

PER-PUPIL COST
OF
VOCATIONAL AND GENERAL
EDUCATION PROGRAMS
IN THE
PUBLIC SCHOOLS



A REPORT OF THE
JOINT STATE GOVERNMENT COMMISSION
TO THE GENERAL ASSEMBLY OF THE
COMMONWEALTH OF PENNSYLVANIA

FEBRUARY, 1949

The Joint State Government Commission was created by Act No. 459, Session of 1937, as amended by Act No. 380, Session of 1939, and Act No. 4, Session of 1943, 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:

Pursuant to the provisions of Act No. 459, Session of 1937, as amended by Act No. 380, Session of 1939, Section 2 (b), we submit herewith a report dealing with per-pupil costs of vocational education programs in the public schools.

In accordance with Act No. 4, Session of 1943, Section 1, the Commission created a "subcommittee" to facilitate and expedite the investigation.

On behalf of the Commission the cooperation of the members of the subcommittee is gratefully acknowledged.

WELDON B. HEYBURN, *Chairman.*

*Joint State Government Commission
Capitol Building
Harrisburg, Pennsylvania
February 1949*

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teaching unit, to support education, and (4) specialization of districts in the four types of vocational programs.

These selected districts represent 31.5% of the total population in the Commonwealth.

VI. The financial records of the sample districts were examined for the school years 1945-46 and 1946-47; except in the case of Philadelphia and Pittsburgh, the two districts of the Commonwealth which keep their accounts for the calendar year. In these two cases, the calendar years 1945 and 1946 were employed.

The analysis of the records was designed to determine the per-pupil cost differences for vocational education programs as compared to a general high school program based on first, current expense costs, and second, current expenses plus an annual charge for capital outlay. The current expense cost analysis was completed for the entire sample of twenty-six districts. However, only fifteen districts were able to submit sufficient information from which to compute annual charges for capital outlay.

VII. By virtue of the limitations of the financial records from an accounting point of view, per-pupil costs and cost differences, presented subsequently, can indicate only the approximate relationship of the cost of vocational education as compared to general education.

On the basis of the information available in the files of the public schools surveyed, Table I shows the average per-pupil current expense costs and differences¹ for the sample districts.

The positive differences indicate the amounts by which the vocational per-pupil costs exceed the general high school

¹ See Appendix C, Computation of Averages.

TABLE I
Average Per-pupil Current Expense Costs and Differences (Positive and Negative)
Between General Curriculum and Specified Vocational Curricula

<i>Curriculum</i>	<i>Year</i>	<i>Average Per-Pupil Current Expense Cost</i>	<i>Average Differences^a</i>	<i>Range of Differences</i>		<i>ADM^b by Vocational Curriculum in Sample Districts</i>	<i>% of Sample ADM to Total ADM in State in Specified Curricula</i>
				<i>High</i>	<i>Low</i>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
General	1945-46	\$187.29	.....	.....	.....	.....	.....
	1946-47	208.48	.....	.....	.....	.....	.....
Industrial	1945-46	237.52	+\$46.59	+\$117.00	-\$14.46	9,782	54.08
	1946-47	270.37	+ 57.24	+ 188.32	- 7.85	9,535	49.91
Agricultural	1945-46	160.43	- 1.26	+ 74.98	-157.66	523	5.93
	1946-47	171.59	+ 6.95	+ 67.72	- 45.85	627	6.55
Home Economics	1945-46	162.68	- 1.20	+ 69.55	-164.37	1,564	10.32
	1946-47	188.36	+ 10.14	+ 108.86	- 75.12	1,430	9.31
Distributive	1945-46	202.84	+ 9.52	+ 75.93	- 4.32	547	61.80
	(Salesmanship)	1946-47	210.69	- 3.76	+ 51.38	- 75.81	589	58.90

^a See Appendix C, Computation of Averages.

^b ADM designates Average Daily Membership.

whereas the negative differences indicate the amounts by which the vocational per-pupil costs are less than the general high school costs.

