

FOUR YEARS AFTER HIGH SCHOOL

A FOLLOW-UP SURVEY OF THE PENNSYLVANIA HIGH SCHOOL SENIORS OF 1958

— THEIR POST-HIGH SCHOOL EDUCATION

— THEIR EMPLOYMENT

— THEIR FUTURE PLANS

**A Report
of the
JOINT STATE GOVERNMENT COMMISSION
1964**

The Joint State Government Commission was created by Act of 1937, July 1, P. L. 2460, as last amended 1959, December 8, P. L. 1740, as a continuing agency for the development of facts and recommendations on all phases of government for the use of the General Assembly.

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LETTER OF TRANSMITTAL

*To the Members of the General Assembly of the
Commonwealth of Pennsylvania:*

In accordance with the directive of the Executive Committee of the Joint State Government Commission, there is presented herewith a report titled *Four Years After High School: A Follow-Up Survey of the Pennsylvania High School Seniors of 1958: Their Post-High School Education; Their Employment; Their Future Plans*. This report is a sequel to a document entitled *Pennsylvania High School Seniors, 1958: Their Mental Ability; Their Aspirations; Their Post-High School Activities*, which was submitted in 1959.

The Commission wishes to express its appreciation to administrative officers of educational institutions and the Armed Forces who aided in the gathering of basic data. Thanks are due Brigadier General Henry M. Gross, State Director of the Selective Service System, who throughout the planning phases of the project generously shared his organizational talent with the Commission. Needless to say, but for the splendid cooperation and the candid responses of the young men and women who comprised the high school class of 1958, the follow-up survey would have remained a legislative blueprint.

BAKER ROYER, *Chairman*

*Joint State Government Commission
Capitol Building
Harrisburg, Pennsylvania
July 1964*

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SUMMARY OF FINDINGS

1. High school seniors of 1958 who wanted to go to college were more successful in translating their ambitions into actions than seniors who desired noncollegiate schooling.
2. Close to one-half of the young men and women who attended college felt handicapped because of inadequate high school preparation, particularly in English, mathematics, and the physical sciences.
3. The annual expenses of a majority of the college students were less than \$1,500.
4. In 1961-1962, men students who contributed to their own support provided about \$560 per year, women about \$380.
5. About 40 percent of the high school graduates who entered college attended a State-owned college or State-aided university. Commonwealth appropriations to these institutions in 1961 averaged \$660 per Pennsylvania student enrolled.
6. One-third of college students commute; commuting rates vary widely among institutions.
7. Nearly one-third of full-time college students received scholarships which financed on the average about 40 percent of their annual expenses.
8. The higher the college tuition, the higher the percentage of students with scholarships and the higher the value of the scholarship.
9. Scholarship students were generally of higher mental ability than non-scholarship students, except for male students at State-aided institutions.
10. Low mental ability more often accounts for college dropout than low parental income.
11. Young men and women in the labor force since graduation from high school reported average weekly earnings in 1962 of \$81 and \$64, respectively.
12. The brighter a young man who does not continue his schooling beyond

high school, the greater the likelihood of his entering the armed services rather than the civilian labor force.

13. Not quite one-fifth of the young men who had taken vocational-industrial courses in high school were employed in the trade for which they had been trained and two-fifths were engaged in other occupations; the remainder were in military service or in school.
14. Unemployment rates for Pennsylvania men aged 18 to 24 were about 40 percent higher than national rates; unemployment rates for young Pennsylvania women were approximately the same as national rates.
15. For high school graduates without further schooling, both men and women with below average mental ability had unemployment rates more than twice as high as the rates of those with above average mental ability.
16. About one-third of the graduating college students with employment plans expected to work outside the Commonwealth—the brighter the student, the greater the chance that he would work out of state.
17. About one-half of Pennsylvania-trained engineers and engineering technicians leave the state to work elsewhere.
18. Of the graduating college students planning to work in Pennsylvania, 40 percent expected to teach; the prospective teachers as a group were of lower mental ability than those entering other fields of employment.

INTRODUCTION

In 1958, shortly before graduation, some 10,000 Pennsylvania high school seniors, a representative sample of all high school seniors attending public, private, and parochial schools in the Commonwealth, were asked by the Joint State Government Commission to outline their plans with respect to further formal education or employment. Better than nine-tenths responded. At the same time, school administrators furnished the Commission with intelligence test scores and scholastic performance records of the student respondents.

Many of the young men and women contacted in 1958 looked forward to entering college. Some thought of going to a business, trade, or technical school. Among the young women, nursing was a favored course of study. About one-third of the young men and women about to graduate, including some of the brightest, had no plans whatsoever for post-high school education or training. The characteristics of the students, together with their educational aspirations and plans, were summarized in the Commission's 1959 report: *Pennsylvania High School Seniors, 1958: Their Mental Ability; Their Aspirations; Their Post-High School Activities*.

Four years later, in 1962, the aspirations of many of the graduates had been realized. They had attained or were about to attain their educational objectives or had obtained employment in their chosen fields. The educational ventures of some had failed and some had not yet succeeded in making satisfactory occupational adjustments.

The pages which follow suggest answers to many questions of public concern: What proportion of the high school graduates realized their aspirations? What are the characteristics of these young men and women? Are there significant differences in the characteristics and realization patterns of those who attended college and those

who acquired noncollegiate post-high school training? What about unemployment among recent high school graduates? Is unemployment among the young attributable to personal characteristics or to lack of training? How many college-trained Pennsylvanians are seeking and finding employment beyond the boundaries of the Commonwealth? In the light of their first four years of post-high school experience, what were the opinions of the high school seniors with respect to the quality of their high school programs?

This report is based in the main upon close to 4,000 replies—representing a response rate of about 80 percent—to a Joint State Government Commission questionnaire completed in 1962 by 1958 seniors. A copy of the questionnaire and a description of the sampling procedure and limitations are presented in the Technical Notes in Appendix A. Inasmuch as the individuals contacted in 1962 had been included in the 1958 survey, personal characteristics obtained in 1958 can be related to post-high school activities as ascertained in 1962.

Section I of this report is concerned with the post-high school educational achievements of the 1958 seniors. In Section II, employment, unemployment, and earnings are examined. Section III presents a discussion of some of the findings which bear directly upon public policies with respect to education. Throughout the report, presentation and discussion is confined to key facts and relationships of critical importance. Appendix B contains supplemental tabular presentations by reference to which the reader can readily undertake his own excursions into the areas under review.

All data presented in this report, unless otherwise indicated, are based on the 1958 and 1962 surveys of the Joint State Government Commission.

Section I

POST-HIGH SCHOOL EDUCATION

Section I shows to what extent the educational aspirations of the 1958 high school seniors were realized, relates educational attainment to mental ability of students and parental income, compares costs and financing patterns, and indicates how costs were shared by parents, students, and others.

Realization of Educational Aspirations

Table 1 presents percentage distributions of high school seniors by post-high school educational aspirations as of 1958 and actual post-high school activities.

Table 1
PERCENTAGE DISTRIBUTIONS OF HIGH SCHOOL SENIORS OF 1958
BY POST-HIGH SCHOOL EDUCATIONAL ASPIRATIONS PRIOR TO GRADUATION,
BY SEX, BY POST-HIGH SCHOOL ACTIVITY
1958-1962

<i>Post-High School Educational Aspirations Prior to Graduation</i>	<i>Sex</i>	<i>Percent</i>	<i>Post-High School Activity</i>			
			<i>Total</i>	<i>Entered College</i>	<i>Enrolled in Noncollegiate Institution</i>	<i>No Formal Post-High School Education</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Seniors.....	Male	100%	100%	46%	12%	42%
	Female	100	100	28	24	48
Enter College.....	Male	58%	100%	73%	9%	18%
	Female	39	100	65	14	21
Enroll in Noncollegiate Institution.....	Male	10	100	13	30	57
	Female	29	100	5	49	46
Terminate Formal Education on High School Graduation.....	Male	32	100	8	11	81
	Female	32	100	3	13	84

The table shows that 58 percent of the male seniors and 39 percent of the female seniors aspired to enter college; 10 percent and 29 percent, respectively, desired noncollegiate training. The men and women interested in a college education were more successful in translating their plans into actions than those interested in noncollegiate training. Of those who wished to enter college, 73 percent of the men and 65 percent of the women realized their ambition; the comparable percentages for those who wished to attend a noncollegiate institution were 30 percent and 49 percent, respectively.¹

The lower success rates of both men and women interested in noncollegiate post-high school training are in part attributable to the fact that noncollegiate training, unlike collegiate training, is not generally subsidized by either private benefactions or legislative appropriations.² The number of women interested in noncollegiate training is considerably larger than the number of men and, while the number of men desiring training in any one skill or trade is small, over three-fourths of the women desire instruction in but two areas:

secretarial training and nursing.³ Hence, the opportunity for acquiring training is more widespread for women and success rates for women interested in noncollege training tends to be higher than the success rates for men.

The data in Table 1 show that a very small proportion of the men and women who reported no aspirations for post-high school education actually entered college. A somewhat larger number enrolled in a noncollegiate institution but the great majority, over 80 percent for both men and women, obtained no formal schooling beyond high school.

Chart I portrays the relationship between parental income,⁴ students' mental ability,⁵ and realization of ambition to enter college.

Examination of the chart shows that the higher the mental ability the higher the probability of college aspirants attending college. For example, for male college aspirants with parents' income of less than \$6,000, 84 percent of the eight through nine stanine (high mental ability) group and 44

¹ Percentage estimates in general can be translated into numerical estimates by reference to Appendix Table A-1.

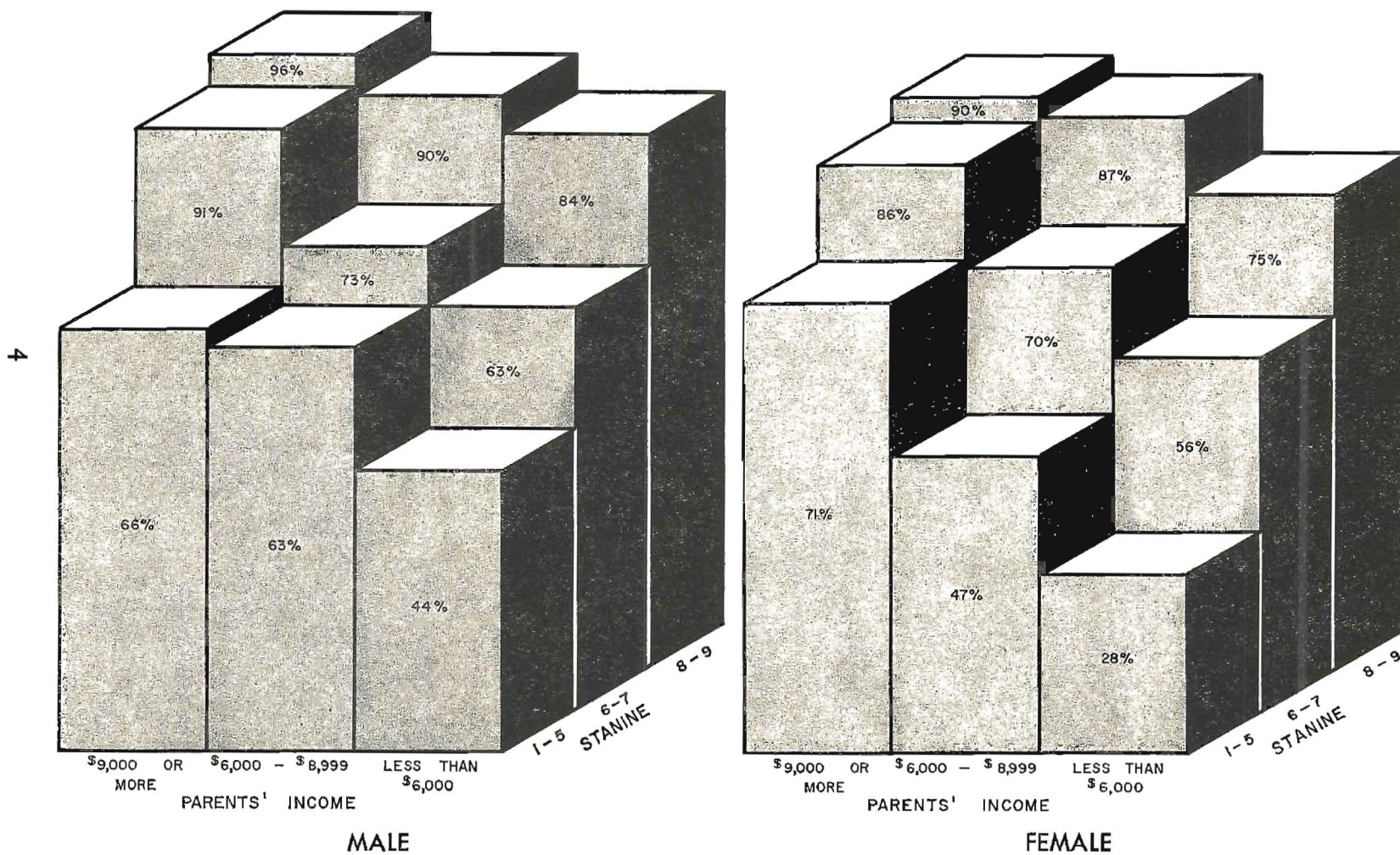
² The General Assembly of 1963 authorized and provided for the financing of community colleges or technical institutes (1963, August 24, P.L. 1132), and area vocational-technical schools (1963, August 14, P.L. 1065). Actual establishment of technical institutes depends upon local initiative. In the past, local implementation of enabling legislation contemplating expansion or diversification of educational programs has been lacking in many areas of the Commonwealth. For example, in 1949, the General Assembly authorized the establishment of area technical schools for the "benefit of pupils and adults" (1949, March 10, P.L. 30, Art. XVIII, §1841 added 1953, August 21, P.L. 1223, §2). As of 1963 but five area technical schools with a total enrollment of 2,287 students had been established. See *Biennial Report of the Joint State Government Commission, 1961-1963* (1963), p. 27.

³ Though 96.5 percent of Pennsylvania's population lives within a twenty-mile radius of one of the 512 specialized training schools licensed by the Department of Public Instruction, some 400 of the schools cater in the main to women interested in nursing, secretarial service, or beauty culture. *Biennial Report of the Joint State Government Commission, 1961-1963* (1963), pp. 18 and 22.

⁴ Parental income is defined as the total annual income of parents as reported by respondents in 1962.

⁵ Mental ability is expressed in terms of "stanine" (standard nine) convention which for purposes of this study represents a standardization of intelligence test scores. A student in stanine one has an intelligence score of 76 or below in terms of the California I.Q. score, or 78 or below in terms of the Otis I.Q. score. On the other extreme, a student in stanine nine has a score of 126 or above in terms of the California I.Q. score, or 122 or above in terms of the Otis I.Q. score. See Appendix A; also, *Pennsylvania High School Seniors, 1958: Their Mental Ability; Their Aspirations; Their Post-High School Activities*, Report of the Joint State Government Commission (1959), p. 6.

Chart I
 PERCENTAGE OF COLLEGE-ASPIRING SENIORS WHO HAD SOME COLLEGE TRAINING,
 FOR SPECIFIED MENTAL ABILITY AND PARENTAL INCOME INTERVALS
 1958-1962



percent of the one through five stanine group entered college. Again, the chart shows that the higher the parents' income the higher the probability of college aspirants entering college. In the case of one through five stanine males, 44 percent of those whose parents' income was less than \$6,000 and 66 percent of those whose parents' income was \$9,000 or more entered college. Generally speaking, the chart indicates that the probability of attending college is higher for male than for female aspirants.

Of the college aspirants who did not enter college, about 33 percent of the men and 40 percent of the women obtained some noncollegiate training.

Table 2 presents data comparable to those

shown in Chart I for young men and women who wanted noncollegiate post-high school training and who subsequently attended a collegiate or noncollegiate institution.

In contrast with the relationship shown in Chart I for college aspirants, Table 2 suggests that for noncollege aspirants, women rather than men are more likely to attain their objectives and parents' income appears to have little effect on a woman's chances of obtaining post-high school training. Of the young men who prior to graduation from high school expressed interest in some noncollege training program, 43 percent did obtain some post-high school education—collegiate or noncollegiate. The comparable percentage for women was 54.

Table 2
 PERCENTAGE OF SENIORS DESIRING NONCOLLEGIATE TRAINING
 WHO OBTAINED SOME FORMAL POST-HIGH SCHOOL EDUCATION
 FOR SPECIFIED MENTAL ABILITY AND PARENTAL INCOME INTERVALS
 BY SEX
 1958-1962

Sex and Mental Ability (Stanine)	All Income Classes ¹	Parents' Income		
		Less Than \$6,000	\$6,000- 8,999	\$9,000 or More
(1)	(2)	(3)	(4)	(5)
Male:				
All Stanines.....	43%	38%	46%	61%
1-5.....	36%	31%	39%	"
6, 7.....	56	53	"	"
8, 9.....	"	"	"	"
Female:				
All Stanines.....	54%	57%	56%	52%
1-5.....	44%	46%	42%	41%
6, 7.....	66	69	82	63
8, 9.....	72	68	"	"

¹ Includes students whose parents' income is unknown.

