 16.0 | 52 |
| Mississippi | 16.7 | 12.4 | 60 |
| Louisiana | 42.6 | 33.5 | 113 |
| Arkansas | 12.9 | 12.9 | 86 |
| SOUTHWEST | 126.5 | 109.5 | 82 |
| Oklahoma | 21.6 | 21.2 | 100 |
| Texas | 78.1 | 68.4 | 78 |
| New Mexico | 9.8 | 9.0 | 94 |
| Arizona | 16.0 | 10.9 | 89 |
| ROCKY MOUNTAIN | 58.9 | 50.1 | 127 |
| Montana | 13.5 | 11.9 | 208 |
| Idaho | 7.4 | 6.6 | 113 |
| Wyoming | 4.8 | 4.8 | 172 |
| Colorado | 21.9 | 16.7 | 102 |
| Utah | 11.3 | 10.1 | 113 |

See footnotes at end of table.

**TABLE 9.—State and local funds for higher education and scholarship expenditures, 50 States and District of Columbia, 1957–58—Continued**

| State | Total current and capital funds | Current funds, only | |
|---|---|---|---|
| | | Amount [1] | Per person 18–24 years of age [2] |
| FAR WEST | $437.8 | $378.8 | $141 |
| Washington | 45.6 | 36.2 | 142 |
| Oregon | 29.3 | 22.0 | 136 |
| Nevada | 4.6 | 2.6 | 98 |
| California | 340.7 | 293.4 | 147 |
| Alaska | 2.6 | 1.7 | 82 |
| Hawaii | 4.5 | 3.6 | 80 |

[1] Includes State and local funds other than research reported as current income or plant funds by colleges and universities and also State scholarship aid expenditures and other expenses of State higher education agencies. (See app. D, table 1, for estimates of local funds for higher education.)
[2] Computed using population 18–24 years of age from 1960 Census of Population, Bureau of Census.

SOURCE: Computed from U.S. Department of Health, Education, and Welfare, Office of Education, unpublished data compiled for *Statistics of Higher Education, 1957–58*, Biennial Survey of Education in the United States, 1956–58, ch. 4, sec. II, tables 1 and 2, and from unpublished data compiled from State fiscal offices by the U.S. Department of Commerce, Bureau of the Census, for the *Compendium of State Government Finances in 1958*.

**TABLE 10.—State and local "effort" for higher education, including scholarship expenditures, 50 States and District of Columbia, 1957–58**

| State and region | Current fund expenditures [1] | |
|---|---|---|
| | Per capita [2] | Percent of personal income in State [3] |
| 50 STATES AND DISTRICT OF COLUMBIA | $7.50 | 0.4 |
| NEW ENGLAND | 3.81 | .2 |
| Maine | 3.94 | .2 |
| New Hampshire | 6.48 | .3 |
| Vermont | 8.89 | .5 |
| Massachusetts | 2.89 | .1 |
| Rhode Island | 4.80 | .2 |
| Connecticut | 3.08 | .2 |
| MIDEAST | 4.84 | .2 |
| New York | 5.41 | .2 |
| New Jersey | 3.15 | .1 |
| Pennsylvania | 3.22 | .2 |
| Delaware | 7.42 | .2 |
| Maryland | 7.23 | .3 |
| District of Columbia | 2.31 | .1 |
| GREAT LAKES | 7.96 | .4 |
| Michigan | 11.32 | .5 |
| Ohio | 4.44 | .2 |
| Indiana | 3.55 | .4 |
| Illinois | 3.08 | .3 |
| Wisconsin | 7.65 | .4 |
| PLAINS | 9.08 | .5 |
| Minnesota | 10.13 | .5 |
| Iowa | 10.20 | .6 |
| Missouri | 5.12 | .3 |
| North Dakota | 12.51 | .9 |
| South Dakota | 10.80 | .6 |
| Nebraska | 10.22 | .5 |
| Kansas | 11.17 | .6 |

See footnotes at end of table.

TABLE 10.—State and local "effort" for higher education, including scholarship expenditures, 50 States and District of Columbia, 1957-58—Continued

| State and region | Current fund expenditures [1] | |
|---|---|---|
| | Per capita [2] | Percent of personal income in State [3] |
| SOUTHEAST | $86.00 | 0.4 |
| Virginia | 85.85 | .3 |
| West Virginia | 85.13 | .5 |
| Kentucky | 83.98 | .3 |
| Tennessee | 84.53 | .3 |
| North Carolina | 85.18 | .4 |
| South Carolina | 85.34 | .4 |
| Georgia | 84.89 | .3 |
| Florida | 86.86 | .3 |
| Alabama | 85.11 | .4 |
| Mississippi | 85.75 | .6 |
| Louisiana | 11.06 | .7 |
| Arkansas | 7.86 | .6 |
| SOUTHWEST | 88.86 | .4 |
| Oklahoma | 89.84 | .5 |
| Texas | 7.61 | .4 |
| New Mexico | 11.23 | .6 |
| Arizona | 10.04 | .5 |
| ROCKY MOUNTAIN | 12.27 | .6 |
| Montana | 17.89 | .9 |
| Idaho | 10.27 | .6 |
| Wyoming | 15.69 | .7 |
| Colorado | 10.29 | .5 |
| Utah | 13.03 | .7 |
| FAR WEST | 10.29 | .5 |
| Washington | 13.25 | .6 |
| Oregon | 12.64 | .6 |
| Nevada | 10.08 | .4 |
| California | 15.17 | .6 |
| Alaska | 10.16 | .3 |
| Hawaii | 6.48 | .3 |

[1] For definitions and amount of expenditures, see table 9.
[2] Computed using estimated civilian population on July 1, 1957, Bureau of the Census, *Current Population Reports*, Series P-25, No. 208, Dec. 7, 1959.
[3] Computed from U.S. Department of Commerce, Survey of Current Business, August 1958, average income for calendar year 1957-58.

SOURCE: Computed from U.S. Department of Health, Education, and Welfare, Office of Education, unpublished data compiled for *Statistics of Higher Education, 1957-58*, Biennial Survey of Education in the United States, 1956-58, sec. II, tables 1 and 3, and from unpublished data compiled from State fiscal offices by the U.S. Department of Commerce, Bureau of the Census, for the *Compendium of State Government Finances in 1958*.