Column 4 of Table 1 shows that, for Vocational Industrial programs, the average cost differences were \$46.59 and \$57.24 in 1945-46 and 1946-47 respectively. These, when compared to the supplemental reimbursements of \$35.00, indicates an average "underpayment" to the districts of \$11.59 and \$22.24.

For Vocational Agricultural programs the average cost difference was negative \$1.26 in 1945-46 and positive \$6.95 in 1946-47, which, when compared to the current supplemental reimbursement of \$35.00, indicates an average "overpayment" to the districts of \$35.00 and \$28.05.

In 1945-46 the average cost of the Agricultural program was less than the average cost of the General High School program, thereby not only producing an average "overpayment" to the district in the amount of the reimbursement but a "net gain" on the program of \$36.26 (\$35.00 plus \$1.26) for current expenses.

For Vocational Home Economics the average cost difference was negative \$1.20 in 1945-46 and positive \$10.14 in 1946-47 which, when compared to the current supplemental reimbursement of \$20.00 indicates an average "overpayment" of \$20.00 in 1945-46 and \$9.86 in 1946-47.

In 1945-46 the negative current expense cost difference, when added to the reimbursement of \$20.00, produces a "net gain" of \$21.20 on the Home Economics program.

For Vocational Distributive the average cost differences were positive \$9.52 in 1945-46 and negative \$3.76 in 1946-47, which, when compared to the current reimbursement of \$50.00 indicates an average "overpayment" in the first year of \$40.48 and in the second year \$50.00.

The negative current expense cost difference for the Vocational Distributive programs, in 1946-47 when added to the reimbursement of \$50.00 produces a "net gain" of \$53.76.

Table II shows the average per-pupil current expense plus capital outlay costs and differences for the fifteen districts that submitted information on the cost of buildings and equipment. Columns 7 and 8 in this Table show the total average daily membership in each curriculum for the selected districts and the percentage to the total for State.

Column 4, of Table II shows that, for Vocational Industrial programs, the average cost differences—current expense plus capital outlay costs—were \$67.09 and \$64.31, in 1945-46 and 1946-47 respectively, resulting in a total average “underpayment” of \$32.09 and \$29.31.

For Vocational Agricultural programs the average cost differences—current expense plus capital outlay costs—were negative \$26.02 and positive \$13.78, resulting in an average “overpayment” of \$35.00 and \$21.22.

In 1945-46 the average cost of the Agricultural program was less than the average cost of the General High School program, thereby not only producing an average “overpayment” to the district in the amount of the reimbursement but a “net gain” of \$61.02 (\$35.00 plus \$26.02) for current expense plus capital outlay costs.

For Vocational Home Economics, the average cost difference—current expense plus capital outlay costs—was negative \$29.54 and negative \$23.64 for the respective years.

The average cost of Vocational Home Economics for both years produces a “net gain” of \$49.54 in 1945-46 and \$43.64 in 1946-47.

TABLE II
Average Per-pupil Current Expense Plus Capital Outlay Costs and
Differences (Positive and Negative) Between General Curriculum
and Specified Vocational Curricula

<i>Curriculum</i>	<i>Year</i>	<i>Average Per-Pupil Cost</i>	<i>Average Differences</i>	<i>Range of Differences</i>		<i>ADM^a by Vocational Curriculum in Sample Districts</i>	<i>% of Sample ADM to Total ADM in State in Specified Curricula</i>
				<i>High</i>	<i>Low</i>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
General	1945-46	\$171.49	.....	.....	.....	.....	.....
	1946-47	183.10	.....	.....	.....	.....	.....
Industrial	1945-46	233.04	+\$67.09	+\$117.31	+\$33.77	1,452	8.03
	1946-47	252.82	+ 64.31	+ 109.85	+ 7.21	1,485	7.77
Agricultural	1945-46	204.24	- 26.02	+ 78.59	-202.93	242	2.74
	1946-47	202.55	+ 13.78	+ 46.94	- 26.73	264	2.75
Home Economics	1945-46	146.90	- 29.54	+ 26.29	- 57.57	845	5.58
	1946-47	152.17	- 23.64	+ 72.44	- 89.10	700	4.56

^a ADM designates Average Daily Membership.