" The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Duration of Post-High School Training

Table 3 presents data showing duration of educational exposure⁸ of the high school seniors of 1958 who attended college full time between 1958 and 1962.

An estimated 58 percent of full-time male and female college students had an educational ex-

⁸ Duration of educational exposure is measured in terms of months. In the case of collegiate training the months are translated into semesters. "Two semesters" means the student completed the first semester and enrolled for a second semester. The duration intervals in Tables 3 and 5 are comparable.

posure of seven or more semesters. As the first row of the table indicates, 16 percent of the students discontinued full-time college training within the first two semesters, 15 percent discontinued during the second year, and 11 percent during the third year. Though the percentages of students discontinuing decreases over time, the annual academic mortality rate (the number of students discontinuing during any one year divided by the number of students at the beginning of that year) is fairly stable.

Table 3
PERCENTAGE DISTRIBUTIONS OF SENIORS WHO ATTENDED COLLEGE FULL TIME
BY TYPE OF COLLEGE, BY SEX, BY DURATION OF COLLEGE ATTENDANCE
1958-1962

Type of College	Sex	Percent	Duration of College Attendance (Semesters)					
			Total	One	Two	Three, Four	Five, Six	Seven or More
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
All Collegiate Institutions.....	Total	100%	100%	4%	12%	15%	11%	58%
	Male	60	100	4	11	14	13	58
	Female	40	100	3	13	17	9	58
State-Aided University.....	Male	11%	100%	4%	9%	11%	14%	62%
	Female	7	100	2	15	18	3	62
State College ¹	Male	7	100	6	19	12	6	57
	Female	9	100	6	13	11	7	63
Other Pennsylvania Four-Year College or University..	Male	20	100	3	6	12	15	64
	Female	11	100	1	12	17	8	62
Out-of-State Four-Year College or University.....	Male	12	100	3	14	12	10	61
	Female	8	100	3	13	18	7	59
Junior College or Extension School.....	Male	3	100	21	30	40	5	4
	Female	2	100	11	29	54	6	0
Two or More Collegiate Institutions.....	Male	7	100	..	4	13	25	58
	Female	3	100	..	..	7	33	60

¹ Prior to 1959, State colleges were known as State teachers' colleges.

Table 4 shows the percentage of full-time college students who completed seven or more semesters of study for specified mental ability and parental income intervals.

Examination of the table shows that, for both men and women, the percentage of students who completed seven or more semesters of college tends to increase with both mental ability of student and parental income.

For males who attended college full time and whose parents' income was \$9,000 or more, 52

percent of the one through five stanine group and 68 percent of the eight and nine stanine group completed seven or more semesters. The comparable percentages for females are 34 percent and 74 percent. For men in the eighth or ninth stanine the completion rate increased from 60 percent to 68 percent as parental income increased from less than \$6,000 to \$9,000 or more. The increase in the rate is more pronounced for high ability women: from 58 percent to 74 percent.

Table 4
 PERCENTAGE OF FULL-TIME COLLEGE STUDENTS
 WHO COMPLETED SEVEN OR MORE SEMESTERS BETWEEN 1958 AND 1962
 FOR SPECIFIED MENTAL ABILITY AND PARENTAL INCOME INTERVALS
 BY SEX

<i>Sex and Mental Ability (Stanine)</i>	<i>All Income Classes¹</i>	<i>Parents' Income</i>		
		<i>Less than \$6,000</i>	<i>\$6,000- 8,999</i>	<i>\$9,000 or More</i>
(1)	(2)	(3)	(4)	(5)
Male:				
All Stanines.....	58%	53%	59%	64%
1-5.....	48%	45%	49%	52%
6, 7.....	57	53	53	65
8, 9.....	66	60	72	68
Female:				
All Stanines.....	58%	52%	55%	64%
1-5.....	36%	36%	38%	34%
6, 7.....	61	55	59	68
8, 9.....	66	58	64	74

¹ Includes students whose parents' income is unknown.

Table 5 presents duration of attendance data for students who enrolled in business, trade, nursing, and technical schools.

Comparison of Tables 5 and 3 (columns (5) through (9)), indicates that with the exception of women in nurses' training, the average attendance of students at noncollegiate schools is of considerably shorter duration than the average attendance of students enrolled in collegiate institutions.

An analysis of the relative importance of various factors affecting an individual's enrollment in

and duration of post-high school training (collegiate or noncollegiate) indicates that:

1. For men, mental ability and high school class standing are more important than size of high school attended, parents' income, or parents' education; and

2. For women, mental ability is twice as important as high school class standing, size of high school, parents' income, parents' education, or marital status.⁷

⁷ See Appendix A-III.

Table 5
PERCENTAGE DISTRIBUTIONS OF SENIORS WHO ATTENDED A NONCOLLEGIATE SCHOOL FULL TIME
BY TYPE OF SCHOOL, BY SEX, BY DURATION OF SCHOOL ATTENDANCE
1958-1962

Type of School	Sex	Percent	Duration of School Attendance					
			Total	4 Months or Less	5-10 Months	11-20 Months	21-30 Months	More Than 30 Months
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
All Noncollegiate Schools.....	Total	100%	100%	14%	30%	21%	9%	26%
	Male	30	100	16	39	27	15	3
	Female	70	100	14	26	19	6	35
Business School.....	Male	6%	100%	17%	26%	35%	22%	0%
	Female	22	100	24	46	27	3	0
Trade School.....	Male	14	100	13	36	31	18	2
	Female	12	100	31	49	13	3	4
Other Technical School or Combination of Noncollegiate Schools.....	Male	10	100	19	54	17	5	5
	Female	3	100	5	7	44	28	16
Nurses' Training Hospital or Combination of Hospital and College.....	Male and Female	33	100	2	5	14	8	71

Plans for Formal Education in 1962–1963

Though 45 percent of the high school graduates of 1958 had not obtained any collegiate or non-collegiate training, some of these men and women, when contacted by the Joint State Government Commission in 1962, were planning to take collegiate or noncollegiate training either in the fall of 1962 or in 1963.

Table 6 shows the percentage of young men and women who in 1962 were planning to undertake a systematic course of study.

Of the male seniors of 1958 who had no formal post-high school education between 1958 and 1962, 11 percent were planning to undertake a systematic course of study in the fall of

1962 or in 1963. Specifically, 5 percent planned to attend a college or university full time, 1 percent contemplated part-time college attendance, 4 percent were about to take full-time noncollege training, and 1 percent anticipated part-time non-college study. Of the women who had no formal post-high school training, only 3 percent were looking forward to a formal course of study in the fall of 1962 or in 1963. About one-half of the men and women who had some college training between 1958 and midsummer 1962 were making plans to continue their formal education. Taken as a whole, the table shows that, four years after graduation from high school, twice as many men as women were making plans for systematic further study.

Table 6
PERCENTAGE OF HIGH SCHOOL SENIORS OF 1958 PLANNING TO ENROLL IN
COLLEGIATE OR NONCOLLEGIATE SCHOOLS IN 1962 OR 1963
BY TYPE OF POST-HIGH SCHOOL EDUCATION, BY SEX
BY TYPE OF PLANNED EDUCATION
1962

Type of Post-High School Education	Sex	Total Percentage Planning to Study in 1962 or 1963	Type of Planned Education			
			Collegiate		Noncollegiate	
			Full-Time	Part-Time	Full-Time	Part-Time
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Types of Post-High School Education.....	Male	31%	23%	3%	4%	1%
	Female	15	10	2	2	1
No Formal Post-High School Education.....	Male	11%	5%	1%	4%	1%
	Female	3	1	0	1	1
Full-Time Collegiate Training Only.....	Male	50	46	3	1	0
	Female	38	33	4	1	0
Part-Time Collegiate or Collegiate and Noncollegiate Training.....	Male	54	35	15	3	1
	Female	44	26	17	1	0
Noncollegiate Training Only.....	Male	30	9	2	13	6
	Female	11	5	1	4	1

Student Expenses and Sources of Funds

Student expenses for post-high school training are not necessarily identical with training costs. The difference between student expenses and training costs is most pronounced in collegiate programs, which, as a general rule, are subsidized by private benefactions, legislative appropriations, or both.

The four major sources of financing student expenses for post-high school education are parents' contributions, student's own funds, scholarships, and student loans. Table 7 presents the average amount of full-time student expenses⁸ financed from various sources over the four-year period 1958-1962 in relation to parents' annual income level.

The table indicates:

1. Average total expenses, incurred from 1958 through 1962 by students attending college full

⁸ Expenses are defined as tuition or fees, room rent, charges for board, and other costs incurred by virtue of attendance at school.

time during part or all of the four-year period, amounted to \$4,700 per student as compared with \$740 for students attending business school, \$790 for students enrolled in trade schools, and \$520 for nursing trainees.

2. Expenses of full-time college students varied widely with parents' income. For students whose parents' income was under \$6,000, total expenses averaged \$3,900; when parents' income exceeded \$12,000, student expenses averaged \$6,410.

3. Average parents' contributions as percentages of student college expenses varied from 44 percent for students whose parents' income was less than \$6,000 to 84 percent for students whose parents' income exceeded \$12,000.

4. College students' contributions averaged \$1,020, and declined from \$1,190 when parents' income was less than \$6,000 to \$690 when parents' income was \$12,000 and over.

5. Scholarships and loans accounted for about 25 percent of average total expenses when parents' income was less than \$6,000 but only about 5 percent when parents' income exceeded \$12,000.

Table 7
AVERAGE FULL-TIME STUDENT EXPENSES TOTALED OVER THE YEARS OF ATTENDANCE
BY TYPE OF SCHOOL, BY SOURCE OF FINANCING, BY ANNUAL INCOME LEVEL OF PARENTS
1958-1962

<i>Type of School</i>	<i>Annual Income Level</i>				
	<i>All Income Levels</i>	<i>Less Than \$6,000</i>	<i>\$6,000- 8,999</i>	<i>\$9,000- 11,999</i>	<i>\$12,000 and Over</i>
(1)	(2)	(3)	(4)	(5)	(6)
College:					
Average Total Expenses.....	\$4,700	\$3,900	\$4,200	\$5,600	\$6,410
Average Contribution of Parents.....	2,860	1,700	2,190	3,420	5,400
Average Contribution of Students.....	1,020	1,190	1,040	1,050	690
Average Amount from Scholarships, Loans, and Miscellaneous.....	820	1,010	970	1,130	320
Business School:					
Average Total Expenses.....	740	620	660	1,090	a
Average Contribution of Parents.....	520	360	520	820	a
Average Contribution of Students.....	160	150	120	210	a
Average Amount from Scholarships, Loans, and Miscellaneous.....	60	110	20	60	a
Trade School:					
Average Total Expenses.....	790	780	a	a	a
Average Contribution of Parents.....	370	330	a	a	a
Average Contribution of Students.....	280	340	a	a	a
Average Amount from Scholarships, Loans, and Miscellaneous.....	140	110	a	a	a
Hospital Schools of Nursing:					
Average Total Expenses.....	520	500	570	a	a
Average Contribution of Parents.....	370	320	470	a	a
Average Contribution of Students.....	60	90	30	a	a
Average Amount from Scholarships, Loans, and Miscellaneous.....	90	90	70	a	a

^a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Table 8
 PERCENTAGE OF FULL-TIME COLLEGE STUDENTS UTILIZING SPECIFIED SOURCES OF FINANCIAL SUPPORT
 AVERAGE AMOUNT FROM EACH SOURCE, AND AVERAGE TOTAL EXPENSES, BY PARENTS' INCOME, BY SEX
 FOR SCHOOL YEARS 1958-1959 AND 1961-1962*

Parents' Income	Sex	Total Expenses				Student's Contributions				Parents' Contributions				Scholarships				Loans			
		1958-1959		1961-1962		Average Amount ¹		Percent of Students		Average Amount ¹		Percent of Students		Average Amount ¹		Percent of Students		Average Amount ¹		Percent of Students	
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		
All Incomes.....	Male	\$1,350	\$1,500	\$510	\$560	64%	70%	\$ 960	\$ 980	82%	80%	\$610	\$700	30%	28%	\$450	\$550	6%	17%		
	Female	1,260	1,450	330	380	39	50	1,050	1,070	91	87	440	530	30	30	a	520	4	15		
Less than \$6,000....	Male	\$1,180	\$1,250	\$500	\$590	72%	79%	\$ 780	\$ 640	78%	72%	\$560	\$600	30%	28%	a	\$480	7%	22%		
	Female	1,040	1,240	380	440	55	64	670	750	78	68	400	530	46	40	a	a	8	24		
\$6,000-\$8,999.....	Male	1,260	1,410	520	500	68	70	770	760	76	82	600	720	42	38	a	640	10	25		
	Female	1,060	1,260	320	280	40	55	820	840	93	92	380	580	28	22	a	a	4	11		
\$9,000-\$11,999....	Male	1,460	1,640	500	620	63	70	1,000	1,020	91	81	720	820	33	27	a	a	4	12		
	Female	1,500	1,710	270	360	46	56	1,120	1,090	98	92	590	670	41	44	a	a	4	23		
\$12,000 or More....	Male	1,820	2,000	500	510	52	52	1,510	1,660	96	96	a	a	16	14	a	a	2	4		
	Female	1,620	1,730	340	440	15	25	1,530	1,520	99	100	a	a	12	14	a	a	..	3		

* The 1958-1959 data relate to college freshmen and the 1961-1962 data relate mostly to college seniors, inasmuch as the respondents were high school seniors in 1958.

¹ For students utilizing this source. The sum of the average amount exceeds total expenses since not all students utilized every source.

^a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Table 8 shows for the school years 1958-1959 and 1961-1962, the percentage of full-time college students utilizing the various sources of financial support, average amount obtained from each source, and average total expenses, and relates average amount from each source to parents' income.⁹ The sum of the average amounts exceeds total expenses, since not all students utilized every source.

Perusal of the table indicates:

1. In 1961-1962, the average total annual expenses of male students whose parents had an income of less than \$6,000 amounted to \$1,250 and 72 percent received contributions from their parents, which, on the average, amounted to \$640, or approximately 50 percent of average expenses. The average annual expenses of male students whose parents had incomes in excess of \$12,000 amounted to \$2,000. At this income level, 96 percent of the students received contributions from their parents, which, on the average, amounted to \$1,660, or about 83 percent of average expenses.

⁹The data relating to college students presented in Table 8 differ from those presented in Table 7. Table 8 shows annual averages for students in attendance in specified years; Table 7 presents over-all totals for the four-year period whether or not the student attended all years. The averages in Table 7 are computed by reference to all students, whereas, the averages in Table 8 are computed by reference to only those students who received contributions from a specified source in a specified year.

2. Comparison of columns (4) and (10) indicates that, by and large, parents contribute a larger portion of expenses of women than of men.

3. Between 1958-1959 and 1961-1962, average total expenses for both men and women increased about 12 percent.

4. Between 1958-1959 and 1961-1962, the percentage of students utilizing loans tripled. This increase is probably attributable to the fact that many student loan programs restrict loans to students who have successfully completed their freshman year.¹⁰

5. In 1961-1962, the average loan to male students amounted to 37 percent of average total expenses, the average scholarship amounted to 47 percent, and average student contribution approximated 37 percent; the comparable percentages for women were 36, 37, and 26, respectively.

6. Though the percentages of men and of women who received scholarships were not significantly different, the 1961-1962 scholarships of men had an average value of \$700 and the scholarships of women had an average value of but \$530.

¹⁰For a brief review of student loan programs, see *Biennial Report of the Joint State Government Commission, 1961-1963* (1963), p. 25.

Table 9
COMPARISON OF CHARACTERISTICS OF FULL-TIME SCHOLARSHIP STUDENTS WITH THOSE OF ALL
FULL-TIME STUDENTS, BY TYPE OF COLLEGE, BY SEX
1958-1959

Type or Name of College	Sex	Percentage Distribution of All Students By Sex	Percent of Students Receiving Scholarship	Average Total Expenses of All Students	Average Tuition	Average Scholarship	Percent of Students in the 8th and 9th Stanine		Percent of Students with Parents' Income of \$9,000 or More	
							All Students	Scholarship Students	All Students	Scholarship Students
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
All Collegiate Institutions.....	Male	60%	30%	\$1,350	\$ 660	\$610	43%	52%	34%	24%
	Female	40	30	1,260	610	440	39	56	40	29
All State-Aided Universities.....	Male	67%	43%	\$1,250	\$ 580	\$460	49%	49%	31%	28%
	Female	33	36	1,190	610	330	47	58	49	37
Pennsylvania State University ¹	Male and Female		33	1,240	400	270	45	48	33	26
Temple University ¹	Male and Female		42	920	720	450	38	36	38	32
University of Pennsylvania ¹	Male and Female		71	1,560	1,110	730	78	78	69	51
University of Pittsburgh ¹	Male and Female		58	1,180	960	540	48	50	19	18
State Colleges ¹	Male and Female		18	750	210	230	22	40	22	14
Other Pennsylvania Four-Year Colleges and Universities.....	Male	65	27	1,360	790	580	43	59	34	22
	Female	35	38	1,270	700	490	37	55	33	19
Out-of-State Four-Year Colleges and Universities.....	Male	61	28	1,670	760	950	47	52	46	27
	Female	39	26	1,760	860	620	49	65	58	48

¹ Insufficient data for breakdown by sex.