## III. Fostering Economic Growth

We have previously discussed the financial problems facing the States in providing higher education opportunities for the rapidly growing number of students and in developing the necessary manpower capabilities. We turn now to the impact of higher education on the economic development of the State and the way in which this impact alters the financial problems. Increasingly, Governors, legislatures, and educational agencies are coming to regard higher education as an important component of economic planning in the States, and the financing of higher education as an investment in economic development.

Rapid advances in science and technology give new perspective to the role of colleges and universities. New industries, with their promise of accelerated growth, originate in the research laboratory. Research and development outlays of industries are growing rapidly and evidence the payoff of research. The facilities for this development work often are located in areas where the manpower and resources for research are most favorable—university centers. The U.S. Department of Commerce's Office of Area Development, in reporting a discussion among officials of problems of industrial location—including officials from the aircraft, pharmaceutical, and electronics industries—listed characteristics of preferred sites for research and development facilities. Among the characteristics of these sites were a ratio of at least 2 engineers per 1,000 population; 1 Ph. D. per 1,000 population; good library facilities; and opportunities for continued higher education.[46]

University centers attract new industries by providing a community environment favorable to cultural and scientific activities.[47] Such centers facilitate the recruitment and retention of professional and scientific personnel by a company located close by. The centers afford employees of the company access to opportunities for continuing their education and also provide a pool of talent to draw upon for consultative services.[48]

University centers thus are linked with industrial development in the community and State in which they are located. The State's contribution toward the financing of these centers becomes a part of its contribution toward economic growth in the community and the State—an investment that pays dividends in expanded fiscal resources, improved public services, and employment opportunities.

The gains to the State's industrial development from university centers of graduate study and research are a further justification of State taxpayer support of these centers. Brumbaugh states the problem as follows: "The real challenge in Florida during the years ahead is not to find ways by which the economy will be able to support higher education, but rather to devise ways in which programs of research, service, and instruction in higher education can support potential developments."[49] Perhaps in a more detailed way than in other States the report of the Florida Council for the Study of Higher

[46] U.S. Department of Commerce, Business and Defense Services Administration, Industrial Location Division, *Factors Influencing the Location of Research and Development Facilities* (processed), Mar. 19, 1959; also *Notes on Plant Location Seminar* (processed), Nov. 9–16, 1959.

[47] Asa S. Knowles. The Influence of Industries on Local Academic Programs. *The Educational Record*, 42: 179–182, July 1961.

[48] S. V. Martorana and Archie R. Ayers. Industry Likes To Locate Near a College or University. *College and University Business*, 29: 29–32, October 1960.

[49] Brumbaugh and Blee, op. cit., p. 6.

Education deals with the economy of the State as a backdrop for its survey of higher education needs.[50]

Of direct concern to the State officials is the magnitude of funds granted to research centers in universities by private and Federal agencies. Concentration of private and Federal research funds in prestige institutions has set off a chain reaction that intensifies the urgent need for attracting and retaining well-recognized scholars and research workers, particularly in the physical and biological sciences. The financial requirements of the State university centers are increased as a consequence. But the support from sources other than State taxes is increased as well.[51]

Although most of the State groups concerned with higher education have not emphasized the economic benefits of higher education, few lose sight of the fact that higher education itself is a growing "industry." [52]

In summary, most States in the past few years have explored the developing problems of higher education within their borders; less than one out of each five States has made a comprehensive survey of higher educational opportunities for their residents and the financial problems involved. State tax funds for higher education have increased rapidly, but the higher taxes have not been sufficient to gain quality education in the quantity demanded. State interest in college-trained manpower and in industrial expansion based on scientific advances suggests the possibility of new methods of financing, including long-term borrowing. However, faced with the growing financial load for higher education, States in some instances are turning to the cities for a larger share of the costs—cities already burdened with the complex public service needs of metropolitan communities.

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[50] Wylie Kilpatrick. *Florida's Economy—Past Trends and Prospects for 1970*, vol. 2 of Higher Education and Florida's Future. Gainesville, University of Florida Press, 1956.

[51] The effect of research on the finances of higher education is discussed in ch. 18 of this publication.

[52] *See*, for example, S. V. Martorana, Ernest V. Hollis, *et. al.*, *Higher Education in South Dakota, a Report of a Survey*, vol. I, U.S. Department of Health, Education, and Welfare, Office of Education, September 1960; and James W. Harvey, *The University and the City, a Study of Economic Relationships Between the University of California and the City of Berkeley*, Berkeley, University of California Bureau of Public Administration, December 1958 (processed); and various reports by the New England Board of Higher Education, the Southern Regional Education Board, and the Western Interstate Commission for Higher Education.

# CHAPTER 15

# Corporate Support of Higher Education

*Robert J. Pitchell**

CORPORATIONS increasingly have recognized the importance of institutions of higher education as a base of research and a source of trained manpower. Post-World War II shortages of manpower, particularly in science and engineering, have emphasized the close ties of business corporations with the universities and colleges. Corporations have expanded recruitment in the colleges and participated in programs designed to attract additional students into science, engineering, and business administration. They have reached back into the high school to encourage young people through scholarships and traineeships to further their education. And they have helped in raising the scientific preparation of high-school teachers through exchange and other programs between industry and colleges. Many corporations have financed advanced education for some of their employees as a way to aid in the recruitment and retention of needed trained manpower.

The role of research in industrial development has long been recognized. Some of the more important industrial laboratories date back before the present century. But since World War II the acceleration of scientific advances and technology has produced new requirements for industrial research. Indeed, industrial research and development have been accelerated by more widespread recognition of the profitability and payoff of research. Industry's research and development bill amounted to $8.2 billion in 1958; it is estimated at $10 billion in 1960.[1]

There is every indication that the pace of innovation will be further accelerated in the decade ahead. While research conducted by industry in its own laboratories is concerned principally with application of knowledge to specific improvements of products and processes of production, expansion of basic research is recognized more and more as the cornerstone of applied research.

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[1] National Science Foundation, *Reviews of Data on Research and Development*, 24:1, December 1960.