No capital outlay data was obtained from which to compute annual charges for Vocational Distributive programs.

VIII. Multiplying the average per-pupil current expense "underpayments" and "overpayments" by the total Commonwealth average daily membership in each vocational program produces a total reimbursement in excess of costs amounting to \$438,330.35 in 1945-46 and \$45,204.38 in 1946-47. The following schedule shows the "underpayments" and "overpayments" by programs:

REIMBURSEMENTS IN EXCESS OF PROGRAM COSTS	<i>Type of Program</i>	1945-46	1946-47
	Agricultural	\$309,085	\$268,719
	Home Economics	303,020	151,380
	Distributive	35,865	50,000
	Total	\$647,970	\$470,099
REIMBURSEMENTS LESS THAN PROGRAM COSTS	Industrial	\$209,640	\$424,895
NET EXCESS REIMBURSEMENTS		\$438,330	\$45,204

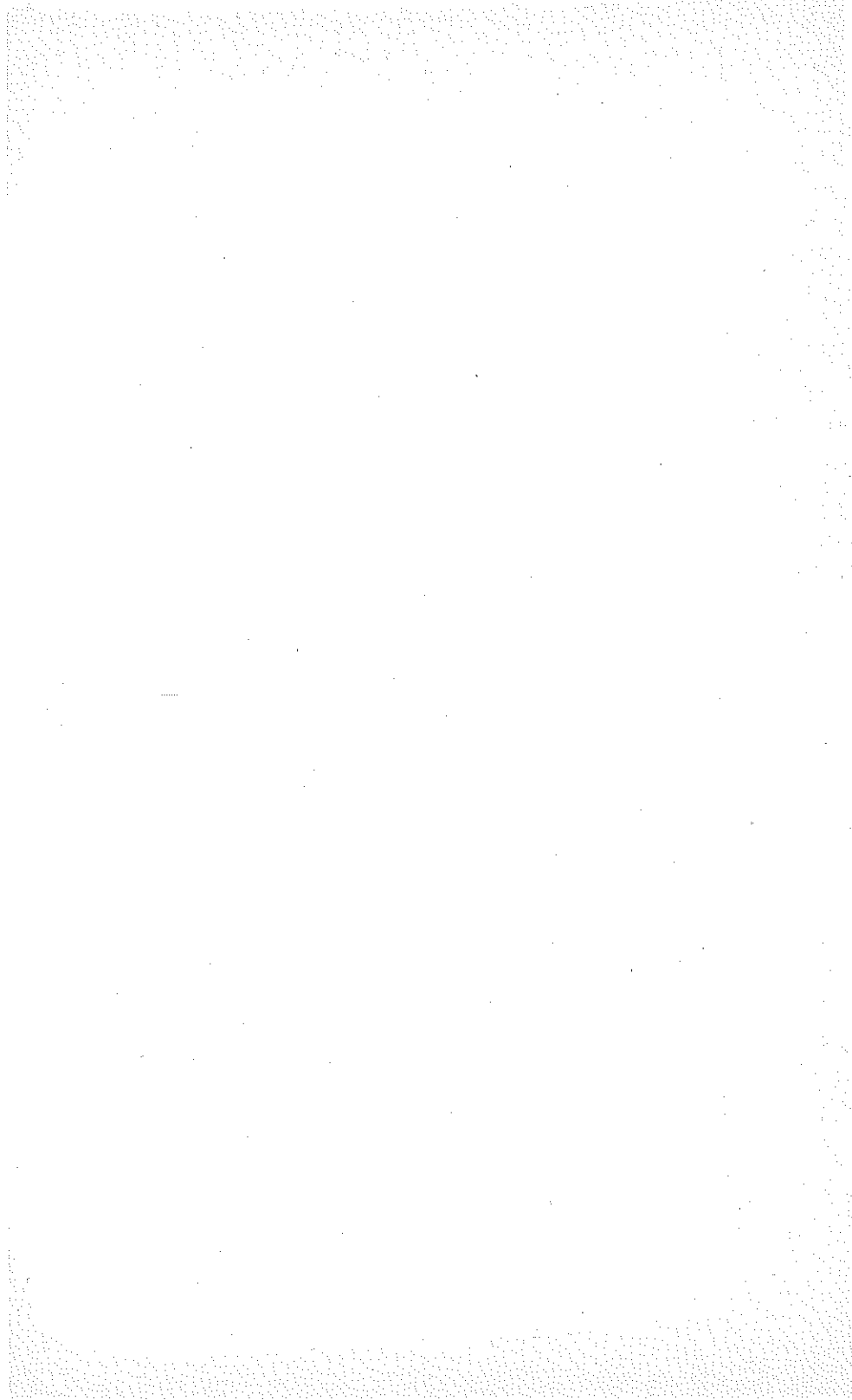
RECOMMENDATIONS:

The Joint State Government Commission recommends:

I. That it be made mandatory upon the Department of Public Instruction to develop a consolidated report form to take the place of the miscellaneous reports which local school boards are now required to file with the Department of Public Instruction and the School Employes' Retirement Board.

II. That this consolidated report form show, along with other items, the current expense and capital costs—determined in accordance with accepted accounting procedures—of specific educational programs.

III. As cost data become available, that school districts be reimbursed for vocational education programs on the basis now employed for general instruction, provided, however that no district receives a per-pupil appropriation in excess of a legislatively stipulated amount.



APPENDIX

APPENDIX A

1. Nature and Limitation of Data

Section 317 of the School Laws provides that the Secretary of the board of school directors shall furnish "whenever requested, any and all reports concerning the affairs of the district, on such form, and in such manner, as the State Board of Education or the Superintendent of Public Instruction may require."

Under this section of the law the Department of Public Instruction is given the power to require each district to submit financial data on prescribed forms but is not authorized to require the maintenance of specific financial records. These reports must be filed by the District before their appropriations are paid.

Among the reports required by the Department is the Annual Financial Report¹ which provides an organization analysis of the financial transactions as recorded by the District. By reference to the reproduction of the Form in Appendix D, it will be noted that there is no provision for reporting program costs separately. As a result the total vocational and general high school costs are reported under the columns entitled "High School."

The majority of districts has adopted the suggested record forms without modification and, as a result, these records reveal no information in addition to that shown on the Annual Reports. The method of prorating expenses to the various types of schools such as elementary, junior high schools, high schools, etc., is not uniform among the districts. Each district, for example, prorates plant operation and plant maintenance costs in whatever ratio the district officials deems advisable, and there is a vast difference in opinion as to the factors to be considered.

The Balance Sheet on the Annual Report provides that assets such as "School Buildings and Sites" and "Textbooks and Equipment" should be shown at cost, however, many districts report insurance appraisal values which do not reflect true cost values to be considered in computing amortization of Capital Outlay.

¹ See Appendix D, Reproduction of Annual Financial Report.

2. Method of Analyzing Costs

Two methods were considered for the determination of per pupil costs and per pupil cost differences for vocational education.¹

The method used in this report was to determine the per-pupil current expense cost, in each program in each of the twenty-six districts, by deducting from the total high school expense that amount which was prorated to the vocational programs¹ and considering the residual amount as the cost of a general high school education. The vocational programs were charged with their prorated share of all of the expenses of operating the schools in order to arrive at a total per-pupil cost for each program.

In addition to the current expense cost, fifteen of the twenty-six districts submitted data from which annual capital outlay charges were computed.

The costs of buildings and equipment submitted by most districts were estimated by school officials since no records showed original costs. The capital outlay cost for each program was estimated in all of the fifteen districts. Using the data as submitted, two per-pupil cost figures were computed for these districts; one included only current expense and another included both current expenses and annual charges for capital outlay.