In view of the fact that close to one-third of all full-time students were in receipt of scholarships which on the average financed 47 percent of the average annual expenses of men and 37 percent of the expenses of women, it is illuminating to compare some of the characteristics of scholarship students with the comparable characteristics of all students. Table 9 provides such a comparison for 1958-1959.

The table shows:

1. For all institutions combined, 30 percent of the men and 30 percent of the women received scholarships.

2. At State-aided universities, the percentage of students who held scholarships ranged from 33 percent at the Pennsylvania State University to 71 percent at the University of Pennsylvania.

3. The percentage of students at State colleges²¹ holding scholarships (18 percent) was lower than the percentage of students holding scholarships at any other type of collegiate institution.

4. Comparison of columns (6) and (7) shows that there obtains a fairly consistent relationship between tuition charged by an institution and average value of scholarship held by students attending that institution. When tuition is high, the average scholarship tends to be high; when tuition is low, the average scholarship tends to be low.

5. Scholarship students generally have higher mental ability than all students, except in the

case of men attending State-aided institutions. For all collegiate institutions combined, 43 percent of the males and 39 percent of the females were of high mental ability (eighth or ninth stanine). The comparable percentages for scholarship students are 52 percent and 56 percent.

6. Scholarships tend to go to students from less affluent families. For all collegiate institutions combined, 34 percent of the male students and 40 percent of the female students had parents whose income exceeded \$9,000. Of scholarship students, only 24 percent of the men and 29 percent of the women came from families with a parental income in excess of \$9,000.

College Commuting Patterns

It is a fairly common practice to reduce the cost of a college education by "commuting" to a nearby institution. Commuters "save" room rent and out-of-pocket expenses for board. However, students residing in different types of communities differ with respect to commuting opportunities. Residents of metropolitan areas are within commuting distance of many institutions of learning which offer a wide variety of programs. As a rule, residents of nonmetropolitan areas are within commuting distance of but a single institution which generally provides limited curriculum choice. Residents of sparsely settled regions of the Commonwealth can rarely reduce the cost of a college education by commuting. Under the circumstances, one would expect institutions located in metropolitan areas to have a larger proportion of commuting students than institutions located in small communities.

²¹ Prior to 1959, State colleges were known as State teachers' colleges.

Table 10 presents for the 1958 high school graduates who attended college in 1962 commuting rates and distances traveled, by institutions attended.

Examination of the table shows:

1. For all institutions combined, one-third of the high school graduates of 1958, in college in 1961-1962, lived at home and commuted to college.

2. The commuting rates of students attending different institutions ranged from 1 percent for students attending Pennsylvania State University to 72 percent for students attending State-aided urban universities.¹²

3. Except for students attending the State colleges,¹³ less than 3 percent of students commuted twenty miles or more.

¹² In connection with the low commuting rate for Pennsylvania State University, it should be noted that many Pennsylvania State University students attended extension centers during the first two years of college. The commuting rate of 1958 high school graduates attending Pennsylvania State University on the main campus or at an extension center was 25 percent in 1958-1959. For 1958-1959 commuting rates at other institutions, see Appendix Table B-7.

¹³ Since commuting is a method of reducing the cost of a college education, the finding that students at State colleges, on the average, commute over greater distances than students at other colleges is consistent with findings presented in Appendix Table B-8 which show that the average parental income of students attending State colleges is lower than the average parental income of students attending any other type of collegiate institution.

Table 10
PERCENTAGE OF SENIORS OF 1958 IN COLLEGE IN 1961-1962 WHO COMMUTED
BY TYPE OF COLLEGE, BY DISTANCE TRAVELED ONE WAY

Type of College	Total	Distance Traveled One Way		
		Less Than 10 Miles	10 to 20 Miles	More Than 20 Miles
(1)	(2)	(3)	(4)	(5)
All Collegiate Institutions.....	33%	17%	12%	4%
State-Aided Urban Universities ¹	72%	46%	23%	3%
Other Philadelphia and Pittsburgh Area Colleges and Universities ²	66	35	28	3
Pennsylvania State University.....	1	a	a	a
State Colleges.....	37	10	12	15
Other Pennsylvania Four-Year Colleges and Universities.....	37	24	11	2
Out-of-State Colleges and Universities.....	8	3	3	2

¹ University of Pennsylvania, University of Pittsburgh, and Temple University.

² All colleges and universities other than State-aided urban universities located in or within 15 miles of Pittsburgh or Philadelphia.

^a Less than .5 percent.

Section II

POST-HIGH SCHOOL EMPLOYMENT

Section II chronicles the employment experiences of high school seniors of 1958 with a view of: (1) determining their employment position four years after high school, and (2) relating employment position to such factors as mental ability,¹ high school course taken, and formal post-high school education.

To facilitate exposition this section distinguishes between two groups of seniors: (1) seniors who took no formal collegiate or noncollegiate training after high school, and (2) seniors who had had additional schooling of less than four years' duration and who were in the labor force in 1962.

Seniors With No Formal Post-High School Education

As of 1962, 42 percent of the male seniors and

¹Throughout this section, seniors have been classified into three stanine groups: above average mental ability, stanines six through nine; average ability, stanine five; below average ability, stanines one through four. For purposes of occupational analysis, this classification is more meaningful than the classification employed throughout Section I.

48 percent of the female seniors had no formal post-high school education or training. Table 11 shows the labor force status,² as of 1962, of male high school seniors of 1958 who attended no post-high school educational institution, by mental ability.³

In 1962, 70 percent were in the civilian labor force and 30 percent in military service. Perusal of the table shows that the brighter a young man, the better the chances that he will be in the military service rather than in the civilian labor force.⁴

² A person who either has or is seeking civilian employment is said to be in the civilian labor force.

³ Exclusive of a small number of individuals who were incapacitated due to illness at the time of the 1962 survey or whose responses were incomplete or inconsistent.

⁴ To ascertain the stability of the relationship between mental ability and military service, the individuals who had completed some military service prior to April 1962 and were at that time in the civilian labor force were studied. In this group as well, military service was related to stanine category in approximately the same proportion as shown in Table 11.

Table 11
PERCENTAGE DISTRIBUTIONS OF MALE SENIORS OF 1958
WHO ATTENDED NO POST-HIGH SCHOOL EDUCATIONAL INSTITUTION
BY LABOR FORCE AFFILIATION, FOR DESIGNATED MENTAL ABILITY INTERVALS
1962

<i>Mental Ability (Stanine)</i>	<i>Labor Force Affiliation</i>		
	<i>Total</i>	<i>Civilian Labor Force¹</i>	<i>Military Service</i>
(1)	(2)	(3)	(4)
All Stanines.....	100%	70%	30%
1-4.....	100%	74%	26%
5.....	100	68	32
6-9.....	100	65	35

¹ Persons who either have or are seeking civilian employment.

Though survey observations are insufficient to draw firm conclusions, there is no evidence that in the case of men high school course affected labor force affiliation.

Table 12 shows labor force status, as of 1962, of female seniors who attended no post-high school educational institution, by mental ability, by marital status, by high school course.⁵

⁵Throughout this section, course comparisons involving women are limited to commercial course and "other" courses because the commercial course is the only occupationally-oriented course in which a consequential number of women are enrolled.

Taken as a whole, the table demonstrates: (1) both married and unmarried women who took the commercial course have higher labor force participation rates than women who took other courses; and (2) there appears to be no consistent relationship between mental ability and labor force participation rates for married women. In 1962, approximately 63 percent of the young women without any formal post-high school education were married.

Attachment to the labor force is one thing—employment, quite another. In order to meaning-

Table 12
LABOR FORCE PARTICIPATION RATES OF FEMALE SENIORS OF 1958
WHO ATTENDED NO POST-HIGH SCHOOL EDUCATIONAL INSTITUTION
BY MENTAL ABILITY, BY MARITAL STATUS, BY HIGH SCHOOL COURSE
1962

<i>Mental Ability (Stanine)</i>	<i>Married</i>		<i>Unmarried</i>	
	<i>Commercial Course</i>	<i>Other Course</i>	<i>Commercial Course</i>	<i>Other Course</i>
	(1)	(2)	(3)	(4)	(5)
All Stanines.....	37%	26%	96%	84%
1-4.....	44%	28%	90%	81%
5.....	23	11	99	77
6-9.....	37	32	99	97

fully appraise unemployment rates of the Pennsylvania high school seniors of 1958, it is helpful to have a standard of comparison. Table 13 presents for the members of the civilian labor force, ages 18 through 24, unemployment rates for both males and females in Pennsylvania and the United States for 1960.

Examination of the table justifies the following conclusions:

1. Unemployment rates for Pennsylvania males in each age group from 18 to 24 were substantially higher than comparable unemployment rates for the United States; the difference was most pronounced in the case of men 23 and 24 years of age, for whom the unemployment rate in Penn-

sylvania was some 51 percent above the national rate.

2. The unemployment rates for females in Pennsylvania and the United States were strikingly similar.

3. For both males and females, unemployment rates in Pennsylvania, as well as in the United States, decreased as age (which is directly correlated with marriage and work experience) increased.

The available evidence suggests that the unemployment rate patterns did not change significantly between 1960 and 1962.⁶

⁶For an evaluation of the 1960 and 1962 rates, see Appendix A-IV.

Table 13
UNEMPLOYMENT RATES OF MEN AND WOMEN NOT ENROLLED IN SCHOOL
FOR SELECTED AGES
PENNSYLVANIA AND UNITED STATES
APRIL, 1960

Age	Male		Female	
	Pennsylvania	United States	Pennsylvania	United States
(1)	(2)	(3)	(4)	(5)
Ages 18 through 24.....	13.2%	9.3%	7.7%	7.6%
18.....	17.3%	14.7%	9.2%	9.9%
19.....	16.1	12.2	8.9	8.6
20.....	14.8	10.8	7.6	8.0
21 and 22.....	13.1	8.9	7.1	7.1
23 and 24.....	10.4	6.9	6.8	6.5

SOURCES: U. S. Department of Commerce, Bureau of the Census, *Pennsylvania Detailed Characteristics* (1960), Table 117; U. S. Department of Commerce, Bureau of the Census, *United States Summary Detailed Characteristics* (1960), Table 197.

Unemployment rates in 1962 for Pennsylvania seniors who had no formal post-high school education are shown in relation to mental ability and sex in Table 14.

Examination of the table shows that unemployment rates decrease as mental ability increases. Unemployment rates decreased from 14.1 percent for the young men with below average mental ability to 7.0 percent for those with above average mental ability. Comparable rates for young women were 10.3 and 2.9 percent, respectively.

The exclusion of recently discharged ex-service-

men⁷ decreases the unemployment rate of the men (all stanines) from 10.7 percent to 8.1 percent. Ex-servicemen discharged between August 1961 and April 1962, account for 8 percent of the male seniors without post-high school education in the civilian labor force in April 1962. Of these ex-servicemen, 38 percent were unemployed at the end of that period.

⁷Under the Federal Servicemen's Unemployment Compensation Act of 1958 (42 USCA 1371), individuals discharged from the armed services are eligible for unemployment compensation in a weekly amount and for a period determined by their military rank and the unemployment compensation provisions for civilian workers in the state for which they apply. For example, an Army corporal discharged in 1962, if applying in Pennsylvania for unemployment compensation, would have been eligible for \$29 per week for a period of thirty weeks.

Table 14
UNEMPLOYMENT RATES OF SENIORS OF 1958
WHO ATTENDED NO POST-HIGH SCHOOL EDUCATIONAL INSTITUTION
BY MENTAL ABILITY, BY SEX
APRIL, 1962

<i>Mental Ability (Stanine)</i>	<i>Male</i>		<i>Female</i>
	<i>With or Without Recent Military Service</i>	<i>No Military Service Since August 1961</i>	
(1)	(2)	(3)	(4)
All Stanines.....	10.7%	8.1%	7.1%
1-4.....	14.1%	11.1%	10.3%
5.....	10.0	8.6	8.9
6-9.....	7.0	3.7	2.9

Earnings for men and women without any formal post-high school education but with thirty-six months or more in the civilian labor force subsequent to graduation are shown in Tables 15 and 16.

Table 15 demonstrates a challenging relation among mental ability, high school course, and average weekly earnings. The below average mental ability men (stanines one through four), who took the academic or general course, had average weekly earnings of \$73 as compared with \$80 for their fellow seniors who took commercial, vocational, or industrial arts courses. In other words, high school course accounted for a 10 percent difference in earnings in favor of those who took so-called "practical" courses. However, above average mental ability seniors (stanines six through nine) who had taken an academic or general course in high school, had average earnings of \$87 as compared with \$82 for those who had taken a "practical" course.

The young men whose earnings are shown in Table 15 had an average of forty-four months in the civilian labor force since leaving high school. The average earnings of this group may be compared with the average earnings of those high school seniors who had less than thirty-six months experience in the civilian labor force subsequent to graduation. The latter group, which had an average of sixteen months in the civilian labor force plus some military service, had average weekly earnings of \$76 as compared with the \$81 for the group with more extensive civilian work experience. This difference is probably a substantial understatement of the work experience improvement factor; i.e., the increase in earnings attributable to service in the civilian labor force. Presumably, individuals who had civilian labor force experience of sixteen months but no military experience would have lower wages on the average than those with sixteen months' civilian work experience plus military service.

Table 15
 AVERAGE WEEKLY EARNINGS FROM CIVILIAN EMPLOYMENT FOR MALE SENIORS OF 1958
 WHO ATTENDED NO POST-HIGH SCHOOL EDUCATIONAL INSTITUTION
 AND WHO HAD BEEN IN THE CIVILIAN LABOR FORCE FOR OVER THIRTY-SIX MONTHS
 BY MENTAL ABILITY, BY HIGH SCHOOL COURSE
 1962

<i>Mental Ability (Stanine)</i>	<i>High School Course</i>		
	<i>All Courses</i>	<i>Commercial, Vocational, or Industrial Arts</i>	<i>Academic or General</i>
(1)	(2)	(3)	(4)
All Stanines.....	\$81	\$81	\$80
1-4.....	\$77	\$80	\$73
5.....	80	82	79
6-9.....	85	82	87

Table 16 shows average weekly earnings for female seniors without any post-high school education and with more than thirty-six months of experience in the civilian labor force.

Comparison of Table 16 with Table 15 suggests that the relationships among type of high school course, mental ability, and average weekly earnings for women, are similar to those observed in conjunction with men. Females of below average mental ability who had taken the commercial course showed an earnings advantage as compared with their former classmates of like mental ability who took "other" courses. How-

ever, above average mental ability seniors who had taken a noncommercial course apparently had a slight earnings advantage over those with a commercial background. Average weekly earnings of men and women both of whom had an average of forty-four months in the labor force were significantly different: men earned \$81 per week, whereas women earned but \$64. Women with less than thirty-six months in the labor force (twenty-six months on the average) had an average weekly wage of \$54. Average weekly earnings were, therefore, about \$10 higher for women with an additional year and a half in the labor force.

Table 16
 AVERAGE WEEKLY EARNINGS FOR FEMALE SENIORS OF 1958
 WHO ATTENDED NO POST-HIGH SCHOOL EDUCATIONAL INSTITUTION
 AND WHO HAD BEEN IN THE CIVILIAN LABOR FORCE FOR OVER THIRTY-SIX MONTHS
 BY MENTAL ABILITY, BY HIGH SCHOOL COURSE
 1962

<i>Mental Ability (Stanine)</i>	<i>High School Course</i>		
	<i>All Courses</i>	<i>Commercial</i>	<i>Other Than Commercial</i>
(1)	(2)	(3)	(4)
All Stanines.....	\$64	\$64	\$62
1-4.....	\$61	\$63	\$55
5.....	63	63	62
6-9.....	67	67	68

Seniors Who Had Some Formal Post-High School Education

Unemployment rates and average weekly earnings presented above reflect employment experiences of young men and women who had no formal education whatsoever beyond high school. Table 17 presents average stanine,⁸ unemployment rate, and earnings, by type of education, for those seniors who had post-high school training of less than four years' duration. To facilitate comparison, the table includes some data for seniors who had no formal post-high school training.