The story of corporations and higher education is not unlike the story of government and higher education, or that of any other segment of our society and higher education. It is a story of increased dependence on colleges and universities and greater responsibility for these institutions. The more complex the base from which we start, the greater the complexity of advancing further. The knowledge of simple mechanics and mechanical arts needed in the 19th century is no longer the basis of technological progress. The transformation is dramatized by man's achievement in outer space and is brought coldly home in the destructive force of his splitting of the atom. When machines are constructed that think and remember, the challenge to human brainpower becomes not less but more. And it is in this climate that business firms are reassessing their benefits from investment in education and their obligations for contributing to development of the Nation's brainpower.

The financial contributions of corporations to higher education take many forms. Some corporate funds go out in the form of educational fringe benefits to employees or even more directly to training of employees as an expense of business. Some represent contractual payments for research performed. Still other funds represent charitable giving. Some of the corporate funds spent for higher education go directly into the financial accounts of colleges and universities. Others are given as financial aid to students directly by the corporations and do not appear in the financial accounts of the colleges and universities as corporate funds. Some corporate funds are contributed through foundations; other amounts are paid directly without an intermediary. This brief description is not intended to set up a precise classification of forms or methods of corporate contributions, but to suggest that the data available on amounts of corporate contributions to higher education often relate to specific forms of support and exclude others.

## EDUCATION AND TOTAL CORPORATE GIVING

Corporate giving for all philanthropic purposes (defined to accord with the definitions of "contributions" reported by corporations under the Federal internal revenue laws) amounted to $395 million in 1958 and is expected to almost double by 1970 (table 1). In the prior 12-year period from 1946 to 1958, corporate giving for all philanthropic purposes rose from $214 million to $395 million. Charitable and educational giving amounted to 1 percent of corporate net profits before taxes.

The amount of corporate funds used for educational and welfare purposes is greatly understated by such data. For example, corpo-

rations have been expanding their provisions for health and other insurance protection for their employees at the same time as they have been increasing educational services and benefits for them. These activities properly become an expense of doing business and are not charitable or educational "giving," but the impact and effects in the community as a whole are not very different from the effects of philanthropic activities.

TABLE 1.—Corporate philanthropic contributions, amount and as percent of profits before taxes, by year, 1936–58

[Amounts in millions]

| Year | Total corporate profits | Contributions | |
|---|---|---|---|
| | | Amount | Percent of profits |
| 1936 | $7,771 | $30 | 0.39 |
| 1937 | 7,830 | 33 | .42 |
| 1938 | 4,131 | 27 | .66 |
| 1939 | 7,178 | 31 | .43 |
| 1940 | 9,348 | 38 | .41 |
| 1941 | 16,675 | 58 | .35 |
| 1942 | 23,389 | 98 | .42 |
| 1943 | 28,126 | 159 | .57 |
| 1944 | 26,547 | 234 | .88 |
| 1945 | 21,345 | 266 | 1.24 |
| 1946 | 25,399 | 214 | .84 |
| 1947 | 31,615 | 241 | .76 |
| 1948 | 34,588 | 239 | .69 |
| 1949 | 28,387 | 223 | .78 |
| 1950 | 42,613 | 252 | .50 |
| 1951 | 43,495 | 341 | .78 |
| 1952 | 38,735 | 399 | 1.03 |
| 1953 | 39,801 | 495 | 1.24 |
| 1954 | 36,721 | 314 | .86 |
| 1955 | 47,949 | 415 | .87 |
| 1956 | 47,413 | 418 | .88 |
| 1957 | 45,073 | 419 | .93 |
| 1958 | 39,224 | 395 | 1.01 |

SOURCE: U.S. Treasury Department. *Statistics of Income*, Corporation Income Tax Returns.

Figures that are directly comparable, showing the distribution of these contributions by purpose, are not available. However, survey data throw some light on the pattern of corporate giving (table 2). The major share of corporation funds goes for welfare, health, and education. Changes in the distribution of corporation contributions since 1947 and even since 1955 indicate that education is getting an increasingly larger share of total corporate giving. The relative share for education has almost tripled since 1947. Moreover, a part of the giving for other purposes, such as gifts to voluntary health agencies, are in turn devoted to purposes that channel funds into colleges and universities. In 1958, for example, about $30 million of the income received by voluntary health organizations through contributions was devoted to research, and a substantial share of this

amount was for research in colleges and universities. About $9 million was spent for research by the American Cancer Society, and a similar amount by the American Heart Association.[2]

TABLE 2.—Percentage distribution of corporate contributions, by area of support, 1947, 1948, 1955, and 1959 [1]

| Area of support | 1947 | 1948 | 1955 | 1959 |
|---|---|---|---|---|
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Community chests and united funds | 51.3 | 40.3 | 26.4 | 25.1 |
| National health agencies | 2.4 | 1.7 | 1.3 | 1.6 |
| Hospital | 13.1 | 17.5 | 8.6 | 10.5 |
| EDUCATION | 13.4 | 14.2 | 31.3 | 39.1 |
| All others | 20.2 | 26.7 | 32.4 | 23.7 |

[1] Data derived from surveys conducted by the National Industrial Conference Board and reported for 1947, 1948, and 1959 in *The Conference Board Business Record*. New York, National Industrial Conference Board, Inc., January 1960, p. 19, and June 1961, p. 16; for 1955 in *Company Contributions: III, Policies and Procedures;* studies in Business Policy, No. 89. New York, National Industrial Conference Board, Inc., 1958. The samples represented by these data covered 71 corporations in 1947, 79 corporations in 1948, 180 in 1955, and 282 in 1959.

The Council for Financial Aid to Education has estimated that something over $136 million was given by American business concerns (including company foundations) to higher education in 1958.[3] This includes extensive grants in the form of fellowships and scholarships given directly to students. Business gifts given directly to institutions of higher education in the college fiscal year 1958–59 amounted to $98.5 million, according to the council. Of the total, $68.9 million was given for current operations and $29.6 million for capital purposes. The money was contributed for the following purposes.[3]

| *Purpose* | *Amount (millions)* | *Percent* |
|---|---|---|
| Total | $98.5 | 100.0 |
| Unrestricted use | 26.2 | 26.7 |
| Physical plant | 24.7 | 25.0 |
| Research | 20.5 | 20.8 |
| Student aid | 15.3 | 15.5 |
| Faculty compensation | 3.7 | 3.8 |
| Other purposes | 8.1 | 8.2 |

A roughly similar picture emerges from data compiled by Selma Mushkin and Eugene P. McLoone of the Office of Education, U.S. Department of Health, Education, and Welfare (table 3).