¹ One of the methods considered for this study was to calculate the difference between salaries of teachers and equipment for a vocational program and the salaries and equipment for general education program, then to multiply this figure by the number of vocational teachers. It was to be assumed that, in the absence of a vocational program, a general high school education would be required, and that the same number of teachers, same building capacity, administrative and maintenance costs would be needed, whether the educational program were general or part general and part vocational.

This method was not used because of the questionable validity of the assumption that the same number of teachers and facilities would be needed to conduct only a general high school program where there are now one or more vocational programs in addition to the general courses; the difficulty of determining a standard uniform pupil-teacher load which would properly reflect the possible distribution of vocational students in the general high school curricula; and because of the lack of knowledge of how many students would be leaving school at 17, if no vocational program were offered.

¹ Appendix B, Computation of Per-Pupil Costs.

The disadvantage in computing per-pupil costs under both of these methods is the lack of proper basic data recorded in local districts. However, the computation of program costs under the second method is based upon conditions as they actually exist in each district rather than upon specified assumptions.

APPENDIX B

Per-Pupil Costs

The per-pupil costs shown in this report are based upon figures taken from the limited records of the local districts, supplemented by information from various district officials. In the absence of recorded figures, the oral information received from officials often became of prime importance in prorating expenses or determining cost values of buildings and equipment.

In the following discussions of the four types of vocational education programs, the difference in cost between the vocational and general curricula is given on a per-pupil, current expense basis.

Appendix Tables 1 to 4 show the per-pupil current expense cost differences in all of the districts as well as the per-pupil current expense plus capital outlay cost differences for those districts which submitted capital outlay data.

A detailed analysis of per-pupil costs by expense classifications in each program and for each district is set forth in Appendix C, Tables 5 to 13.

APPENDIX

PER-PUPIL COST DIFFERENCES
(Positive and Negative) between General Curriculum and
VOCATIONAL INDUSTRIAL CURRICULUM

TABLE 1

District Number	Current Expense Differences		Current Expense Plus Capital Outlay Differences		Average Daily Membership	
	1945-46	1946-47	1945-46	1946-47	1945-46	1946-47
(1)	(2)	(3)	(4)	(5)	(6)	(7)
17 1	+ 23.76	+ 32.18	+ 61.25	+ 70.26	598	614
6	+ 71.30	+ 8.69	+ 72.06	+ 7.21	136	160
9	+ 40.08	+ 15.50	+ 43.80	+ 18.52	118	122
12	- 3.76	- 7.85	none ^a	none ^a	307	330
14	+ 26.07	+ 48.00	+ 40.65	+ 65.13	165	156
16	+ 50.40	+ 66.92	none ^a	none ^a	4,335	3,982
17	+ 38.92	+ 37.51	none ^a	none ^a	3,082	3,095
19	+ 50.36	+103.05	none ^a	none ^a	144	148
22	+ 23.30	+ 33.19	+ 33.77	+ 45.89	143	137
23	- 14.46	+ 94.78	none ^a	none ^a	87	87
25	+117.00	+188.22	none ^a	none ^a	375	408
26	+110.62	+103.39	+117.31	+109.85	292	296

^a No information submitted.

APPENDIX

TABLE 2

PER-PUPIL COST DIFFERENCES (Positive and Negative) between General Curriculum and VOCATIONAL AGRICULTURAL CURRICULUM

District Number	Current Expense Differences		Current Expense Plus Capital Outlay Differences		Average Daily Membership	
	1945-46	1946-47	1945-46	1946-47	1945-46	1946-47
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2	none ^a	+\$29.11	none ^a	none ^b	none ^a	32
3	+ 55.36	+ 38.32	+ 66.23	+ 46.94	38	45
4	- 22.24	+ 36.19	none ^b	none ^b	40	25
5	+ 2.52	- 45.85	none ^b	none ^b	46	52
6	none ^c	- 20.51	none ^c	none ^b	none ^c	32
7	+ 43.19	+ 18.69	+ 39.76	+ 23.06	18	11
8	-157.66	+ 8.70	-202.93	+ 11.96	72	57
10	+ 29.16	- 5.78	none ^b	none ^b	27	26
13	+ 37.46	+ 67.72	none ^b	none ^b	60	35
15	+ 31.33	- 12.72	+ 31.05	+ 17.88	27	27
17	+ 5.69	- 30.30	none ^b	none ^b	39	44
18	+ 23.02	- 14.73	none ^b	none ^b	35	42
20	- 11.37	+ 9.21	none ^b	none ^b	37	36
21	+ 74.98	+ 44.93	+ 78.59	+ 45.94	49	50
23	none	+ 33.98	none ^c	none ^b	none ^c	39
24	+ 13.69	- 17.97	+ 12.66	- 26.73	38	63