Examination of the table shows that for men

⁸ The percentage of seniors who had some schooling past high school and who were in the labor market in 1962 is not large enough to permit reliable sample estimates of unemployment rates for a two-way classification by mental ability by type of education.

and women unemployment rates varied markedly by type of schooling. Average weekly earnings of men were approximately 25 percent higher than those for women. In view of the relative uniformity of average weekly earnings as of 1962, any differences in economic position which obtained at that time are attributable to variations in unemployment rates. The "Other" groups in Table 17 include all those high school graduates who combined work with part-time formal training. The relatively low unemployment rates of these young men and women suggests that they took training which was implemental to their employment.

The high school seniors of 1958 who took full-time noncollege training had a lower unemployment rate than the graduates who attended college full time for less than four years.

Table 17
AVERAGE MENTAL ABILITY, UNEMPLOYMENT RATES, AND AVERAGE WEEKLY EARNINGS
BY TYPE OF POST-HIGH SCHOOL EDUCATION, BY SEX
FOR SENIORS OF 1958 WHO WERE IN THE LABOR FORCE IN APRIL, 1962^a

<i>Sex, and Type of Post-High School Education</i>	<i>Average Mental Ability (Stanine)</i>	<i>Unemployment Rate</i>	<i>Average Weekly Earnings</i>
(1)	(2)	(3)	(4)
Male:			
No Formal Post-High School Education.....	4.8	10.5%	\$79
Full-Time Collegiate Training Only.....	6.4	12.6	83
Full-Time Noncollegiate Training Only.....	5.2	8.6	83
Other ¹	5.6	2.8	85
Female:			
No Formal Post-High School Education.....	5.0	7.1	63
Full-Time Collegiate Training Only.....	6.1	15.6	67
Full-Time Noncollegiate Training Only.....	5.7	2.2	65
Other ¹	5.6	2.6	69

^a Excludes a small number of individuals who graduated from college and entered the labor force prior to the time of the survey.

¹ The majority of the individuals in this category combined work with part-time study.

The men and women who took full-time post-high school training had to forego earnings and incur other costs coincidental to the acquisition of the training.⁹ Unless college attendance of less than four years' duration increases the work experience improvement factor materially and reduces unemployment rates substantially, the costs incurred are not likely to be recouped.¹⁰

⁹ On the basis of survey data, it is estimated that on the average, total costs of attending college for two years were in the neighborhood of \$8,000.

¹⁰ It was estimated by James Morgan and Martin David in "Education and Income" *Quarterly Journal of Economics* (August 1963), pp. 423-437, that at age 15 the total present value of the increase in the earning power of a male student with three years or less of college training is approximately \$800 (\$900, adjusted to age 18), after allowing for earnings foregone.

Table 18 presents unemployment rates and percentage distributions by mental ability for high school seniors of 1958 with and without some post-high school education and compares them with the rates and distributions for young persons of the same age group who had "dropped out" of school somewhere along the way prior to high school graduation.¹¹

Analysis of the data shows:

1. The percentage distributions by mental ability of men and of women of like levels of educational attainment are practically identical.

¹¹ For methods of estimating unemployment rates of dropouts and distributions by mental ability of dropouts, see Appendix A-IV.

Table 18
UNEMPLOYMENT RATES AND PERCENTAGE DISTRIBUTIONS BY MENTAL ABILITY
OF SENIORS OF 1958 AND OTHER PENNSYLVANIA RESIDENTS OF THE SAME AGE
BY HIGHEST LEVEL OF FORMAL EDUCATIONAL ATTAINMENT
BY SEX
APRIL, 1962

<i>Highest Level of Formal Educational Attainment</i>	<i>Sex</i>	<i>Unemployment Rates</i>	<i>Percentage Distributions by Mental Ability (Stanine)</i>			
			<i>Total</i>	<i>1-4</i>	<i>5</i>	<i>6-9</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Less Than High School Graduation.....	Male	20.3%	100%	66%	15%	19%
	Female	10.7	100	72	14	14
High School Graduation.....	Male	10.5	100	42	26	32
	Female	7.1	100	40	22	38
Formal Post-High School Education Of Less Than Four Years' Duration.....	Male	6.6	100	20	24	56
	Female	4.0	100	24	19	57

SOURCES: Calculated on the basis of Joint State Government Commission survey and U. S. Census data; see Appendix A-IV.

2. Level of educational attainment increases and unemployment rates decrease as mental ability increases:

(a) The men in their early twenties who had dropped out of school had an unemployment rate of 20.3 percent; 66 percent were of below average mental ability (stanines one through four), and 19 percent were of above average ability (stanines six through nine).

(b) On the other extreme, the men who had formal post-high school training of less than four years' duration had an unemployment rate of 6.6 percent; only 20 percent were of below average mental ability and 56 percent were of above average ability.

(c) The pattern of relationships between mental ability and both educational attainment and unemployment rates of women is like the pattern of men: the lower the level of educational attainment, the higher the percentage of women of below average ability and the higher the unemployment rate.

(d) Although men and women who had dropped out of school prior to high school gradua-

tion had comparable distributions by mental ability, the men had an unemployment rate of 20.3 percent as compared with 10.7 percent for the women.

The preponderance of young men and women of below average mental ability among "drop-outs" suggests that it is not the lack of formal schooling alone which determines their high unemployment rate. It has been noted that, in addition to certain personal characteristics of "drop-outs," the use of wage restrictions contributes to their relatively high unemployment rate.¹²

¹² For example, "If employment opportunities continue to improve for high-level-knowledge-producing labor and to worsen for unskilled manual labor, the danger of increasing unemployment among the latter becomes more serious. To speak of absolute unemployability of people of low intelligence and little training may be going too far, because employability is partly a matter of the price at which labor is offered. But since society no longer tolerates 'cheap' labor, and unskilled physical labor may find uses only if it is cheap, the combination of our social ideas with the continuing technological and economic trends may in fact spell unemployability for certain low-level types of labor. At socially acceptable wage rates, workers of very low economic productivity may remain permanently unemployed; and this unemployment is apt to persist even in the face of attempts to create 'effective demand' if wage rates are promptly adjusted to inflated price levels." Fritz Machlup, *The Production and Distribution of Knowledge in the United States* (New Jersey: Princeton University Press, 1962), p. 397.

Section III

EDUCATION: INVESTMENTS AND RETURNS

In 1961-1962, total State and local expenditures for elementary and secondary public schools amounted to \$965 million, or \$473 per child enrolled. Of this total, \$544 million came from local sources and \$421 million was appropriated by the General Assembly. In addition, the General Assembly provided \$14 million to the publicly-owned State colleges (known as State teachers' colleges prior to 1959), and appropriated \$36 million, exclusive of special appropriations for research, to privately-owned institutions of higher learning for current expenditures. It is estimated that appropriations to State-owned colleges and State-aided universities amounted to \$660 per Pennsylvanian enrolled in these institutions. State and local moneys for primary, secondary, and higher education totaled \$1 billion, which represents approximately 4 percent of the sum total of individual incomes of Pennsylvanians. The private investment in education, including tuition, other expenses incidental to the acquisition of an education, and earnings foregone, is of comparable if not greater magnitude.

There is no simple, generally-accepted standard by reference to which the wisdom of expenditures for education can be judged. However, specific criteria can be applied to some contemporary educational policies, practices, and procedures. The application of specific criteria facilitates the formulation of informed judgments in limited areas.

Mental Ability and Student Performance

Available measures indicate a wide variation in relative performance among students of equal mental ability. These variations are associated with such factors as student motivation and educational policies which in turn may be in large part attributable to community attitudes and preferences.

Secondary schools in the Commonwealth rank students on the basis of scholastic performance. These rankings have been divided into five groups, known as *quintiles*. The top ranking performers are classified as quintile 1 and the lowest ranking as quintile 5 students. The average quintiles are shown in Table 19 in relation to mental ability, high school course, and sex.

Table 19 shows that:

1. The average quintile was 4.1 for males in the lowest three stanines and 2.1 for males in the eighth and ninth stanines; the comparable averages for females were 3.8 and 1.6, respectively. (If students performance depended solely on mental ability, these average quintiles would range from 5.0 to 1.0.)¹

2. Among students of like mental ability taking the same high school course, females ranked higher in class standing than males.

3. Academic students ranked higher in class standing than nonacademic students of like mental ability; and those taking the general course uniformly ranked at the bottom of the class.

Since admission to college is in part conditional upon high school grade rankings and since most college-bound students enroll in the academic course, motivation on the part of these students is likely to be increased. The extent to which the superior class standing of females is attributable to educational policies, community attitudes, or other cultural factors leading to differential motivation is not readily ascertainable on the basis of available evidence.

¹ Stanines one through three comprise approximately 12 percent of the class and eighth and ninth stanines comprise about 16 percent of the class.

Comparable performance measures are a necessity if the factors generating variations in student performance are to be completely evaluated. The General Assembly, under legislation passed in 1963 (Act of August 8, P. L. 564), directed the State Board of Education to develop “. . . an evaluation procedure designed to measure objec-

tively the adequacy and efficiency of the educational programs offered by the public schools . . . the . . . procedure to be developed shall include tests measuring the achievements and performance of students pursuing all of the various subjects and courses comprising the curricula.”

Table 19
AVERAGE QUINTILES FOR SENIORS OF 1958, BY MENTAL ABILITY, BY HIGH SCHOOL COURSE,
BY SEX

<i>High School Course</i>						
<i>Sex and Mental Ability (Stanine)</i>	<i>All High School Courses</i>	<i>Nonacademic</i>				
		<i>Academic</i>	<i>All Nonacademic</i>	<i>General</i>	<i>Commercial</i>	<i>Vocational or Industrial</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male:						
All Stanines	3.2	2.6	3.7	3.9	a	3.5
1-3	4.1	3.7	4.2	4.4	a	4.0
4	3.8	3.6	3.9	4.0	a	3.7
5	3.5	3.2	3.6	3.9	a	3.3
6, 7	3.0	2.7	3.4	3.7	a	3.2
8, 9	2.1	2.0	2.6	2.9	a	2.6
Female:						
All Stanines	2.6	2.1	3.0	3.4	2.8	a
1-3	3.8	3.2	3.9	4.1	3.8	a
4	3.3	3.2	3.3	3.8	3.2	a
5	2.9	2.5	3.0	3.4	2.8	a
6, 7	2.2	2.0	2.4	2.8	2.2	a
8, 9	1.6	1.5	1.8	2.2	1.7	a

a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Vocational-Industrial Training and Post-High School Activity

It may be presumed that most students who enrolled in high school vocational-industrial programs, officially defined as education “. . . which prepares for successful entry into specific employment . . .,”² expected to practice the skills in which they had been trained. The evidence indicates that such expectations are not well founded.

Table 20 presents percentage distributions of male seniors who majored in vocational-industrial subjects, by activity as of 1962.

Of all the male seniors of 1958 who took vocational-industrial courses in high school, 18 percent were employed in the trade in which they were trained; 40 percent were employed other than in the trade for which they had been trained; 5 percent were enrolled in institutions offering post-high school training; and some 27 percent were in the military service.³

² Department of Public Instruction, Commonwealth of Pennsylvania, *Vocational-Industrial Education in Pennsylvania*, Bulletin 330 (1951).

³ Follow-up studies of Pennsylvania graduates of trade and industrial programs conducted annually by a group of vocational educators throughout the northeastern states typically show much higher employment in fields related to high school training. However, these publications contain no explanation whatsoever as to the extent of their coverage, assignment procedures, or sampling techniques. See Merle E. Strong, *Follow-up Study of 1959 Graduates of Trade and Industrial Programs in Public Vocational and Technical High Schools*, North Atlantic Region.

Young men who worked in trades for which they had been trained, accounted for 36 percent of those who had taken metal trades, 25 percent of majors in agriculture,⁴ and a mere 6 percent of majors in electrical trades.

Given these facts, it is not surprising that industrial-vocational courses, which show increasingly lower enrollments,⁵ have been the subject of heated controversy. The majority of the Governor's Committee on Education recommended in 1961: “The present system of vocational education and its financing should continue, pending a complete study of needs in this area.”⁶ However, a minority of the Governor's Committee found that the “Evidence is overwhelming, . . . and . . . that there is an urgent need and we *recommend* that the State immediately establish area vocational schools . . .”⁷

⁴ With respect to the expenditure of public funds for vocational training in agriculture, the Committee for Economic Development points out that “. . . the United States as a whole derives 4.3 percent of its personal income from farming, and no state derives more than 26.1 percent; yet the nation devotes 44.5 percent of its vocational funds, exclusive of funds for home economics, to training for agriculture.” Committee for Economic Development, *An Adaptive Program for Agriculture* (New York: 1962), p. 35.

⁵ Donald D. Dauwalder, *Vocational Education in the Pittsburgh Public Schools*, The Pittsburgh Board of Public Education (April 1963), p. 38.

⁶ Governor's Committee on Education, Commonwealth of Pennsylvania, *The Final Report* (March 1961), p. 115.

⁷ *Ibid.*, p. 202.

Table 20
 PERCENTAGE DISTRIBUTIONS OF MALE SENIORS OF 1958
 WHO MAJORED IN SPECIFIED HIGH SCHOOL VOCATIONAL-INDUSTRIAL SUBJECTS
 BY ACTIVITY IN 1962

<i>Vocational-Industrial Subject</i>	<i>All Activities</i>	<i>Activity in 1962</i>				
		<i>Employed in Same Field as High School Training</i>	<i>Employed in Different Field Than High School Training</i>	<i>Enrolled in Post-High School Institutions</i>	<i>In Military Service</i>	<i>Other¹</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Vocational-Industrial Subjects.....	100%	18%	40%	5%	27%	10%
Agriculture.....	100%	25%	40%	10%	21%	4%
Automotive Trades.....	100	16	43	..	30	11
Carpentry.....	100	8	56	1	21	14
Drafting.....	100	13	45	4	24	13
Electrical Trades.....	100	6	36	12	37	9
Metal Trades.....	100	36	30	5	12	17
Other Single Subject.....	100	33	31	7	23	6
Drafting Plus One Other Subject.....	100	20	37	7	33	3
Drafting Plus Two Other Subjects.....	100	14	32	..	36	18
Other Combinations of Two or More Subjects ..	100	9	66	..	25	..

¹ Includes unemployed, not in labor force, and incomplete replies.

Graduates' Evaluation of High School

When contacted some four years after high school, many young men and women were critical of school guidance services, the quality of the courses offered by the schools, and the contents of specific subjects.

Table 21 shows the percentages of graduates classified by type of post-high school education

who: (1) expressed the view that they had been enrolled in the wrong course; (2) felt that the course they had taken was but "fair" or "poor" and (3) expressed the opinion that they had been "handicapped" in their post-high school activities because of inadequate contents of specific subjects.⁸

⁸ For distribution of student opinions by course, see Appendix Table B-1.

Table 21
GRADUATES' EVALUATION OF HIGH SCHOOL PROGRAM
BY EDUCATIONAL ATTAINMENT, 1958-1962
BY SEX

<i>Highest Educational Attainment 1958-1962</i>	<i>All Graduates</i>		<i>8th and 9th Stanine, 1st Quintile Graduates</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
(1)	(2)	(3)	(4)	(5)
<i>Enrolled in Wrong Course</i>				
All High School Graduates.....	26%	15%	4%	8%
High School.....	41%	17%	24%	18%
Noncollegiate Training.....	29	19	31	14
Collegiate Training.....	11	10	2	4
<i>Course "Fair" or "Poor"</i>				
All High School Graduates.....	43%	28%	22%	16%
High School.....	54%	33%	21%	13%
Noncollegiate Training.....	40	25	38	6
Collegiate Training.....	33	23	22	20
<i>"Handicapped" Because of Deficient Contents of Specific Subjects</i>				
All High School Graduates.....	26% ^a		50%	47%
High School.....	14% ^a		26%	7%
Noncollegiate Training.....	25 ^a		61	26
Collegiate Training.....	44 ^a		51	61

^a Male and female combined.

Data in the table indicate that 26 percent of all male graduates and 15 percent of all female graduates felt that they had been enrolled in the wrong course in high school. Among top mental ability graduates who had attained top quintile standing in high school, only 4 percent of the males and 8 percent of the females shared this view. Again, 43 percent of the males and 28 percent of the females rated their high school course as "fair" or "poor" and 26 percent of all graduates felt that they had been "handicapped" in their post-high school endeavors because of subject matter deficiencies. Dissatisfaction with high school course was pronounced among graduates who had no post-high school education and graduates who had noncollege training. However, 44 percent of the graduates who had some college training complained of having been "handicapped" because of inadequacy of subject matter. Among first quintile graduates of top mental ability, 51 percent of the males and 61 percent of the females who attended college felt they had been "handicapped." Among subjects in which the graduates felt "handicapped" because of inadequate high school preparation, English was mentioned most frequently, mathematics ranked second, and the physical sciences third.⁹

Of the young men who had taken vocational-industrial courses in high school, an estimated 34 percent of those without post-high school training said they felt they should have taken some other course in high school. Among those with

⁹ These findings are consistent with the results of a Commission study concerning the preparation of mathematics and science teachers in Pennsylvania high schools. See *Biennial Report of the Joint State Government Commission, 1959-1961*, pp. 6-7.

some formal post-high school education, 50 percent reported that they should have taken a different course; the overwhelming majority of this group said that they should have taken the academic course.