Previous surveys by the Council for Financial Aid to Education in 1954–55 and 1956–57 indicate that the proportion of unrestricted gifts

[2] *The Conference Board Business Record.* New York, National Industrial Conference Board, June 1961.

[3] *Voluntary Support of America's Colleges and Universities, 1958–1959.* New York, Council for Financial Aid to Education, 1959. p. 69.

from business concerns has been increasing, as has that of indirect gifts given to colleges and universities through State, regional, and other joint fundraising associations, which then redistribute the gifts to the member educational institutions.

**TABLE 3.—Gifts and grants by foundations and corporations or other business firms to colleges and universities, academic year 1957–58** [1]

[In thousands]

| Purpose | All colleges and universities | Public colleges and universities | Private colleges and universities |
|---|---|---|---|
| Gifts and grants for— | | | |
| All purposes | $198,510 | $52,769 | $145,739 |
| Corporations and other businesses | 76,148 | 22,398 | 53,748 |
| Foundations | 122,362 | 30,371 | 91,991 |
| Current operation | 105,649 | 39,537 | 66,112 |
| Corporations and other businesses | 55,838 | 19,682 | 36,156 |
| Foundations | 49,811 | 19,855 | 29,956 |
| Plant funds | 45,193 | 10,031 | 35,162 |
| Corporations and other businesses | 12,508 | 1,270 | 11,238 |
| Foundations | 32,685 | 8,761 | 23,924 |
| Endowment funds | 47,055 | 2,909 | 44,146 |
| Corporations and other businesses | 7,590 | 1,395 | 6,196 |
| Foundations | 39,465 | 1,514 | 37,951 |
| Other special funds | 613 | 292 | 319 |
| Corporations and other businesses | 212 | 51 | 159 |
| Foundations | 401 | 241 | 160 |

[1] Computed by Selma J. Mushkin and Eugene P. McLoone from unpublished preliminary data compiled for *Statistics of Higher Education, 1957–58*, Biennial Survey of Education in the United States, 1956–58, ch. 7, sec. II, table 1. U.S. Department of Health, Education, and Welfare, Office of Education.

The council also reports that corporations and business concerns increased their contributions to higher education by 149.7 percent from academic year 1954–55 to 1958–59. However, most other groups of donors increased contributions at a higher rate than business concerns (table 4). Perhaps the most interesting and significant part of the table concerns the high level of contributions from individuals and from government. Alumni and other individuals contributed $281.9 million, or 37.5 percent of the total, in 1958–59, and voluntary contributions from governments amounted to 16.6 percent of the total.

Corporate and foundation giving (table 3) amounts to less than 5 percent of total current-fund income of institutions of higher education. In contrast, total payments from government amount to 42.7 percent of current fund income. Overall, corporations appear to be increasingly aware of their responsibilities to higher education. They are increasing their contributions. Yet their gifts do not constitute a large share of total funds for higher education, and they remain one of the great, largely untapped reservoirs of support.

## TABLE 4.—Voluntary contributions, by groups of donors to institutions of higher education, 1954–55 and 1958–59

[Amounts in millions]

| Donors | 1954–55 | 1958–59 | Percent change |
|---|---|---|---|
| Governments [1] | $29.9 | $124.8 | +318.1 |
| Individuals and/or families [2] | 30.9 | 129.3 | +318.1 |
| Alumni(ae) | 52.1 | 152.6 | +192.9 |
| Nonalumni, nonchurch groups | 18.7 | 52.4 | +180.2 |
| Governing boards | 9.7 | 24.4 | +153.1 |
| Business concerns | 39.4 | 98.4 | +149.7 |
| General welfare foundations | 50.2 | 88.3 | +75.8 |
| Religious denominations | 42.9 | 64.2 | +49.8 |
| Other sources | 15.3 | 16.9 | +10.5 |
| Bequests, trusts, annuities | 47.0 | [3] | [3] |
| Total | 336.1 | 751.3 | 123.5 |
| Institutions reporting | 728 | 1,071 | +47.1 |

[1] Does not include appropriations or other specific grants made by statute.
[2] Covers individuals and families not included in other groups.
[3] These gifts were credited to donors in other categories in 1958–59.

SOURCE: Council for Financial Aid to Education. *Voluntary Support of America's Colleges and Universities, 1958–1959.* New York, The Council, 1959. p. 9.

## TABLE 5.—Current-fund income of institutions of higher education, by control and source of income: 1957–58 [1]

[Amounts in thousands]

| Source | Public and private | | Public | | Private | |
|---|---|---|---|---|---|---|
| | Amount | Percent of total | Amount | Percent of total | Amount | Percent of total |
| TOTAL CURRENT-FUND INCOME | $4,675,513 | 100.0 | $2,656,401 | 100.0 | $2,019,112 | 100.0 |
| Educational and general income | 3,762,532 | 80.5 | 2,174,074 | 81.8 | 1,588,458 | 78.7 |
| Tuition and fees from students | 939,111 | 20.1 | 274,181 | 10.3 | 664,929 | 32.9 |
| Federal Government | 712,431 | 15.2 | 392,521 | 14.8 | 319,910 | 15.8 |
| Veterans' tuition and fees [2] | 5,056 | .1 | 1,336 | .1 | 3,720 | .2 |
| Land-grant institutions (regular appropriations) | 83,937 | 1.8 | 82,295 | 3.1 | 1,642 | .1 |
| Research | 534,389 | 11.4 | 232,775 | 8.8 | 301,613 | 14.9 |
| Other purposes | 89,049 | 1.9 | 76,114 | 2.9 | 12,935 | .6 |
| State governments | 1,156,537 | 24.7 | 1,128,895 | 42.5 | 27,643 | 1.4 |
| Local governments | 129,389 | 2.8 | 126,843 | 4.7 | 3,546 | .2 |
| Endowment earnings | 181,638 | 3.9 | 15,881 | .6 | 165,758 | 8.2 |
| Private gifts and grants | 324,971 | 7.0 | 68,774 | 2.6 | 256,197 | 12.7 |
| Related activities | 199,303 | 4.3 | 108,400 | 4.1 | 90,902 | 4.5 |
| Sales and services | 47,448 | 1.0 | 30,864 | 1.2 | 16,584 | .8 |
| Other sources | 71,705 | 1.5 | 28,716 | 1.1 | 42,989 | 2.1 |
| Auxiliary enterprises | 841,539 | 18.0 | 448,989 | 16.9 | 392,550 | 19.4 |
| Student aid income | 71,442 | 1.5 | 33,338 | 1.3 | 38,104 | 1.9 |