^a Vocational Agricultural Program conducted for only 3 months in 1945-46 school year.

^b No information submitted.

^c Vocational Agricultural Program started in 1946-47 school year.

TABLE 3

(Positive and Negative) between General Curriculum and
VOCATIONAL HOME ECONOMICS CURRICULUM

District Number	Current Expense Differences		Current Expense Plus Capital Outlay Differences		Average Daily Membership	
	1945-46	1946-47	1945-46	1946-47	1945-46	1946-47
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	- 59.93	- 57.81	- 57.57	- 51.22	364	329
2	+ 12.82	- 11.97	none ^a	none ^a	32	36
3	- 6.87	- 15.78	- 2.34	- 11.56	50	54
5	- .91	- 59.82	none ^a	none ^a	46	72
7	- 52.49	+ 69.60	- 59.19	+ 72.44	33	12
8	-164.37	none ^b	- 12.23	none ^b	59	none ^b
9	none ^c	- 38.46	none ^c	none ^a	none ^c	16
10	- 1.77	- 47.38	none ^a	none ^a	24	33
11	+ 19.97	+ 26.20	+ 26.29	+ 38.59	55	41
13	+ 51.69	+ 34.97	none ^a	none ^a	44	45
15	- 21.46	- 75.12	- 29.25	- 89.10	32	35
16	+ 55.87	+ 91.42	none ^a	none ^a	395	357
17	+ 21.45	- 6.72	none ^a	none ^a	57	66
20	+ 27.56	- 5.96	none ^a	none ^a	40	41
21	- 42.77	+ 8.59	- 42.05	+ 11.90	56	50
22	- 13.60	- 13.53	- 15.57	- 14.13	48	51
23	+ 10.99	+ 21.39	+ 10.20	+ 21.18	98	94
24	+ 11.99	- 10.60	+ 7.74	- 7.15	50	34
25	+ 69.55	+108.86	none ^a	none ^a	81	65

^a No information submitted.^b Vocational Home Economics discontinued in 1946-47.^c Vocational Home Economics not conducted in 1945-46.

APPENDIX

TABLE 4

PER-PUPIL COST DIFFERENCES (Positive and Negative) between General Curriculum and VOCATIONAL DISTRIBUTIVE CURRICULUM

District Number	Current Expense Differences		Current Expense Plus Capital Outlay Differences		Average Daily Membership	
	1945-46	1946-47	1945-46	1946-47	1945-46	1946-47
(1)	(2)	(3)	(4)	(5)	(6)	(7)
13	+ 75.93	+ 2.54	none ^a	none ^a	23	30
14	+ 37.43	- 4.45	none ^a	none ^a	16	21
16	- 4.32	- 12.39	none ^a	none ^a	368	366
17	+ 38.02	+ 51.38	none ^a	none ^a	92	104
19	+ 5.84	+ 35.99	none ^a	none ^a	21	19
26	+ 30.71	- 75.81	none ^a	none ^a	28	49

^a No information submitted.

APPENDIX C

1. Computation of Per-Pupil Costs

The Annual Financial Reports, of the local school districts, which were filed in the Department of Public Instruction for the school years 1945-46 and 1946-47, together with the records of the districts, were used to obtain the basic data for this cost analysis. The Reports as well as the records, since they were planned on an organizational rather than a functional basis, did not furnish directly the information necessary to determine the cost of the various educational programs. As a result it was necessary to set up methods of prorating costs, to the various educational programs carried on in each district.