In addition to completing the questionnaire, several hundred of the high school graduates volunteered comments. Reproduced below are quotations from some of these comments which illustrate the variety of opinions expressed.

Concerning guidance programs, a young man from western Pennsylvania and a young woman from the anthracite region, had the following to say:

“. . . I think that more emphasis should be placed on vocational guidance and a closer understanding of specific individual needs and this be done as early as 7th or 8th grade depending on the child.”

* * *

“It would be most helpful if a counselor (permanent) could be assigned to each high school within the state to guide pupils on their way to future opportunities upon graduation from high school. . . .”

With respect to the value of vocational-industrial education, a young man from southeastern Pennsylvania, who took printing at the Commonwealth-owned Thaddeus Stevens Trade School, commented:

“. . . I would like to say . . . the school that I attended . . . is a credit to the Commonwealth of Pennsylvania . . . it gives boys such as myself a chance for an education that otherwise I would not have. . . .”

A critical view was expressed by a Navy mechanic who had attended a high school located in central Pennsylvania:

“ . . . I find that my high school training in aviation was not much help. Gentlemen, we are playing with jets in the military, not the toys the school showed us. . . . So please see if you can give the students of the future a better picture of aviation of today.”

Two young women, both of whom attended high school in western Pennsylvania, commented on the value of the high school commercial course, as follows:

“ . . . I truly wish you would stress the importance to the future graduate, especially the girls who do not plan on enrolling in college or not thinking of marriage, that the commercial course is a wise choice, because without all these skills you are taught in this course, it is truly hard to find a job.”

* * *

“May I thank you for this project. Looking back to my high school training I am sorry I didn't have more preparation in commercial subjects, as I only took one year of shorthand, typing, and bookkeeping, along with my academic subjects.”

Some graduates objected to restrictions on their freedom to choose a course suitable to their needs. A young woman from eastern Pennsylvania, who had taken stenographic subjects, complained:

“ . . . I feel for an elective you should be able to take anything you want. . . . I was not permitted to take algebra and I felt that it would help me if I should decide to branch out into another field.”

Inadequacies of high school programs as preparation for specific careers were emphasized. A graduate from northeastern Pennsylvania observed:

“ . . . Our academic courses aren't measuring up to other schools . . . three of our girls were accepted into nurses training and when they started classes they unfortunately found they were at least six months to one year behind other girls . . . these girls had to drop out of the school.”

A serviceman attending college at night noted:

“ . . . I took the academic course . . . it failed to prepare me for college. I lacked a foreign language, a good math course . . . the only course that was of any help at all was college English. . . . The chemistry course was taught from an out-dated 1938 chemistry book.”

A graduate from western Pennsylvania wrote:

“I think this type of inquiry is a very good idea. . . . I hope you get enough responses so you can achieve your very worthwhile goal of trying to improve educational standards . . . which need improving.”

A member of a religious order, who had attended a parochial school in western Pennsylvania and was teaching high school at the time of the survey, advised:

“The academic course . . . which I took . . . made my college years, I believe, quite a bit easier. In my opinion the academic requirements . . . are quite thorough in training the high school student for a higher course of study. I was most pleased to participate in your follow-up study.”

Four years after high school, quite a number of graduates felt that they had not taken full advantage of their educational opportunity. A young man from northeastern Pennsylvania pointed out:

“ . . . in high school I did not take advantage of the knowledge of the teachers, I fooled around. . . . I did not select the right course but at the time I selected my course, I looked for the easy way out.”

Another comment, originating in southeastern Pennsylvania, was pert and pertinent:

“The school I went to was a good one. I didn’t take advantage of it.”

A dental technician from northwestern Pennsylvania confessed:

“ . . . I answered that my preparation was poor. Like most kids at that age I didn’t feel high school was that important which was a big mistake. If I had studied when I was in school I would have been a much better student. . . . I have only myself to blame, not the school.”

Mobility of Pennsylvania-Trained Professional and Technical Personnel

There are some who insist that the creation of training facilities in a community will assure their community of an “ample” supply of those trained, be they doctors of medicine, scientists, or engineers. Again, the “ample” supply of professionals and technicians is said to stimulate scientific and industrial activity within the community that provides the training and it is concluded that such increases in activity represent a part of the return on the investment in education, public and private.

The Joint State Government Commission previously produced factual evidence which demonstrates that in some professional service areas regarded as critical at the time, e.g., medicine and veterinary medicine, the number of professionals trained in a state does not govern the number of trained practitioners available within that

state. For example, in 1953, the Commission reported to the General Assembly:¹⁰

“Of the graduates of the School of Veterinary Medicine of the University of Pennsylvania from 1887 to 1951, inclusive, 1,068 were practicing as of January, 1952; of this total, 579, or 54.2 percent, were located in other states. Over the same period, 206 graduates of veterinary schools located outside Pennsylvania elected to practice in Pennsylvania. Consequently, over the period under review, the Commonwealth showed a ‘net export’ of 373 veterinarians trained at the University of Pennsylvania.”

Again, in 1955, the Commission reported to the General Assembly:¹¹

“ . . . in 1949, 80 percent of the active physicians in Pennsylvania were graduates of Pennsylvania medical schools, 8,840, or 47 percent, of the 18,647 active physicians who had been trained in Pennsylvania were practicing outside the Commonwealth. This emigration was partially offset by an immigration of 2,447 physicians trained in medical schools outside of Pennsylvania. This resulted in a net export of 6,393 doctors of medicine, the equivalent of 34 percent of those trained in Pennsylvania.

* * *

“ . . . Pennsylvania (with six medical schools) and New Jersey (with no medical school) had the same number of active non-federal physicians per 100,000 civilian population in 1949. . . .”¹²

¹⁰ See *Veterinary Medicine in Pennsylvania: Training Facilities And Practice*, Report of the Joint State Government Commission (1953), p. 2.

¹¹ See *Medical Training Facilities*, Report of the Joint State Government Commission (1955), p. 20.

¹² *Ibid.*, p. 17.

Judging by their plans, many of the high school seniors of 1958 who were in full-time college attendance in 1962 contemplated working somewhere other than in Pennsylvania. Table 22 presents percentage distributions of Pennsylvania fourth-year full-time college students classified by mental ability, sex, and work location plans.

Examination of the table brings out the following facts:

1. About 58 percent of the men and 83 percent of the women had work location plans. The percentage of men (42 percent) who did not report work location plans is relatively large because

many men plan to discharge their military obligation or pursue further study before entering the civilian labor force.

2. Of all students with plans regarding work location, 34 percent of the men and 36 percent of the women anticipated working somewhere other than in Pennsylvania.

3. The percentages of both men and women who planned to work outside the Commonwealth tend to increase with mental ability: 20 percent of the men in stanines one to five anticipate working outside the state, but 40 percent of the men in stanines eight and nine anticipate an out-of-state work location.

Table 22
WORK LOCATION PLANS OF FOURTH-YEAR COLLEGE STUDENTS
BY MENTAL ABILITY, BY SEX
1962

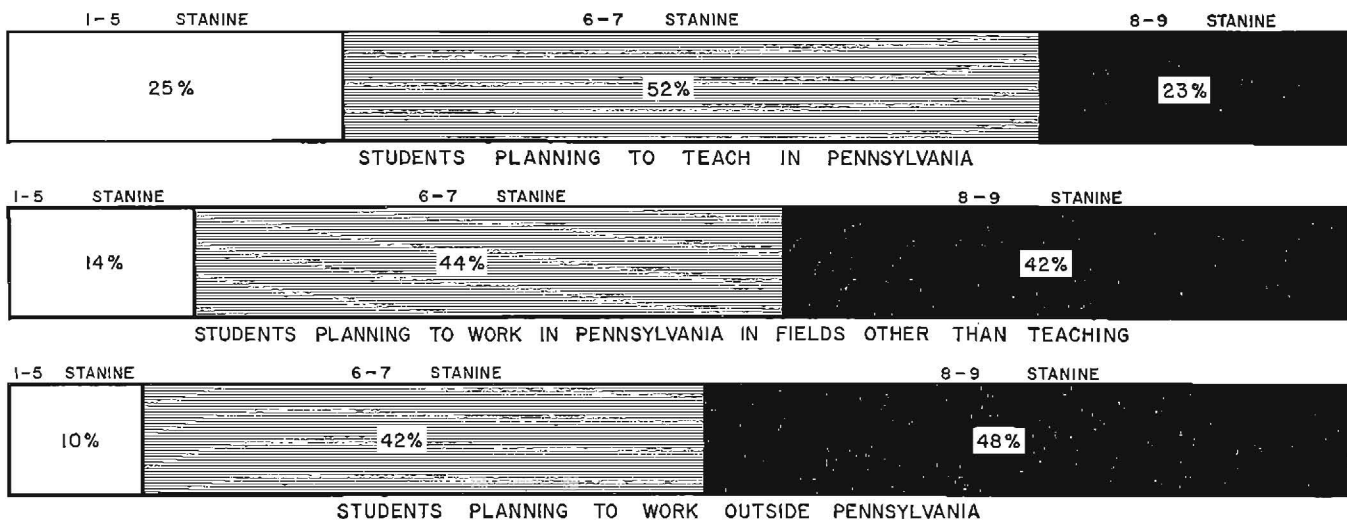
<i>Mental Ability (Stanine)</i>	<i>Sex</i>	<i>Students With Work Location Plans: Percentage Who Contemplate Location Outside Pennsylvania^a</i>	<i>Percentage Distributions of Students</i>			
			<i>Total</i>	<i>Plan to Work in Pennsylvania</i>	<i>Plan to Work Out-of-State</i>	<i>No Plan Reported</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Stanines.....	Male	34%	100%	38%	20%	42%
	Female	36	100	53	30	17
1-5.....	Male	20%	100%	47%	12%	41%
	Female	26	100	58	21	21
6, 7.....	Male	36	100	41	23	36
	Female	29	100	61	25	14
8, 9.....	Male	40	100	32	21	47
	Female	47	100	43	38	19

^a The percentages in column (3) equal the percentages in column (6) divided by the sum of the percentages in columns (5) and (6).

By far the largest single occupational choice of the graduating college seniors was teaching. In fact, 40 percent of those planning to work in Pennsylvania expected to teach. Of the total graduates with work plans, 26 percent planned to teach in Pennsylvania, 39 percent planned work other than teaching in Pennsylvania, and 35 percent planned to work in another state. Chart II shows the distribution, by mental ability, of these three groups.

Of those planning to teach in Pennsylvania, 23 percent were of high mental ability; of those planning to engage in some other occupation in the state, 42 percent were of high mental ability. Of graduates who were planning to engage in occupations other than teaching, the distributions by mental ability of the graduates expecting employment outside the Commonwealth and of those planning to work in the Commonwealth did not differ significantly.

Chart II
 PERCENTAGE DISTRIBUTIONS BY MENTAL ABILITY
 OF FOURTH-YEAR FULL-TIME COLLEGE STUDENTS
 WHO WERE PLANNING TO TEACH IN PENNSYLVANIA
 ENGAGE IN OTHER OCCUPATIONS IN PENNSYLVANIA
 OR WORK OUT OF STATE
 1962



The effect of field of specialization or college major upon work location choice is illustrated by Table 23, which shows the percentage distributions of fourth-year full-time students of Pennsylvania State-aided universities by work location plan, for majors in specified fields.

The table shows that only 36 percent of the engineering and mathematics majors of the State-aided universities looked forward to a work location in the Commonwealth. Some 40 percent of the majors in the social sciences, humanities, and business planned employment in Pennsylvania. The comparable percentage was 77 for other physical and biological sciences and 67 for education majors.

A substantial emigration of newly-trained engineers from Pennsylvania has been underway for years. Between 1954 and 1958, Pennsylvania colleges and universities graduated 11,445 engineers.¹³ In 1960, the number of engineers aged 25 to 29 employed in Pennsylvania totaled 6,933.¹⁴ The indicated "net export" of 4,512 engineers repre-

sents 39 percent of the number trained in Pennsylvania. Judging by the relationship between net and gross export rates of other professions, the emigration rate (i.e., the "gross export") for Pennsylvania-trained engineers probably exceeds 50 percent. California, by far the largest importer of engineers, trained 8,621 but employed 19,789. The next three largest importers of engineering talent are states adjacent to Pennsylvania: Ohio, 5,437 engineers trained and 7,533 employed; New Jersey, 3,409 trained and 6,199 employed; and Maryland, 1,360 trained and 2,691 employed.

In order to ascertain the out-migration pattern for technicians with less than four years of college training, the Joint State Government Commission, through the cooperation of The Pennsylvania State University, obtained information on the work location of 1,774 graduates of the university's extension centers with associate degrees in engineering. Of the technicians who graduated from these centers between 1959 and 1963, whose work location was known 1,018, or 54 percent, were initially employed outside Pennsylvania. The average monthly starting salary of these engineering technicians employed in Pennsylvania was \$369 as compared with an average

¹³For the number of graduates by institution, see Appendix Table B-12.

¹⁴U. S. Department of Commerce, Bureau of the Census, *Pennsylvania Detailed Characteristics* (1960), Table 123. Data for other states from similar 1960 census volumes for each state.

Table 23
PERCENTAGE DISTRIBUTIONS BY WORK LOCATION PLAN FOR HIGH SCHOOL SENIORS OF 1958
WHO WERE FOURTH-YEAR FULL-TIME MAJORS IN SPECIFIED FIELDS
AT PENNSYLVANIA STATE-AIDED UNIVERSITIES

<i>Work Location Plan</i>	<i>Major</i>			
	<i>Mathematics and Engineering</i>	<i>Other Physical and Biological Sciences</i>	<i>Education</i>	<i>Social Sciences, Humanities, and Business</i>
(1)	(2)	(3)	(4)	(5)
Total.....	100%	100%	100%	100%
Plan to Work in Pennsylvania.....	36%	77%	67%	40%
Plan to Work Out of State.....	50	3	9	28
No Plan Reported.....	14	20	24	32

monthly starting salary for those graduates employed elsewhere of \$412.

Table 24 shows work location plans of fourth-year college students and nursing school graduates attending different types of institutions.

The table indicates that the percentage of students who did not report work location plans ranged from 18 percent for the graduates of the University of Pennsylvania, Temple University, and the University of Pittsburgh, combined, to 43 percent for the graduates of out-of-state liberal arts colleges. Of those who had work location plans, the percentage who contemplated employment outside of Pennsylvania varied from 11 percent for those attending the University of Pennsylvania, Temple University, and the University of Pittsburgh, combined, to 67 percent for students attending out-of-state liberal arts colleges.

As has been previously observed, out-migration rates are associated with such factors as college major, level of mental ability, and sex. To the extent that substantial variations exist among institutions with respect to these factors, out-migration rates would differ. However, comparison of the out-migration rates with the commuting rates shows that except in the case of State colleges, the higher the commuting rate the lower the out-migration rate. This result is expectable because metropolitan areas are characterized by both a large number and wide variety of educational as well as employment opportunities.

All the evidence relating to migration rates demonstrates that increases in the output of trained personnel in Pennsylvania are far more likely to increase out-migration than to stimulate industrial activity in the Commonwealth.

Table 24
WORK LOCATION PLANS OF FOURTH-YEAR COLLEGE STUDENTS AND NURSING GRADUATES
FOR SENIORS OF 1958 WHO WERE ATTENDING SPECIFIED INSTITUTIONS
1962

Name or Type of Institution	Students and Nursing Graduates With Work Location Plans: Percentage Who Contemplate Location Outside Pennsylvania ¹	Percentage Distributions of Students			
		Total	Plan to Work in Pennsylvania	Plan to Work Out of State	No Plan Reported
(1)	(2)	(3)	(4)	(5)	(6)
Pennsylvania State University.....	50%	100%	36%	36%	28%
State-Aided Urban Universities.....	11	100	73	9	18
State Colleges.....	14	100	68	11	21
Other Pennsylvania Four-Year Colleges and Universities.....	38	100	43	26	31
Out-of-State Four-Year Colleges and Universities.....	67	100	19	38	43
Pennsylvania Hospital Schools of Nursing.....	22	100	62	18	20

¹ The percentages in column (2) equal the percentages in column (5) divided by the sum of the percentages in columns (4) and (5);

APPENDICES

Appendix A

TECHNICAL NOTES

I. Sample Design and Response

The Joint State Government Commission's Statewide sample of 10,000 Pennsylvania high school seniors of 1958¹ furnished the population from which the 1962 follow-up sample was drawn. These 10,000 seniors in the 1958 study were divided into sets defined by four characteristics: sex, high school course, mental ability, and 1958 fall activity as reported by their high school in the fall of 1958. This classification formed the basis for a stratified probability sample—the probabilities having been determined by the size and expected homogeneity of the set. Questionnaires were mailed to all seniors drawn in the 1962 sample. Those who had not responded after a second questionnaire was mailed to them were

subsampled and attempts were made to contact them by means of personal interviews. Altogether 3,936 questionnaires were completed by the seniors and college transcript data were obtained relating to an additional 131, making a total of 4,067 for whom post-high school activity data were ascertained. The probability sample design permits expansion of the sample to represent the entire Pennsylvania high school class of 1958 and is limited only by the response rate. The response in the 1962 follow-up survey permits estimates regarding approximately 80 percent of the entire senior class of 1958. The expanded sample represents 92 percent of those reported to be attending college in 1958, 82 percent of those taking noncollegiate training at that time, and 71 percent of the remainder of the seniors.