[1] Data are for aggregate United States—50 States and the outlying parts.
[2] Includes tuition and fees for World War II and disabled veterans only. Excludes tuition and fees for Korean veterans enrolled under Public Law 550.

SOURCE: Preliminary data compiled for *Statistics of Higher Education, 1957–58*, Biennial Survey of Education in the United States, 1956–58, U.S. Department of Health, Education, and Welfare, Office of Education.

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## PUBLIC-PRIVATE COMPETITION FOR CORPORATE FUNDS

Each crop of new entrants at our institutions of higher education greatly enlarges the needs of these institutions, and the amount of funds required to finance those needs. The facts of the financial problem of higher education and of mounting enrollments are as commonplace as is the concern that the lack of support may prevent colleges and universities from meeting their responsibilities to industry and to the Nation.

Private institutions of higher education have been plagued by practical limitations on tuition charges and by the overall inadequacy of alumni support and of private gifts, large as they may be. Public institutions have borne the brunt of the student population explosion and the increasing competition for State funds required by programs for mental health, welfare, and highways, and by local communities' demands for increased State aid to relieve the burden of local school costs.

A striking characteristic of higher education today is competition—competition for students, faculty, and money, and competition in curriculum offerings and public service programs designed to achieve excellence in teaching, stature, and influence. Such competition has been instrumental in raising faculty salaries, attracting more able young people to the academic world, increasing the quantity and quality of the college student population, and expanding the public service functions of our colleges and universities at home and abroad.

This competition has generally been on a school-to-school basis, except in financing. In fundraising, it has been natural for the schools to split into two groups, private and public. Public institutions have traditionally received the bulk of their support from State funds, while private institutions have relied on tuition charges, alumni support, and gifts from wealthy individuals, corporations, and foundations.

As the need for funds has increased, public and private institutions have invaded each other's financial preserves. Private institutions have turned increasingly to governmental sources of revenue. Aid from State and local sources has been limited for the most part to traditional exemptions from property taxes—exemptions that have been expanded in some States to include exemptions from other taxes—on business enterprises owned wholly or partly by educational institutions. At the Federal level, private schools have broken new ground by participating equally or more fully than previously in most Federal programs for grants, research, and other aids for higher education. The latest

available data indicate that private institutions actually receive a larger proportion of their total incomes from the Federal Government than do public institutions, 15.8 percent versus 14.8 percent (table 5). If appropriations to land-grant colleges are removed from the totals, private institutions are well ahead of public ones with 15.7 percent versus 11.7 percent. Equal consideration has been given to public and private institutions in awarding student scholarships, fellowships, and loans, including loans for dormitories; research grants made by the National Science Foundation, the National Institutes of Health, and the Office of Education; the various oversea programs; and the current efforts to expand programs for facilities and student aids. Federal funds for research comprise the largest part of the Federal outlay for higher education.

Public institutions, on the other hand, have called on the major corporations and foundations for support. They have argued that they are unable to attain their greatest usefulness or maintain the excellence of the best private colleges without supplementing their public appropriations from private sources.

It would be easy to exaggerate the conflict for funds between public and private institutions. In some States, such as Indiana and Ohio, amicable arrangements have been worked out by the presidents of the various institutions whereby the private institutions are given exclusive opportunities for solicitation of corporate support in the State, and they in turn either assist in justifying budget requests of public institutions or at least give tacit support.

Nevertheless the scramble for funds from every available source is raising what might be called jurisdictional problems, mainly in the area of corporate and foundation giving. The States are not likely to contribute significant sums for the support of private institutions, except possibly through aid to students. Whatever expansion of Federal programs or Federal support occurs will probably continue on an across-the-board public-private basis. Both groups are expected to look to corporation and foundation support with increasing competitiveness, however.

## METHODS OF DISTRIBUTING FUNDS

As corporate and foundation grants become larger and competition for them intensifies, the basic question of "who gets what" will require a reevaluation of present practices.

Harry W. Smith, executive secretary of the Westinghouse Electric Fund, summarized the situation in 1956 when he said:

> The case for some corporate assumption of social responsibility for college and university needs is now so clearly established that current concern may

be shifted to discovering best methods. A major unsolved consideration is, of course, how much of our historically successful dual system of private and public education is to be paid for privately.[4]

Corporations and foundations have responded in a variety of ways to requests for funds to support higher education. Some selectivity with regard to recipients has been inevitable. A common selection criterion has been proximity of the institution to corporate plant and office locations. Corporations also seem to favor the institutions their employees attended. Increasingly they are making large grants to fundraising associations of private colleges.

The proximity criterion has several advantages. It is not difficult to define; it gives rise to favorable local relations; and it allows small, poor schools to receive aid that they might not otherwise obtain. Yet many corporations appear to be searching for other criteria, especially as contribution budgets increase.

Contributing to the schools that employees had attended affords a satisfactory rationale for the selections. It can be presumed that a successful corporation is receiving benefits from the college training received by its employees, and the system is an obvious aid to employee morale. Some corporations, such as General Electric, match employee donations to their alma maters; some, such as General Motors, because of its large number of college-trained employees, contribute to schools of which a specified minimum number of employees are graduates. Others, such as the Columbia Broadcasting System, contribute only to the alma maters of a select group of key executives.[5] Administratively, one of the built-in virtues of this general technique is that in most instances the selectivity criteria are either automatic or generally acceptable and self-limiting.