Two basic factors were used to prorate the costs. First, the percentage of average daily membership in each program as compared to the total average daily membership in the district was computed and is identified as the "Total Average Daily Membership Percentage" (Total ADM percentage). Second, the percentage of average daily membership in each program as compared to the total average daily membership in the high school was computed and is identified as the "High School Average Daily Membership Percentage" (H. S. ADM percentage).

The procedure used in prorating the current expenses is explained below and follows the order of the Account Classifications as set forth in the Annual Financial Report, Appendix D.

- A. The Expenses of General Control (Administrative) are the only expenses that are not prorated by the districts, to the types of schools conducted, such as elementary, junior high school, high school and others. Inasmuch as these expenses are recorded in total and represent the cost of administration for the entire district they were prorated by applying the Total ADM percentage.
- B. Expenses of Instruction were recorded for the High School, however, it was necessary to determine the portion chargeable to each educational program.

The first seven items of expense in this classification, salaries and expenses of supervisors and principals, were prorated by use of the H. S. ADM percentage with the exception of a few districts where some portion was determined to be directly chargeable.

Item 8, Salaries of Teachers, was prorated by direct charges and a proration of certain salaries. The amount of salaries chargeable directly to each vocational program was taken from the Annual Vocational Reports. In addition to the regular vocational work, the students are given instruction in certain academic courses and are taught by teachers not recorded on the Vocational Report. The portion of academic salaries chargeable to each vocational program was determined by computing the amount of time each teacher spent with the vocational groups providing the vocational students would be placed in separate classes of the average prevailing size.

For example, if an Industrial group was composed of an average daily membership of 100 and the average academic class in that school was 30 there would be $3\frac{1}{3}$ classes for each academic subject. In a school where the teacher's day consisted of six periods, $3\frac{1}{3}$ periods or $55\frac{1}{2}\%$ of an academic teacher's time would be chargeable to the Industrial group. This percentage was then applied to the annual salaries of the teachers affected to obtain the prorated charge which, when added to the salaries charged directly, resulted in the total vocational salaries. This amount was deducted from the total High School salaries to obtain the amount chargeable to General High School.

Item 9a, Textbooks. In a few instances a portion of this item could be directly charged to certain programs, however, in most cases the H. S. ADM percentage was used to prorate the total High School Charge.

Item 9b, Books for School Libraries, was prorated by the H. S. ADM percentage.

Item 10, Supplies. In several schools all or a portion of the charges for supplies in the vocational programs was obtained from the records and by the estimation of school officials. Also estimated costs of general supplies per pupil were determined. Any unallocated balance was prorated by the H. S. ADM percentage.

Item 11, Teachers Institute, was charged to the various programs on the basis of the number of teachers.

Items 13, 14 and 15 were prorated by use of the H. S. ADM percentage.

- C. Expenses of Auxiliary Agencies and Coordinate Activities were prorated by application of the H. S. ADM percentage to the expense for the High School.
- D. Expenses of Operation of School Plant were prorated by determining the percentage of cubic feet occupied by each group and applying that percentage to the total operating costs. In computing the percentage of space chargeable to each educational group consideration was given to ADM percentages of such space as, auditorium, gymnasiums, corridors, etc., as well as the classroom space.
- E. Expenses of Maintenance of School Plant were prorated by the H. S. ADM percentage with the exception of Item 4, Repairs and Replacements of Apparatus used in Instruction, which in a few instances were charged directly to certain programs.
- F. Expenses of Fixed Charges were prorated by applying the H. S. ADM percentage to the total for the High School.

2. Computation of Averages

The average per-pupil cost for each program was computed by adding the costs—current expense or current expense plus capital outlay—of all schools in which a vocational program was effective and dividing the total so obtained by the total average daily membership.

The average per-pupil cost difference for each program was computed by multiplying the cost difference in each school by its average daily membership in the effective vocational program, adding the products so obtained and then dividing this sum by the total daily membership.