Table A-1 shows the total population figures as determined in the 1958 study and the corresponding numbers for the population represented by the 1962 respondents.

¹ See *Pennsylvania High School Seniors, 1958: Their Mental Ability; Their Aspirations; Their Post-High School Activities, A Technical Supplement*, Joint State Government Commission (1959).

Table A-1
DISTRIBUTION OF TOTAL POPULATION OF SENIORS OF 1958
AND THAT REPRESENTED BY 1962 RESPONDENTS IN FOLLOW-UP SURVEY
BY ACTIVITY AS REPORTED BY HIGH SCHOOL FOR OCTOBER 1958
BY SEX

<i>Activity as Reported by High School for October 1958</i>	<i>Total</i>		<i>Male</i>		<i>Female</i>	
	<i>Population (1958)</i>	<i>Respondents (1962)</i>	<i>Population (1958)</i>	<i>Respondents (1962)</i>	<i>Population (1958)</i>	<i>Respondents (1962)</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total.....	106,742	82,527	51,027	39,885	55,715	42,642
Attending Collegiate Institution.....	27,324	25,153	16,348	15,116	10,976	10,037
Attending Noncollegiate Institution.....	10,208	8,394	1,675	1,333	8,533	7,061
In Military Service.....	8,766	6,958	8,766	6,958	..	..
Other.....	51,253	36,475	19,456	13,741	31,797	22,734
Unknown.....	9,191	5,547	4,782	2,737	4,409	2,810

The nonwhite response rate was less than 50 percent and, therefore, too small to permit reliable estimates by color.

The statistics in this report relate to the population represented by the responses unless specifically noted otherwise.

Confidence intervals of the point estimates vary with different variables under consideration and with the size of the set observed. It is not feasible to present confidence intervals for each point estimate. However, standard deviations are shown in Appendix B for some of the variables. The point estimate plus or minus twice the standard deviation provides a 95 percent confidence interval.

II. Definitions of Variables Observed

A. **Mental Ability** is expressed in terms of the *stanine*² (standard nine) convention which for the purpose of this study represents a standardization of intelligence test scores. Intelligence tests measure a specific type of mental ability: the ability to read accurately, to interpret and follow directions and to apply logical reasoning, in varying degrees of complexity. Although the tests attempt to measure native ability alone, previous knowledge affects the scores to a certain extent. In the case of an individual, a single test score may be misleading due to unusual circumstances at the time the test was taken. However, in aggregated data measurement errors tend to balance out.

The relationship between stanine and Otis test scores (51 percent of the seniors had taken the Otis Mental Ability Test) and the percentage distribution of the class of 1958 and that of the respondents in 1962, are shown in Table A-2.

² *Ibid.*, p. 21.

Table A-2
STANINE CONVERSION TABLE FOR SCORES IN
OTIS TEST OF MENTAL ABILITY AND PERCENTAGE
DISTRIBUTIONS OF THE 1958 AND 1962
RESPONDENTS, BY STANINE

<i>Stanine</i>	<i>Otis I.Q. Score</i>	<i>1958 Respondents</i>	<i>1962 Respondents</i>
(1)	(2)	(3)	(4)
All Stanines.....	..	100.0%	100.0%
1.....	78	1.4%	1.4%
2.....	79-84	3.4	3.3
3.....	85-90	8.2	7.0
4.....	91-96	15.0	14.4
5.....	97-103	22.1	20.8
6.....	104-109	20.1	20.2
7.....	110-115	14.2	14.7
8.....	116-121	9.0	10.6
9.....	122 and above	6.6	7.6

As Table A-2 indicates, there were more seniors of above average than of below average mental ability. This implies that dropout prior to twelfth grade is in part associated with low mental ability.

Columns (3) and (4) show that, as compared with 1958, the 1962 response was proportionately higher for stanines six through nine and proportionately lower for stanines two through five.

B. **High School Performance** is measured in this survey by *quintile*. The student's ranking in his high school graduating class is indicated simply by the fifth of his class in which he ranked. The first quintile represents the top 20 percent of the class. A comparison of the 1958 and 1962 distributions of respondents follows:

<i>Quintile</i>	<i>Percentage Distribution</i>	
	<i>1958</i>	<i>1962</i>
1	21%	24%
2	21	21
3	21	20
4	19	19
5	18	16

C. **Parents' Income** is the annual income of both parents as reported within the following income intervals:

1. less than \$3,000
2. \$3,000 — \$5,999
3. \$6,000 — \$8,999
4. \$9,000 — \$11,999
5. \$12,000 — \$14,999
6. \$15,000 and over

The average parental income has been calculated by assigning midpoint values to each interval—\$1,500 to the lowest interval and \$16,500 to the highest interval. The open ends do not appear to create any large error since very few students checked either the first or the last interval.

The three variables—stanine, quintile, and parents' income—vary with different education levels. Table B-2, presents the average stanine, quintile, and parental income, by education level. In order to assess the reliability of these estimates, the standard deviation is shown in each instance.

D. **High School Courses** are grouped in Section II in order to permit employment analysis. For males, the commercial, industrial arts, and vocational courses have been grouped as vocationally-oriented or "practical" courses. The academic and general courses were grouped together inasmuch as the subjects included in these courses are academically rather than vocationally oriented. For females, the commercial course was separated from all other courses since there were so many females enrolled in the commercial course and since it gives a well-defined occupational preparation. All other courses are grouped together for females. The distributions, by course, of the pop-

ulation and of the 1962 respondents, for males and females combined, are shown below:

	<i>Percentage Distribution</i>	
	<i>Population</i>	<i>Respondents</i>
Academic	41%	45%
General	22	16
Commercial	26	29
Industrial or Vocational	11	10

A comparison of the distributions shows greater response among students who took the academic and commercial courses.

E. **Post-High School Education** is classified according to whether the respondent attended a *collegiate* or a *noncollegiate* institution. Collegiate institutions include all four-year institutions granting bachelor's degrees, junior colleges, and extension schools associated with universities.³ Other schools, such as nursing, business or trade schools, were classified as noncollegiate schools.

The *length of time* enrolled in either a collegiate or noncollegiate institution was measured in terms of months enrolled. The college duration was then translated into semesters.

F. **Unemployment Rates** of the seniors were calculated on the basis of all seniors who reported that they were either employed or looking for work in April 1962. The standard deviation of the unemployment rate for male seniors (with no post-high school education) who had taken the academic or general course was 2.3 percent. The corresponding deviation for the vocational-industrial set was 3.1 percent.

³ U. S. Department of Health, Education and Welfare, Office of Education, *Education Directory 1961-1962, Part 3, Higher Education* (1962).

G. Average Weekly Wages were calculated on the basis of all respondents who reported earnings for April, 1962. Table B-14, shows the standard deviations of the wage estimates in the case of seniors with different levels of mental ability.

III. Regression Analysis of Duration of Post-High School Education

A linear regression analysis was made to estimate the relative importance of certain variables in affecting an individual's enrollment in and duration of post-high school training.

The following regression equation was computed for all male seniors of 1958 who attended public high schools (whether or not they had any post-high school education) and for whom the value of each of the variables was known. The standard deviation of each estimate is shown in parentheses.

$$Y = 1.28 + .27X_1 - .44X_2 + .38X_3 + .11X_4 + .06X_5$$

(0.06) (0.01) (0.01) (0.01) (0.01) (0.01)

Where:

Y = level of educational attainment, as measured by the following code numbers:

Code 1 = no post-high school education or less than 1 semester

Code 2 = 1 semester

Code 3 = 2 semesters

Code 4 = 3 or 4 semesters

Code 5 = 5 or 6 semesters

Code 6 = over 6 semesters

x_1 = mental ability (stanine)

x_2 = high school class standing (quintile). The sign of the class standing coefficient is negative because a high class standing has a low quintile ranking

x_3 = parents' income code (See Appendix A-II)

x_4 = highest level of education attained by the parent having the most schooling, as measured by the following code:

Code 1 = some grade school

Code 2 = finished grade school

Code 3 = some high school

Code 4 = finished high school

Code 5 = some college

Code 6 = finished college

Code 7 = attended graduate school or professional school after college

x_5 = size of high school, as measured by the following code:

Code 1 = 1- 49 students in senior class

Code 2 = 50- 99 students in senior class

Code 3 = 100-149 students in senior class

Code 4 = 150-199 students in senior class

Code 5 = 200-299 students in senior class

Code 6 = 300-499 students in senior class

Code 7 = 500 or more students in senior class

The multiple correlation coefficient for the above equation was $R = .603$.

When the coefficients are multiplied by the means of the corresponding variables, the absolute values of the products, which indicate the relative importance of the variables (on the average), are as follows:

<i>Variable</i>	<i>Absolute Value of Product</i>
Mental Ability	1.55
Class Standing	1.42
Parents' Income	1.00
Parents' Education	.46
Size of High School	.25

The analysis indicates that mental ability and class standing were the most important of these factors in explaining the level of educational attainment for men.

The comparable regression equation for females is as follows:

$$Y = -.63 + .30X_1 - .19X_2 + .29X_3 + .19X_4 + .05X_5 + 1.32X_6$$

(.06) (.01) (.01) (.01) (.01) (.01) (.02)

Where:

- x_6 = marital status in 1962 as measured by the following code:
- Code 0 = not single
- Code 1 = single

The multiple correlation coefficient was $R = .585$.

The absolute values of the products of the coefficients, multiplied by the means of the corresponding variables, are as follows:

<i>Variable</i>	<i>Absolute Value of Product</i>
Mental Ability	1.68
Class Standing	.49
Parents' Income	.75
Parents' Education	.76
Size of High School	.18
Marital Status in 1962	.67

The regression analysis indicates that, for females, the level of educational attainment was most closely related to mental ability.

IV. Derivation of Unemployment Rates and Distributions by Mental Ability of School Dropouts

A. Unemployment Rates of Young Persons, 1960 and 1962

Since unemployment statistics are not regularly collected for Pennsylvanians by age and sex, to obtain unemployment rates for April 1962 it is necessary to use data from the 1960 Census of Population applying whatever adjustments seem

required. The following tabulation contains such unemployment rates for segments of the labor force, which include young Pennsylvanians, as are available on a comparable basis for April 1960 and April 1962.

SELECTED CIVILIAN UNEMPLOYMENT RATES
APRIL 1960 AND APRIL 1962

<i>Labor Force Coverage</i>	<i>April 1960</i>	<i>April 1962</i>
(1)	(2)	(3)
United States, Males, Ages 20 to 24....	9.2%	8.9%
United States, Females, Ages 20 to 24..	7.5	7.2
Northeast Region, Total.....	5.8	5.9
Pennsylvania, Total.....	7.5	7.6

SOURCES: U. S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, Vol. 6, No. 11 (May 1960) and Vol. 8, No. 11 (May 1962) and Pennsylvania Department of Labor and Industry, Bureau of Employment Security, *Pennsylvania Total Civilian Work Force, Unemployment and Employment: 1950-1962* (Harrisburg, August 1963).

All of the differences between the 1960 and 1962 rates are well within the respective sampling errors. In view of this evidence unemployment rates derived from the 1960 census have been used without adjustment as estimates of the April 1962 rates.

B. Unemployment Rates for Dropouts

Unemployment rates as of April 1962 for the high school graduates of 1958 not, at that time, attending any school or college full time were 9.0 percent for men and 5.8 percent for women. For all persons of the same age group¹ "not enrolled

¹ On the basis of the census definition of age as years completed, the modal age of the 1958 graduates in 1962 was 21 years. Since the class contained both older and younger people, however, all percentages derived from the census are based on the age group 20, 21 and 22.

in school," as per census data, unemployment rates were 13.6 percent for men and 7.3 percent for women, and the percentage who had not completed high school was 40.7 percent for men and 30.6 percent for women.² The estimated unemployment rate for male dropouts is:

$$\frac{.136 - .593 (.090)}{.407} = .203$$

Similarly, for women the rate is .107.

C. Distributions of Dropouts by Mental Ability

The distributions of dropouts by mental ability are derived from three elements: (1) the stanine distributions by sex of the 1958 graduates as ascertained from the 1958 sample; (2) the assumption that for both males and females the total age group is distributed according to the expected normal stanine distribution; and (3) high school completion rates for the total age group—.686 for men and .740 for women.³

The following tabulation contains the percentage distributions by stanine of the 1958 graduates and the expected normal stanine distribution.

² U. S. Department of Commerce, Bureau of the Census, *U. S. Census of Population: 1960, Detailed Characteristics, Pennsylvania*, Final Report PC (1)—40D. (1962). Unemployment rates are from Table 117; high school completion rates from Table 102. In contrast to rates for the entire age group (i.e., both "enrolled" and "not enrolled") high school completion rates for persons not enrolled in school show no apparent secular trend.

³ *Ibid.*, Tables 101 and 102. These rates are for the three-year age group centered on age 19 which was the approximate average age in 1960 of the 1958 graduates.

PERCENTAGE DISTRIBUTIONS BY STANINE
OF THE 1958 GRADUATES
AND THE EXPECTED NORMAL STANINE DISTRIBUTION

Stanine	High School Graduates of 1958		Expected Normal Distribution
	Male	Female	
(1)	(2)	(3)	(4)
1.....	1.5%	1.2%	4.0%
2.....	3.3	3.5	7.0
3.....	7.6	8.6	12.0
4.....	14.5	15.6	17.0
5.....	22.0	22.1	20.0
6.....	19.2	21.0	17.0
7.....	14.4	14.1	12.0
8.....	9.6	8.5	7.0
9.....	7.9	5.4	4.0
	100.0%	100.0%	100.0%

With the above data the distribution of dropouts by stanine may be readily estimated. Female high school graduates constitute 74 percent of their age group. About 22.1 percent of these graduates, or 16.4 percent of all females in the age group, were graduates in the fifth stanine category. And from the definition of stanine categories, 20 percent of all females in the age group are expected to be in the fifth stanine. Hence, fifth stanine dropouts constitute 20.0 percent minus 16.4 percent, or 3.6 percent of the age group. Since 26 percent of the age group are dropouts, 3.6 percent divided by 26.0 percent, or 14 percent of female dropouts are in the fifth stanine.

V. Questionnaire

A copy of the questionnaire utilized in the 1962 survey follows.

FOLLOW-UP STUDY
OF
GRADUATES OF PENNSYLVANIA HIGH SCHOOLS
CLASS OF 1958

General Assembly of the Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION

Harrisburg

Q. 1. In Column (1) check the type of course you took when you were in senior high school.

In the next columns check the box that best describes how well the course prepared you for what you have been doing since high school.

Type of Course	Col. 1	My preparation was:			
		Poor	Fair	Good	Excellent
Academic	1				
General	2				
Commercial	3				
Industrial Arts	4				
Vocational (Other than Industrial Arts)	5				

Q. 2. Do you think you should have taken a different type of course?

Yes	1	
No	2	

IF "YES" Which one should you have taken?

Q. 3. Do you feel that you have been handicapped because your high school did not prepare you adequately in certain subjects?

Yes	1	
No	2	

IF "YES" In which subjects?

IF YOU TOOK THE COMMERCIAL, INDUSTRIAL ARTS, OR OTHER VOCATIONAL COURSE IN SENIOR HIGH SCHOOL, ANSWER Q. 4, OTHERWISE SKIP TO Q. 5.

Q. 4. In Col. 1 check the subject(s) or trade(s) you took for two years or more.

Then, in the next columns, check the number of years you had of each subject.