Foundation grants for special research and corporate grants of a similar nature, which would be of particular benefit to the donating corporation, have raised no comparable problems of allocation. Such grants usually go to persons selected on the basis of special competence or to schools having adequate staff and facilities and a willingness to undertake special research.

Broader grants for scholarships, fellowships, faculty salaries, general research projects, or other general purposes have raised problems of selection. Typically, private giving to private institutions has been favored as a way to preserve a balance between privately and publicly supported institutions. The largest of such grants was the multimillion-dollar Ford Foundation grant of 1956 for faculty salaries, which excluded public institutions of higher education even

[4] National Industrial Conference Board. *The Why and How of Corporate Giving*. New York, The Board, 1956. p. 26.

[5] Ford's program, begun in 1960, matches employees' gifts to any university or high school up to $5,000.

though many public institutions had lower salary scales than similar private institutions. The presumption obviously was that public institutions could get equivalent salary money from their State legislatures.

Similarly the major program initiated by the Ford Foundation in 1960 with a grant of $46 million to five specially selected universities was, according to foundation president Henry T. Heald, part of a special program to consist of large, unrestricted grants to a few privately supported universities. Announcing the grant, Mr. Heald said: "It is essential to the welfare of the Nation that each part of its traditional dual system of higher education—the privately and publicly supported colleges and universities—remains strong and reaches higher levels of performance." [6] The total exclusion of public institutions from this program apparently presumes that public funds will always be adequate to enable public institutions to achieve their aims.

Many corporations have followed a similar pattern and have cut off support to public institutions. The Columbia Broadcasting System's Frank Stanton, announcing the corporation's original higher-education-support program, which limited aid to private schools, said:

> These institutions have a special problem which separates them from the tax-supported State and other public institutions. . . . But because of the different basis of support on which our privately endowed institutions depend, we are concentrating our contributions in this area. . . .[7]

Although General Motors scholarship plans are not limited to private institutions, its foundation program was conceived as exclusive assistance for such schools. A General Motors spokesman, explaining the company's decision, stated that—

> The public institutions can meet these costs through higher taxes. The private institutions, on the other hand, face a more difficult problem and have turned to the corporation as one source of additional support. We believe it is sound to provide such assistance and in this way aid in preserving the historic balance between enrollment in private colleges and universities and that in tax-supported institutions.[8]

The 1958–59 data of the Council of Financial Aid to Education are revealing in this regard. Excluding junior colleges, public institutions had about half of the enrollment of reporting institutions, but received only a fourth of corporate contributions. The comparison is even more dramatic between the major private and public institutions on a per pupil basis:

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[6] *Louisville Courier-Journal*, Sept. 25, 1960.
[7] National Industrial Conference Board, op. cit., p. 98.
[8] Ibid., p. 108.

TABLE 6.—High, median, and low of average gifts per student, 1958–59

| Gifts per student | Major State institutions | Independent major private institutions | Major technological institutes |
|---|---|---|---|
| High | $35 | $203 | $499 |
| Median | 14 | 111 | 382 |
| Low | 6 | 43 | 72 |

Gifts from all sources show a similiar range among private and public institutions for the same year:

| Type of school | Average gift per student |
|---|---|
| Professional and specialized | $875 |
| Major private universities | 768 |
| Private men's colleges | 595 |
| Private coeducational institutions | 453 |
| Private women's colleges | 444 |
| State institutions | 174 |
| Municipal colleges and universities | 138 |

If we look at institutions' financial accounts, we find that 29 percent of gifts and grants from corporations and business firms were received by public institutions in 1957–58, and 71 percent by private ones (table 3). These data include contract funds for research.

For some corporations the rationale of cutting off all support for public institutions has been: "We support you through our taxes." Other corporations have taken the middle ground. They continue to contribute to both private and public institutions of higher education, but reduce their grants to public institutions to compensate for their contributions to such institutions through State taxpayments. At least one major corporation has worked out a formula under which it makes such an allowance for State taxpayments when making grants to public institutions. Many, however, make no distinction between public and private institutions in their gift and grant programs.

What is clear about this situation is that no one has adequately solved the problem of measuring the amount of support that corporations contribute to public institutions through their taxes. Is it more or less than their grants to private institutions? The corporations that contribute only to private institutions because they contribute to public institutions through their taxes obviously are not aware that of their *Federal* taxpayments which go to institutions of higher education, 45 percent are received by private institutions (see table 5). Similarly the corporations that contribute equally to all institutions of higher education are not aware that private institutions receive only 2.4 percent of all *State and local* appropriations for higher education. Even where a formula is used to make an allowance for taxpayments, there is no well-developed basis for measuring corporate

taxpayments or the proportion of such payments that are received by public institutions; and at best the results would be applicable only to the corporation making the calculation.

As corporate grants grow, the fundamental question of allocation among public and private schools will assume greater importance in the financing of higher educational institutions. This would appear to justify a more detailed examination of the situation, as follows:

## MEASURING TAX SUPPORT BY CORPORATIONS

As far as the Federal tax dollar is concerned, it is clear that there is little ground for a corporation's differentiation between public and private institutions of higher education in making private grants when all other factors and motivations are equal. Private institutions which have approximately half of the total enrollment in the United States, received a little less than half the total Federal grants to higher education in 1957–58, the latest year for which data are available. Since Federal tax laws are uniform throughout the United States, whatever proportion of the corporate tax dollar goes to higher education is shared by public and private institutions. In this sense, public and private institutions as a whole are in equal need of income from private sources, corporate or otherwise, although there are important differences among individual institutions in both categories because the largest universities receive the bulk of Federal moneys.

The distribution of the tax dollar at the State level is in sharp contrast to that at the Federal level. Only 2.4 percent of all State and local public appropriations for higher education are received by private institutions. It is at this level that it will be fruitful to explore the problems of differences in corporate tax support of public and private institutions.

State corporate taxes are not uniform; nor are State appropriations for higher education. Corporate tax burdens vary by State, and the proportion of corporate tax dollars received by each State's public institutions also varies. It is therefore necessary to compile data in each of the 50 States in order to pinpoint whatever differential exists in public and private support.