		Col. 1	Number of Years	
			2 years	3 years
Commercial	Shorthand	1		
	Bookkeeping	2		
	Typing	3		
Industrial Arts	Carpentry	4		
	Electrical trades	5		
	Automotive trades	6		
	Metal trades	7		
	Drafting	8		
Vocational	Other trade (Write in name)	9		
	Agriculture	10		
	Home Economics	11		
	Distributive Education	12		

Q. 5. At any time since high school, did you go to any of the following types of schools?

(IF "NO" TO ALL SKIP TO QUESTION 8)

		Yes	No
Commercial or trade	1		
College or university	2		
Nursing or professional	3		
Other school	4		

Q. 6. Now, we would like to ask a few questions about the schools you attended. For each 12 month period shown in the first column, indicate the name of any school you attended, the number of months attended, etc.

Year	Name of school or college	Number of months attended	Course of Study or Major Subject (*See Examples Below)	Were you a full-time or part-time student?	
				Full-time	Part-time
June 1958 to May 1959					
June 1959 to May 1960					
June 1960 to May 1961					
June 1961 to May 1962					

* Examples—Secretarial, business machines, automotive trades, drafting, engineering, education, business administration, Liberal Arts (specify major, such as Political Science, Math), etc.

Year	Where did you live: at home, at school or elsewhere?			Approximately how many miles a day did you travel to school (one way)?	Did you complete this course, or receive a degree?		If degree was received, write in name of degree
	home	school	elsewhere		Yes	No	
June 1958 to May 1959				_____ miles			
June 1959 to May 1960				_____ miles			
June 1960 to May 1961				_____ miles			
June 1961 to May 1962				_____ miles			

Q. 7. The next set of questions is about the charges and the financing of your schooling during each year. Please print all Dollar amounts clearly. If your answer is zero (0) please print the zero—do not leave the answer blank. Therefore, you should have an answer for each question during every year you attended school.

Year	What were the approximate charges and incidental expenses for your schooling? (Include charges covered by scholarships)	How much of the TOTAL expenses were paid by each of the following:				
		Scholarships	Parents	Other Relatives	Yourself, wife, or husband	
					from savings or earnings	from loans
June 1958 to May 1959	Tuition (or fees) \$ _____ Room and board \$ _____ Books and other school expenses \$ _____ TOTAL \$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
June 1959 to May 1960	Tuition (or fees) \$ _____ Room and board \$ _____ Books and other school expenses \$ _____ TOTAL \$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
June 1960 to May 1961	Tuition (or fees) \$ _____ Room and board \$ _____ Books and other school expenses \$ _____ TOTAL \$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
June 1961 to May 1962	Tuition (or fees) \$ _____ Room and board \$ _____ Books and other school expenses \$ _____ TOTAL \$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

Q. 8. The next few questions are about the jobs you have had since high school and the periods when you were looking for work. In the table below, please show all the full-time jobs you have held, including summer jobs, and the periods when you were unemployed, looking for work. Start with June 1958 and continue through your most recent job, skipping any periods you may have been in school full time or keeping house full time.

Dates of Employment (Full-Time) or Unemployment	What are (were) you doing?	What type of firm or business do (did) you work for?	What type of work are (were) you doing?	What is (was) your weekly pay before deductions?
From: June 1958 To: _____ Month Year	Working 1 <input type="checkbox"/> Looking for work 2 <input type="checkbox"/> (If working answer Q's. in next three columns)			
From: _____ Month Year To: _____ Month Year	Working 1 <input type="checkbox"/> Looking for work 2 <input type="checkbox"/> (If working answer Q's. in next three columns)			
From: _____ Month Year To: _____ Month Year	Working 1 <input type="checkbox"/> Looking for work 2 <input type="checkbox"/> (If working answer Q's. in next three columns)			
From: _____ Month Year To: _____ Month Year	Working 1 <input type="checkbox"/> Looking for work 2 <input type="checkbox"/> (If working answer Q's. in next three columns)			
From: _____ Month Year To: _____ Month Year	Working 1 <input type="checkbox"/> Looking for work 2 <input type="checkbox"/> (If working answer Q's. in next three columns)			

Up to this point we have asked about your schooling and employment during the *past four years*. Now we would like to know about any military experience you may have had, and what you expect to be doing during the *next four years*.

Q. 9. Have you ever been on active duty in a branch of the military service?

_____	Yes	1	
(IF "NO" SKIP TO Q. 10)	No.	2	

What were the dates of service?

From: _____
(Month) (Year)

To: _____
(Month) (Year)

(IF "NO" TO QUESTION 9 ANSWER QUESTION 10)
(IF "YES" TO QUESTION 9 SKIP TO QUESTION 11)

Q. 10. Do you expect to go on active duty in a branch of the military service?

_____	Yes	1	
(IF "NO" SKIP TO Q. 11)	No	2	

When do you expect to go on active duty?

_____ (Month) (Year)

Q. 11. As far as you can tell right now, do you think you will be going to any of the following types of schools after June 1962? (CHECK "YES" OR "NO" FOR EACH SCHOOL)

	Yes	No
(IF "NO" TO ALL SKIP TO Q. 17)		
Commercial or trade	1	
College or university	2	
Graduate or professional	3	
Other school	4	

Q. 12. How certain are you that you will go to school?

Not certain at all	1	
A bit uncertain	2	
Fairly certain	3	
Very certain	4	

Q. 13. What school do you think you will go to?

_____ (Name)

Q. 14. When do you think you will start there?

_____ (Date)

Q. 15. What course of study will you take? (For example, secretarial, automotive trades, engineering, education, business administration, law, physics, psychology, etc.)

(Name of Course)

Q. 16. Do you think any part of your expenses will be paid by scholarship?

Yes	1
No	2

Q. 17. As far as you can tell right now, what kind of work do you expect to be doing in the next four years?
(PLEASE GIVE JOB TITLE AND DESCRIPTION OF WORK)

Q. 18. How certain are you that you will be doing that kind of work?

Not certain at all	1
A bit uncertain	2
Fairly certain	3
Very certain	4

Q. 19. If you expect to be working for pay in the next four years what type of firm or business do you think you will work for?

Q. 20. Where do you expect to be working?

(City or County)

(State)

You have now completed the first four-year follow-up of high school graduates. Since the goal of this study is to improve educational and employment opportunities of high school graduates, this project must continue even beyond the present point. We will try to reach you again four years from now, and at that time will conclude our study of the Class of 1958.

Since it is very possible that your home address may change within the next four years it will help us get mail to you quickly if you would give us the name and address of two relatives who will always know your address.

1. _____

2. _____

If you would like to receive a copy of the report when published, please fill in your home address.

(Street)

(City)

(State)

Appendix B
SUPPLEMENTAL TABLES

Table B-1
GRADUATES' EVALUATION OF HIGH SCHOOL PROGRAM
BY EDUCATIONAL ATTAINMENT, 1958-1962
BY HIGH SCHOOL COURSE, BY SEX

Highest Educational Attainment 1958-1962	High School Course										
	All Courses		Academic		General		Commercial		Vocational or Industrial		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
<i>Enrolled in Wrong Course</i>											
All High School Graduates.....	26%	15%	8%	14%	58%	36%	36%	11%	37%	33%	
High School.....	41%	17%	25%	46%	65%	36%	35%	7%	34%	32%	
Noncollegiate Training.....	29	19	10	17	47	38	27	14	40	^a	
Collegiate Training.....	11	10	2	3	48	35	47	32	56	^a	
<i>Course "Fair" or "Poor"</i>											
All High School Graduates.....	43%	28%	33%	24%	63%	48%	50%	27%	42%	28%	
High School.....	54%	33%	44%	43%	71%	46%	54%	29%	43%	28%	
Noncollegiate Training.....	40	25	35	17	53	57	34	22	34	^a	
Collegiate Training.....	33	23	29	21	49	41	50	25	43	^a	
<i>"Handicapped" Because of Deficient Content of Specific Subjects¹</i>											
All High School Graduates.....	26%		36%		21%		16%		24%		
High School.....	14%		15%		13%		11%		19%		
Noncollegiate Training.....	25		20		29		28		22		
Collegiate Training.....	44		45		39		28		58		

^a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

¹ Male and female combined.

Table B-2
 AVERAGE STANINE, QUINTILE, AND PARENTS' ANNUAL INCOME
 AND STANDARD DEVIATIONS OF THESE AVERAGES FOR SENIORS OF 1958
 BY LEVEL OF EDUCATIONAL ATTAINMENT AS OF 1962
 BY SEX

Sex	Highest Educational Attainment		Stanine		Quintile		Parents' Income	
	Type	Duration	Average	Standard Deviation of Average	Average	Standard Deviation of Average	Average	Standard Deviation of Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Male.....	High School Graduation	....	4.7	.04	3.7	.05	\$4,910	\$130
	Noncollegiate Training:	10 Months or Less	5.1	.15	2.3	.09	5,340	270
		11-30 Months	5.3	.15	2.6	.16	6,230	470
		More Than 30 Months	5.6	.37	2.3	.31	5,260	930
	Full-Time Collegiate Training:	1 or 2 Semesters	5.9	.22	3.2	.18	6,360	380
		3-6 Semesters	6.9	.16	2.5	.12	7,200	380
7 or More Semesters		7.0	.06	2.1	.06	8,280	230	
Female.....	High School Graduation	....	5.0	.04	3.0	.07	5,400	170
	Noncollegiate Training:	10 Months or Less	5.3	.12	2.7	.10	5,760	250
		11-30 Months	5.1	.16	3.0	.15	5,300	440
		More Than 30 Months	6.3	.12	1.9	.10	5,430	230
	Full-Time Collegiate Training:	1 or 2 Semesters	6.4	.28	1.9	.19	7,680	730
		3-6 Semesters	6.3	.17	2.0	.14	8,260	490
7 or More Semesters		7.1	.06	1.6	.05	8,870	230	

Table B-3 (a)
 PERCENTAGE DISTRIBUTIONS OF ALL SENIORS BY POST-HIGH SCHOOL ACTIVITY, 1958-1962
 FOR MENTAL ABILITY AND PARENTAL INCOME INTERVALS, BY SEX

Sex and Mental Ability (Stanine)	Annual Parental Income	Total	Post-High School Activity		
			Entered College	Enrolled in Noncollege Training Program	No Formal Post-High School Education
(1)	(2)	(3)	(4)	(5)	(6)
Male:					
All Stanines.....	All Income Classes	100%	46%	12%	42%
	Less Than \$6,000	100%	34%	13%	53%
	\$6,000-\$8,999	100	52	11	37
	\$9,000 and Over	100	77	8	15
1-5.....	All Income Classes	100%	24%	15%	61%
	Less Than \$6,000	100%	18%	14%	68%
	\$6,000-\$8,999	100	30	15	55
	\$9,000 and Over	100	52	16	32
6, 7.....	All Income Classes	100%	55%	11%	34%
	Less Than \$6,000	100%	41%	14%	45%
	\$6,000-\$8,999	100	56	10	34
	\$9,000 and Over	100	84	8	8
8, 9.....	All Income Classes	100%	82%	4%	14%
	Less Than \$6,000	100%	71%	7%	22%
	\$6,000-\$8,999	100	84	6	10
	\$9,000 and Over	100	92	2	6
Female:					
All Stanines.....	All Income Classes	100%	28%	24%	48%
	Less Than \$6,000	100%	17%	27%	56%
	\$6,000-\$8,999	100	31	22	47
	\$9,000 and Over	100	59	15	26
1-5.....	All Income Classes	100%	13%	24%	63%
	Less Than \$6,000	100%	7%	26%	67%
	\$6,000-\$8,999	100	15	20	65
	\$9,000 and Over	100	32	21	47
6, 7.....	All Income Classes	100%	35%	25%	40%
	Less Than \$6,000	100%	23%	30%	47%
	\$6,000-\$8,999	100	41	25	34
	\$9,000 and Over	100	64	16	20
8, 9.....	All Income Classes	100%	58%	19%	23%
	Less Than \$6,000	100%	44%	23%	33%
	\$6,000-\$8,999	100	59	23	18
	\$9,000 and Over	100	80	7	13

Table B-3 (b)
 PERCENTAGE DISTRIBUTIONS OF COLLEGE-ASPIRING
 SENIORS, BY POST-HIGH SCHOOL ACTIVITY, 1958-1962
 FOR MENTAL ABILITY AND PARENTAL INCOME INTERVALS, BY SEX

<i>Sex and Mental Ability (Stanine)</i>	<i>Annual Parental Income</i>	<i>Total</i>	<i>Post-High School Activity</i>		
			<i>Entered College</i>	<i>Enrolled in Noncollege Training Program</i>	<i>No Formal Post-High School Education</i>
(1)	(2)	(3)	(4)	(5)	(6)
Male:					
All Stanines.....	All Income Classes	100%	73%	9%	18%
	Less Than \$6,000	100%	62%	12%	26%
	\$6,000-\$8,999	100	76	7	17
	\$9,000 and Over	100	87	7	6
1-5.....	All Income Classes	100%	53%	17%	30%
	Less Than \$6,000	100%	44%	19%	37%
	\$6,000-\$8,999	100	63	12	25
	\$9,000 and Over	100	66	19	15
6, 7.....	All Income Classes	100%	74%	8%	18%
	Less Than \$6,000	100%	63%	12%	25%
	\$6,000-\$8,999	100	73	7	20
	\$9,000 and Over	100	91	4	5
8, 9.....	All Income Classes	100%	90%	3%	7%
	Less Than \$6,000	100%	84%	4%	12%
	\$6,000-\$8,999	100	90	3	7
	\$9,000 and Over	100	96	2	2
Female:					
All Stanines.....	All Income Classes	100%	65%	14%	21%
	Less Than \$6,000	100%	51%	17%	32%
	\$6,000-\$8,999	100	68	15	17
	\$9,000 and Over	100	85	5	10
1-5.....	All Income Classes	100%	43%	24%	33%
	Less Than \$6,000	100%	28%	28%	44%
	\$6,000-\$8,999	100	47	28	25
	\$9,000 and Over	100	71	9	20
6, 7.....	All Income Classes	100%	70%	11%	19%
	Less Than \$6,000	100%	56%	12%	32%
	\$6,000-\$8,999	100	70	12	18
	\$9,000 and Over	100	86	6	8
8, 9.....	All Income Classes	100%	84%	6%	10%
	Less Than \$6,000	100%	75%	8%	17%
	\$6,000-\$8,999	100	87	6	7
	\$9,000 and Over	100	90	2	8

Table B-3 (c)
 PERCENTAGE DISTRIBUTIONS OF SENIORS DESIRING NONCOLLEGIATE
 TRAINING, BY POST-HIGH SCHOOL ACTIVITY
 FOR MENTAL ABILITY AND PARENTAL INCOME INTERVALS, BY SEX, 1958-1962

Sex and Mental Ability (Stanine)	Annual Parental Income	Total	Post-High School Activity		
			Entered College	Enrolled in Noncollege Training Program	No Formal Post-High School Education
(1)	(2)	(3)	(4)	(5)	(6)
Male:					
All Stanines.....	All Income Classes	100%	13%	30%	57%
	Less Than \$6,000	100%	9%	29%	62%
	\$6,000-\$8,999	100	10	36	54
	\$9,000 and Over	100	34	27	39
1-5.....	All Income Classes	100%	11%	25%	64%
	Less Than \$6,000	100%	7%	24%	69%
	\$6,000-\$8,999	100	8	31	61
	\$9,000 and Over	100	a	a	a
6, 7.....	All Income Classes	100%	16%	40%	44%
	Less Than \$6,000	100%	14%	39%	47%
	\$6,000-\$8,999	100	a	a	a
	\$9,000 and Over	100	a	a	a
8, 9.....	All Income Classes	100%	a	a	a
	Less Than \$6,000	100%	a	a	a
	\$6,000-\$8,999	100	a	a	a
	\$9,000 and Over	100	a	a	a
Female:					
All Stanines.....	All Income Classes	100%	5%	49%	46%
	Less Than \$6,000	100%	2%	55%	43%
	\$6,000-\$8,999	100	13	43	44
	\$9,000 and Over	100	4	48	48
1-5.....	All Income Classes	100%	5%	39%	56%
	Less Than \$6,000	100%	2%	44%	54%
	\$6,000-\$8,999	100	14	28	58
	\$9,000 and Over	100	2	39	59
6, 7.....	All Income Classes	100%	5%	61%	34%
	Less Than \$6,000	100%	3%	66%	31%
	\$6,000-\$8,999	100	15	67	18
	\$9,000 and Over	100	6	57	37
8, 9.....	All Income Classes	100%	6%	66%	28%
	Less Than \$6,000	100%	4%	64%	32%
	\$6,000-\$8,999	100	a	a	a
	\$9,000 and Over	100	a	a	a

* The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Table B-3 (d)
 PERCENTAGE DISTRIBUTIONS OF SENIORS OF 1958
 DESIRING TO TERMINATE SCHOOLING ON GRADUATION FROM HIGH SCHOOL
 BY POST-HIGH SCHOOL ACTIVITY, 1958-1962
 FOR MENTAL ABILITY AND PARENTAL INCOME INTERVALS, BY SEX