The answer to the limited question of corporate tax support of public colleges and universities involves three basic sets of data in each State. First, we must know how much tax money was received by each public institution of higher education in a given period. Secondly, we must calculate the total pool of tax money. This information enables us to determine the percentage of tax money the institution received, which can be used as a basis for measuring the extent of public support for the institution. Thirdly, we must determine how much of the total tax pool was collected from corporations.

This is the raw data for computing the corporations' proportionate burden of the State's tax collections. From these data it is easy to calculate how much all the corporations subject to the State's taxes have contributed to the support of each public institution of higher education in that State. At that point we shall know what percentage of each corporate tax dollar in the State goes to higher education. With this information, a particular corporation can calculate its own tax contribution to higher education in the future.

The gathering of these data is beset with many pitfalls. Problems of definition, methodology, and availability of reliable data abound. And complications arise from different accounting procedures and from variations in State tax systems. Some approaches to a workable solution to the overall problem may be suggested here.

When we speak of higher education in this context, we mean the academic activities of institutions of higher learning, not their "outside" or commercial ventures. In some colleges this implies instructional activities only, but major universities today have three recognized academic functions—instruction, research, and public service. These functions are carried out not only through student instruction and other faculty activities, but also through agricultural experiment stations, agricultural extension services, hospitals associated with medical schools or devoted to the treatment of students or staff, speech and hearing clinics, extension centers (including courses for college credit and those not for credit), athletic plants, dormitories, faculty housing, bookstores, student unions, laboratories, and research facilities of all kinds. Noneducational commercial enterprises of any kind would obviously not be academic functions even though they are administered by the institution, but they may be important revenue producers.

## AMOUNT OF TAX SUPPORT

The annual State appropriation cannot be considered equivalent to the amount of State taxes spent for higher education. In some States, by constitution or by statute, all moneys including tuition received by public educational institutions must be deposited in the State treasury, whereupon they are usually appropriated back to the institution by legislative act. To get a meaningful and comparable figure for each State, we calculate the net legislative appropriation by subtracting the amount of the appropriations for all nonacademic functions and of any nontax income received by the school which has been deposited in the State treasury and appropriated for the institution. Hence, if any of these activities are partially supported out of tax revenues, that part—and only that part—is chargeable to the taxpayers.

We are not out of the woods yet. States often finance educational activities out of bond revenues. These are not tax revenues, except when tax moneys are used to pay interest or principal on such bonds. On the other hand, public welfare moneys paid to university-operated hospitals for handling charity cases are in effect taxpayments in support of one of the university's academic functions.

A special problem arises for capital appropriations. In most States such appropriations are made only as urgent needs arise. To make a fair test of tax support of higher education, an average figure of capital appropriations over an extended period of from 4 to 10 years may be necessary.

## SOURCES OF TAX SUPPORT

It is relatively easy to determine how much tax support a public institution of higher education receives. It is more difficult, and more crucial, to define the total pool of tax revenues out of which appropriations for higher education are made. The three components of this problem are: (*a*) the separation of public revenues into tax and nontax categories; (*b*) the distinction, if any, between general-purpose taxes and taxes levied for regulatory purposes or special uses; and (*c*) the inclusion or exclusion of local tax revenues.

We can easily set apart from other revenues intergovernmental receipts and receipts from State-owned or locally owned public facilities. Also not classifiable as taxes are fees received in the operation of medical facilities, toll roads, utilities, garbage and sewer systems, and commercial enterprises, such as liquor stores, as well as insurance trust receipts (including teachers' and State employees' pension funds), interest, and miscellaneous receipts from fines and the like.

A more vexing problem emerges after tax revenues are properly defined. Some taxes are obviously imposed for general revenue purposes; others, such as gasoline taxes, may be imposed for special purposes benefiting the taxpayers and the revenues put into dedicated or earmarked funds; still others, such as professional and business license fees and severance taxes, may be levied in token amounts and designed specifically for regulatory purposes.

When the State imposes a levy on a particular group of persons for the exclusive benefit of that group, or in the public interest as a regulatory measure, there is justification for treating such revenues separately from the general pool of State moneys available for education and other general purposes, just as it is necessary to exclude from the pool of public funds tuition fees paid by students, even though such fees are part of the funds available to institutions of higher education. Tuition fees are used for the exclusive and direct benefit

of the payees just as motor vehicle taxes are used to build highways for motor vehicle taxpayers.

Care must be exercised in dealing with this problem. It is one thing to exclude severance taxes on oil when they are used exclusively to control the rate of production of oil and gas, and it is another to exclude such revenues when they are used wholly or partly for education or other general purposes. The rule would be, then, that to the extent that tax revenues or fees are classifiable as user taxes or regulatory taxes, they are not part of the revenue pool out of which public institutions of higher education derive tax support; to the extent that such revenues are used for other purposes, they would have to be considered as part of the total revenue pool, even though earmarked.

Hence all sources of general revenue such as property, sales, income, and transfer taxes would be part of the revenue pool, except where, as in the case of motor fuel taxes dedicated for highway purposes or alcoholic beverage taxes used for control of the alcoholic beverage industry, they would come under the exclusionary rule explained above. The same would apply to special business taxes, such as franchise, privilege, and occupation taxes, and to miscellaneous taxes, such as poll, parimutuel, and admission taxes.

Usually when we refer to State taxes we mean just that—taxes imposed and collected by the State. Since almost all regular appropriations for public institutions of higher learning are made by the State, the total pool of taxes as defined above could be expected to be limited to revenue from State taxes. Yet even the most superficial analysis of State tax structures reveals that States differ widely not only in the proportions of taxes collected at the State and the local level but also in the amount of State aid given to local communities and in the dependence upon business taxes to support State and local functions. In Indiana, for example, many corporations pay extremely light State taxes and heavy local property taxes. In West Virginia, the State taxes are much heavier and the local taxes lighter. In Nebraska and California the total burden is likely to be more evenly balanced. Where State aid to local communities is extensive, the proportion of State taxes to local is high; and where State aid is minimal, the State tax burden is comparatively light. In States where local functions are locally financed, the total of State taxes will be materially lessened and the appropriation for public institutions of higher learning will amount to a larger proportion of State tax revenues than it does in States where a major proportion of local functions are financed by State aid. Under the latter conditions most taxes will be levied by the State; and the appropriation for higher education, even though the same as in the first instance, would appear to amount to a much smaller proportion of the total tax pool.

For all of these reasons no valid or consistent data can be derived unless the amount of a State's total tax pool is calculated by including both State and local taxes. This does not amount to a paper reduction in corporation support for higher education because corporate taxpayments to State and local governments will necessarily be included in the total of corporate taxpayments, from which their tax support of higher education is credited.

## TAXES PAID BY CORPORATIONS

Having determined the amount of tax support of an institution in a State and the tax sources available for this support, we still must seek an answer to "How much is paid by corporations?" On the surface it would appear that corporate taxes are easily distinguishable from noncorporate taxes. The corporation income tax and the personal income tax are obvious examples. But does the corporation ultimately pay the corporation income tax? The economist will argue that such taxes are ultimately borne by the shareholder through reduced dividends or are shifted to the consumer through increased prices, or to the employee through reduced wages. This problem need not concern us here because whatever the ultimate incidence of corporation taxpayments, the same incidence would apply to corporate contributions to private institutions of higher education.

If we limit our analysis to initial tax payments, we need only determine: (*a*) which tax payments are drawn from funds from which the corporation contributes also to private institutions, and (*b*) which payments are made by corporations while serving only as collection agencies for taxes imposed directly on individuals and other consumers.

The collection-agency criterion is a simple one from a legal point of view because the law, in virtually every case, will specify whether a business entity is serving as a collection agency. Whenever the legal liability for the tax is on the consumer (as in some sales, use, excise, and gross-receipts taxes) or on the income earner (as in withheld taxes), such taxes would not be counted as taxpayments by the corporation, although the corporation may be required to collect the tax and turn the money over to the State. But sales and excise taxes paid by corporations as consumers of taxable goods would be treated as corporation taxes.

Legal liability should not be the only criterion for determining who directly pays a specific tax. The legal liability of a sales tax may, for example, rest upon the retailer primarily for administrative convenience. If, however, the law allows the retailer to collect the tax from the consumer, and retailers *generally* do so, that tax should be considered a direct tax on consumers. For determining

tax payments attributable to consumers or income earners, other criteria would be (*a*) the allowances to business firms for collection, and (*b*) eligibility for tax refunds or for tax deductions.

In general, sales, use, and excise taxes as well as withheld income taxes would be allocated to consumers and income earners. Manufacturers' excise taxes, payment of which is a legal obligation of the manufacturer unless there are mandatory provisions in the law for shifting them, would be attributed to business firms. Gross-receipts, business-activities, value-added, gross-margin, and insurance gross premium taxes would be counted as business taxes except where the law explicitly requires or allows shifting of the tax to the consumer. Utility gross receipts can be assumed to be consumer taxes without regard to the legal obligation to pay because of the special circumstances of rate fixing.

Even if these concepts and definitions provide an adequate and satisfactory basis for determining the extent of corporate tax support of public institutions of higher education, there remains the question of the availability of required data in State and local records. As far as is known, no State segregates taxpayments by corporations with regard to all State and local taxes. Data on taxes that are paid exclusively by corporations can be readily obtained from official reports in most States. On taxes paid by corporations and noncorporate taxpayers, corporate payments must be segregated and totaled. On taxes paid directly to the State, it is possible to examine administrative records to make this breakdown.

Local taxes, especially the property tax, present formidable problems, because property taxes on corporations are not separately recorded and administration is usually decentralized. Sampling procedures would normally have to be used.

These are the major considerations in calculating the amount of corporate tax support for public institutions of higher education. A rundown of the situation in one State A will perhaps give a clearer picture of the recommended technique.[9]

Total revenue of State and local governments in State A in 1959 was $1,137 million, of which $106 million was intergovernmental revenue from the Federal Government and $213 million, nontax receipts, making total State and local tax revenues $818 million, as follows:

| *Item* | *Amount (millions)* | *Item* | *Amount (millions)* |
|---|---|---|---|
| General property | $414 | Employment security | $27 |
| Income | 170 | Inheritance and gift | 12 |
| Motor vehicle | 111 | Insurance | 8 |
| Excises | 85 | Occupations and licensing | 6 |
| Public utility | 85 | | |

[9] The following data are preliminary figures in one State from a pilot study of revenue in five States in which the author is currently engaged. The States will be identified when the final report is made.

Motor vehicle, employment security, and all but one-half million of the occupations and license taxes are classified as user or regulatory taxes as defined previously. Hence the State and local total tax pool out of which the State university received its appropriation that year was almost $675 million.

Surveys of tax records revealed that corporations paid $100 million in property taxes, $48 million in income taxes, $26 million in utility property taxes, and $8 million in insurance taxes for a total of $182 million, or slightly over a fourth of the State and local tax pool.

The net appropriation from State and local governments to the State university for academic purposes (operating and capital) amounted to $28 million—about 4 percent of the total revenue available for general State and local purposes. The university therefore received the equivalent of about $7 million from corporate taxpayers in the State. Furthermore, 4 cents out of each corporate tax dollar was allocated to the support of the university.

Each corporation paying taxes into the total tax pool in State A could easily calculate its contribution to the university by multiplying its total taxpayments by 4 percent, being careful first to deduct motor vehicle, employment security, and occupational taxes from its total tax bill. Similar calculations could be made for each public and private institution of higher education receiving appropriations from State and local governmental sources.

These data could be combined with known information about voluntary corporate and governmental support of public and private institutions and about enrollment, out of which meaningful comparisons could be made by educators, public officials, and corporate and foundation officers in planning for equitable financing of institutions of higher education in the United States. To be useful on so broad a scale, it would be necessary to calculate corporate tax support in every State or at the very least in a representative sample of States, and the results would have to be revised whenever significant changes were made in State and local tax burdens.

## VOLUNTARY CONTRIBUTIONS OF CORPORATIONS

This chapter has left unanswered the question of how much corporations should contribute to higher education. We have emphasized the problem of how corporations should allocate contributions because the record indicates that corporate support is quite low in relation to other sources of voluntary support, and that corporate benefits from institutions of higher education will continue to increase rapidly. As corporate contributions increase, need for a solution to the problem of equitable allocation of support among institutions of higher education will become more urgent.