Sex and Mental Ability (Stanine)	Annual Parental Income	Total	Post-High School Activity		
			Entered College	Enrolled in Noncollege Training Program	No Formal Post-High School Education
(1)	(2)	(3)	(4)	(5)	(6)
Male:					
All Stanines.....	All Income Classes	100%	8%	11%	81%
	Less Than \$6,000	100%	7%	9%	84%
	\$6,000-\$8,999	100	7	13	80
	\$9,000 and Over	100	27	10	63
1-5.....	All Income Classes	100%	6%	10%	84%
	Less Than \$6,000	100%	6%	8%	86%
	\$6,000-\$8,999	100	6	13	81
	\$9,000 and Over	100	a	a	a
6, 7.....	All Income Classes	100%	12%	13%	75%
	Less Than \$6,000	100%	8%	11%	81%
	\$6,000-\$8,999	100	10	11	79
	\$9,000 and Over	100	a	a	a
8, 9.....	All Income Classes	100%	24%	9%	67%
	Less Than \$6,000	100%	17%	8%	75%
	\$6,000-\$8,999	100	a	a	a
	\$9,000 and Over	100	a	a	a
Female:					
All Stanines.....	All Income Classes	100%	3%	13%	84%
	Less Than \$6,000	100%	1%	13%	86%
	\$6,000-\$8,999	100	4	9	87
	\$9,000 and Over	100	17	17	66
1-5.....	All Income Classes	100%	0%	12%	88%
	Less Than \$6,000	100%	0%	12%	88%
	\$6,000-\$8,999	100	0	8	92
	\$9,000 and Over	100	0	19	81
6, 7.....	All Income Classes	100%	7%	13%	80%
	Less Than \$6,000	100%	2%	12%	86%
	\$6,000-\$8,999	100	8	14	78
	\$9,000 and Over	100	37	12	51
8, 9.....	All Income Classes	100%	8%	24%	68%
	Less Than \$6,000	100%	5%	23%	72%
	\$6,000-\$8,999	100	a	a	a
	\$9,000 and Over	100	a	a	a

^a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Table B-4
 PERCENTAGE DISTRIBUTIONS OF SENIORS OF 1958 WITH POST-HIGH SCHOOL TRAINING
 BY YEAR FIRST ENROLLED, FOR TYPE OF TRAINING
 BY SEX

Type of Training	Sex	Total	Year First Enrolled			
			1958	1959	1960	1961
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Collegiate.....	Male	100%	88%	7%	3%	2%
	Female	100	92	3	3	2
Noncollegiate.....	Male	100	55	15	13	17
	Female	100	77	12	7	4

Table B-5
 PERCENTAGE DISTRIBUTIONS OF SENIORS OF 1958 WHO WERE FULL-TIME COLLEGE STUDENTS
 BY TOTAL ANNUAL COLLEGE EXPENSES
 FOR 1958-1959 AND 1961-1962
 BY SEX

Year	Sex	Total	Total Annual College Expenses					
			Less Than \$500	\$500-\$999	\$1,000-\$1,499	\$1,500-\$1,999	\$2,000-\$2,499	\$2,500 and Over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1958-1959.....	Male	100%	6%	26%	30%	21%	12%	5%
	Female	100	6	34	27	16	11	6
1961-1962.....	Male	100	6	21	25	22	15	11
	Female	100	8	24	22	21	14	11

Table B-6
AVERAGE ANNUAL EXPENSES OF SENIORS OF 1958 WHO ATTENDED COLLEGE IN 1958-1959
BY TYPE OF COLLEGE, BY PARENTAL INCOME, BY PLACE OF RESIDENCE

<i>Type of College</i>	<i>Annual Parental Income</i>	<i>Place of Residence</i>	
		<i>Home</i>	<i>School</i>
(1)	(2)	(3)	(4)
All Four-Year Collegiate Institutions.....	All Income Levels	\$ 860	\$1,520
	Less Than \$6,000	\$ 830	\$1,340
	\$6,000-\$8,999	800	1,440
	\$9,000-\$11,999	980	1,570
	\$12,000 and Over	1,000	1,810
State-Aided University.....	All Income Levels	\$1,000	\$1,410
	Less Than \$6,000	\$1,010	\$1,340
	\$6,000-\$8,999	900	1,360
	\$9,000-\$11,999	1,070	1,440
	\$12,000 and Over	1,100	1,570
State College.....	All Income Levels	\$ 380	\$ 880
	Less Than \$6,000	\$ 380	\$ 880
	\$6,000-\$8,999	a	900
	\$9,000-\$11,999	a	900
	\$12,000 and Over	a	a
Other Pennsylvania Four-Year College or University.....	All Income Levels	\$ 900	\$1,700
	Less Than \$6,000	\$ 900	\$1,600
	\$6,000-\$8,999	840	1,650
	\$9,000-\$11,999	1,050	1,820
	\$12,000 and Over	980	1,810
Out-of-State Four-Year College or University.....	All Income Levels	a	\$1,750
	Less Than \$6,000	a	\$1,520
	\$6,000-\$8,999	a	1,630
	\$9,000-\$11,999	a	1,700
	\$12,000 and Over	a	2,000

^a The percentage of all seniors in this category is so small that a sample estimate in this instance would be unreliable.

Table B-7
 PERCENTAGE OF SENIORS OF 1958 IN COLLEGE IN 1958-1959 WHO COMMUTED
 BY TYPE OF COLLEGE

<i>Type of College</i>	<i>Percentage of Students Who Commuted</i>
(1)	(2)
All Collegiate Institutions.....	32%
State-Aided Urban Universities ¹	87%
Other Philadelphia and Pittsburgh Area Colleges and Universities ²	67
Pennsylvania State University, Excluding Extension Centers.....	2
Pennsylvania State University, Including Extension Centers.....	25
State Colleges.....	24
Other Pennsylvania Four-Year Colleges and Universities.....	31
Junior Colleges in Pennsylvania.....	70
Out-of-State Colleges and Universities.....	3
Extension Schools.....	91

¹ University of Pennsylvania, University of Pittsburgh, and Temple University.

² All colleges and universities other than State-aided urban universities located in or within 15 miles of Pittsburgh or Philadelphia.

Table B-8
 AVERAGE PARENTAL INCOME, TUITION, AND TOTAL EXPENSES
 OF SENIORS OF 1958 IN COLLEGE IN 1961-1962

<i>Name or Type of College</i>	<i>Average Annual Parental Income</i>	<i>Average Tuition¹</i>	<i>Average Total Expenses¹</i>
(1)	(2)	(3)	(4)
University of Pennsylvania.....	\$12,300	\$1,390	\$1,870
University of Pittsburgh.....	8,100	1,140	1,480
Temple University.....	7,800	810	1,140
Pennsylvania State University.....	8,700	530	1,530
State Colleges.....	6,600	230	710
Other Pennsylvania Four-Year Colleges and Universities.....	8,100	920	1,480
Out-of-State Four-Year Colleges and Universities.....	9,900	940	1,860

¹ Full-time students attending six months or more.

Table B-9
 AVERAGE TOTAL EXPENSES OF FULL-TIME COLLEGE STUDENTS AND AVERAGE AMOUNTS OBTAINED FROM SPECIFIED SOURCES
 AND STANDARD DEVIATIONS OF THESE AVERAGES
 BY MENTAL ABILITY, BY PARENTS' INCOME, BY SEX
 1961-1962

Sex and Mental Ability (Stanine)	Parents' Annual Income	Total Expenses		Student's Contributions		Parents' Contributions		Scholarships		Loans		
		Average	Standard Deviation of Average	Average	Standard Deviation of Average	Average	Standard Deviation of Average	Average	Standard Deviation of Average	Average	Standard Deviation of Average	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Male: All Stanines.....	All Income Classes	\$1,500	\$ 41	\$560	\$ 26	\$ 980	\$ 47	\$ 700	\$ 60	\$550	\$ 41	
Female: All Stanines.....	All Income Classes	1,450	42	380	20	1,070	41	530	54	520	39	
89	Male: 1-5.....	Less Than \$6,000	\$1,110	\$119	\$660	\$122	\$ 580	\$ 87	\$570	\$ 87	\$520	\$107
		\$6,000-\$8,999	1,060	76	460	72	790	101	450	64	700	163
		\$9,000-\$11,999	1,370	134	450	73	910	129	310	74	"	"
		\$12,000 and Over	2,450	359	440	120	2,270	415	"	"	"	"
	6, 7.....	Less Than \$6,000	1,060	64	440	43	550	78	540	145	520	64
		\$6,000-\$8,999	1,300	84	500	54	740	88	630	162	660	105
		\$9,000-\$11,999	1,640	138	600	80	1,220	120	420	39	880	263
		\$12,000 and Over	1,690	131	490	63	1,420	129	540	112	"	"
	8, 9.....	Less Than \$6,000	1,530	132	680	84	750	110	650	151	390	58
		\$6,000-\$8,999	1,680	120	500	51	780	125	830	165	600	100
		\$9,000-\$11,999	1,750	142	700	147	850	136	1,290	136	390	116
		\$12,000 and Over	2,150	156	540	73	1,710	186	980	311	"	"
90	Female: 1-5.....	Less Than \$6,000	920	62	380	57	690	85	780	260	"	"
		\$6,000-\$8,999	1,300	277	390	69	860	109	"	"	500	44
		\$9,000-\$11,999	1,130	139	250	103	1,050	148	"	"	"	"
		\$12,000 and Over	1,330	239	150	34	1,230	217	300	133	"	"
	6, 7.....	Less Than \$6,000	1,130	81	470	56	700	82	460	131	510	65
		\$6,000-\$8,999	1,040	81	280	34	730	82	530	156	650	285
		\$9,000-\$11,999	1,490	95	320	48	1,070	104	630	180	590	187
		\$12,000 and Over	1,570	122	480	83	1,400	119	380	58	"	"
	8, 9.....	Less Than \$6,000	1,490	118	430	61	860	155	550	122	540	86
		\$6,000-\$8,999	1,500	153	240	35	970	129	610	181	610	127
		\$9,000-\$11,999	2,120	149	400	55	1,120	124	680	159	430	78
		\$12,000 and Over	1,990	170	430	110	1,710	164	440	145	730	21

" The number of sample observations is too small to permit calculation of standard deviations.

Table B-10
 PERCENTAGES OF FULL-TIME COLLEGE STUDENTS UTILIZING SPECIFIED SOURCES OF FINANCIAL SUPPORT
 AND STANDARD DEVIATIONS OF THESE PERCENTAGES
 BY MENTAL ABILITY, BY PARENTS' INCOME, BY SEX
 1961-1962

Sex and Mental Ability (Stanine)	Parents' Annual Income	Student's Contributions		Parents' Contributions		Scholarships		Loans		
		Percent of Students	Standard Deviation of Percent	Percent of Students	Standard Deviation of Percent	Percent of Students	Standard Deviation of Percent	Percent of Students	Standard Deviation of Percent	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Male: All Stanines	All Income Classes	70%	2.5%	80%	2.3%	28%	2.6%	17%	2.1%	
Female: All Stanines	All Income Classes	50	2.7	87	1.2	30	2.6	15	2.0	
69	Male: 1-5	Less Than \$6,000	67%	7.2%	69%	7.4%	26%	6.7%	15%	5.2%
		\$6,000-\$8,999	53	12.2	62	12.9	15	7.0	36	13.1
		\$9,000-\$11,999	66	12.8	82	11.1	34	12.8	a	a
		\$12,000 and Over	61	13.4	92	7.9	a	a	a	a
	6, 7	Less Than \$6,000	77	6.1	67	6.4	26	6.4	28	6.1
		\$6,000-\$8,999	62	8.0	85	5.7	38	8.2	20	6.4
		\$9,000-\$11,999	69	9.2	86	6.7	20	8.6	8	5.2
		\$12,000 and Over	46	9.7	97	3.0	11	6.0	a	a
	8, 9	Less Than \$6,000	89	4.9	79	6.7	32	7.7	21	6.7
		\$6,000-\$8,999	84	6.5	87	6.3	49	9.0	25	7.6
		\$9,000-\$11,999	74	10.2	76	10.7	31	11.2	20	9.7
		\$12,000 and Over	56	9.7	96	4.3	21	7.8	a	a
Female: 1-5	Less Than \$6,000	55	12.7	78	10.9	18	8.9	a	a	
	\$6,000-\$8,999	41	9.8	81	8.4	a	a	15	7.9	
	\$9,000-\$11,999	25	12.2	92	7.6	a	a	a	a	
	\$12,000 and Over	25	14.6	100	0.0	25	14.6	a	a	
6, 7	Less Than \$6,000	62	6.9	71	6.2	33	6.9	20	5.6	
	\$6,000-\$8,999	54	7.7	94	3.5	24	6.8	5	3.1	
	\$9,000-\$11,999	49	9.8	90	5.2	35	9.6	11	5.8	
	\$12,000 and Over	24	7.1	98	1.6	13	5.7	a	a	
8, 9	Less Than \$6,000	68	7.9	60	8.2	56	8.3	37	8.2	
	\$6,000-\$8,999	65	9.1	95	4.4	34	9.4	17	7.7	
	\$9,000-\$11,999	74	9.5	95	5.2	67	10.0	42	11.2	
	\$12,000 and Over	26	8.5	100	0.0	13	6.2	8	5.1	

a The number of sample observations is too small to permit calculation of standard deviation.

Table B-11
 PERCENTAGE DISTRIBUTIONS OF FOURTH-YEAR COLLEGE STUDENTS BY COLLEGE MAJOR
 FOR MENTAL ABILITY INTERVALS
 1961-1962

<i>Mental Ability (Stanine)</i>	<i>College Major</i>					
	<i>Total</i>	<i>Business</i>	<i>Education</i>	<i>Mathematics and Engineering</i>	<i>Physical Sciences</i>	<i>Other</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Stanines.....	100%	11%	31%	13%	20%	25%
1-5.....	100%	15%	49%	6%	16%	14%
6, 7.....	100	12	36	9	19	24
8, 9.....	100	9	20	19	22	30

Table B-12
 NUMBER OF BACHELOR'S DEGREES IN ENGINEERING
 GRANTED BY PENNSYLVANIA COLLEGES AND UNIVERSITIES DURING 1954-1958
 BY INSTITUTION

<i>Institution</i>	<i>Number of Degrees</i>
(1)	(2)
All Institutions.....	11,445
Bucknell University.....	259
Carnegie Institute of Technology.....	1,390
Drexel Institute of Technology.....	2,057
Gannon College.....	38
Geneva College.....	137
Grove City College.....	147
Lafayette College.....	485
Lehigh University.....	1,417
Pennsylvania Military College.....	204
Pennsylvania State University.....	2,644
Philadelphia Textile Institute ¹	251
Swarthmore College.....	96
University of Pennsylvania.....	388
University of Pittsburgh.....	1,358
Villanova University.....	574

¹ Name changed to Philadelphia College of Textiles and Sciences.

SOURCE: U. S. Department of Health, Education and Welfare, Office of Education,
Engineering Enrollments and Degrees, Circular Nos. 421, 468, 494, 516, 555 (1954-1958).

Table B-13
 GROSS¹ AND NET² ACADEMIC FOUR-YEAR MORTALITY RATES
 FOR FULL-TIME COLLEGE STUDENTS
 BY COLLEGE MAJOR, BY MENTAL ABILITY
 1958-1962

College Major	Mental Ability (Stanine)							
	All Stanines		1-5		6, 7		8, 9	
	Gross Rate	Net Rate	Gross Rate	Net Rate	Gross Rate	Net Rate	Gross Rate	Net Rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Business.....	59%	38%	69%	52%	59%	40%	49%	21%
Education.....	34	26	44	40	28	24	34	13
Mathematics and Engineering.....	55	51	72	66	55	52	51	47
Physical Sciences.....	48	40	59	52	51	46	41	30

¹ Gross academic four-year mortality rate = $1 - g$ where g equals the percent of students enrolled in the major course in 1958-1959 who were college seniors and enrolled in the same major course in 1961-1962.

² Net academic four-year mortality rate = $1 - \frac{N_2}{N_1}$ where N_1 equals the number enrolled in the major course in 1958-1959 and N_2 equals the number enrolled in the major course in 1961-1962.

Table B-14
 AVERAGE WEEKLY WAGE AND STANDARD DEVIATION OF THE AVERAGE
 FOR SENIORS WITH NO FORMAL SCHOOLING PAST HIGH SCHOOL
 BY MENTAL ABILITY, BY SEX
 1962

Mental Ability (Stanine)	Male		Female	
	Average Weekly Wage	Standard Deviation of Average	Average Weekly Wage	Standard Deviation of Average
(1)	(2)	(3)	(4)	(5)
1-3.....	\$75	\$2.30	\$54	\$2.30
4.....	78	3.50	64	2.80
5.....	77	3.00	63	2.80
6, 7.....	83	2.30	63	1.50
8, 9.....	82	3.50	70	2.60

