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THE STATUS OF VOCATIONAL EDUCATION AT THE SECONDARY LEVEL IN APPALACHIA, SECOND DRAFT.

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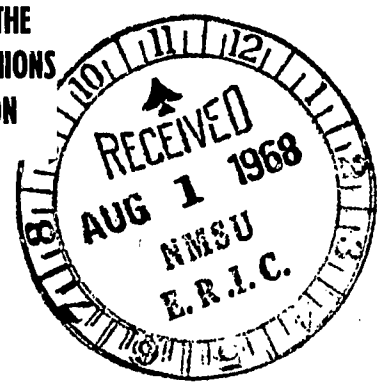
A general description of vocational education programs within the secondary schools of Appalachia, and an indication of where these programs can be strengthened to make the instructional offerings relevant to the jobs available to Appalachian secondary school students are discussed. Manpower supply is examined by enumerating enrollments in the vocational categories of agriculture, distribution, health, home economics, office education, technical education, and trades and industry. Manpower needs of the area are projected to 1975. Federal, State, and local financial support of Vocational Education are evaluated. Statistical data are included to support the narrative. Conclusions and recommendations are made. (SW)



THE STATUS OF VOCATIONAL EDUCATION AT THE SECONDARY LEVEL IN APPALACHIA

SECOND DRAFT

EDUCATION ADVISORY COMMITTEE

MAY 17, 1968

THE STATUS OF VOCATIONAL EDUCATION AT THE SECONDARY SCHOOL LEVEL IN APPALACHIA

The purposes of this study are a) to provide a general description of the vocational education program within the secondary schools of Appalachia, and b) to indicate where the vocational education program may be strengthened to make the instructional offerings relevant to the jobs available to Appalachian secondary school students.

The Data Problems

The problems of securing relevant and accurate data to describe and evaluate vocational education are several, and have been encountered by many who attempt to evaluate vocational education programs. The National Advisory Council on Vocational Education points out "that we have found it impossible to determine to our full satisfaction what has occured under the (1963) Act." If this condition exists at the National level where data should be generally available, at least on a state-wide basis for national summarization, the problem is compounded many-fold in any effort to combine local school district and/or county data into State and Regional totals for Appalachia. There may be less reliable data systems for evaluating expenditures of over three-fourths of a billion dollars of Federal, State and Local funds, but if they exist, they are not obvious to an anxious observer. Despite the clear-cut responsibility of the Commissioner of Education[1] to develop an information system that can lead to a meaningful

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[1] The Bridge Between Man and His Work, Publication No. 1, Advisory Council on Vocational Education, U.S. Department of Health, Education, and Welfare, Office of Education, 1968, pp. 45-47.

reporting and evaluation system for vocational education, the system still does not exist. Further, despite the fact that the Vocational Education Act of 1963 was designed to view vocational education as a unified program instead of a number of separate programs (identified as vocational agriculture, home economics, trades and industries, distributive education and so forth), these categories still prevail as strong and separate administrative units within the several State Departments of Education, and our data collection efforts revealed an astonishing lack of liaison and co-ordination between and among them.

But somehow life must go on: programs must be planned, manpower must be trained, resources must be allocated and decisions must be made on how to start <u>today</u> to provide vocational educational experiences which will meet the manpower needs of <u>tomorrow</u>. Hopefully, the development of a data system needed to make choices wisely will be begun soon; if the present study leads to this beginning, the data frustrations experienced will have been worthwhile. For the moment, however, we have separated our data problems into two areas: manpower supply and manpower demand.

<u>Manpower Supply</u>

The supply of manpower with which this study is concerned is that which emerges from the secondary schools. Two appropriate supply questions are: what is being taught to the 360,000 children enrolled in vocational education courses in the secondary schools of Appalachia? Is it occupationally relevant?

Whether one approaches these questions from the traditional "vocational categories" approach, or from the more recent "target group" approach to determine what is actually being taught and its relevance for gainful employment, the questions are literally impossible to answer specifically. For example, one of the vocational categories is agriculture. Within this broad grouping one might expect to find Production Agriculture being taught, but would not, ordinarily, expect to find a course in Automobile Mechanics. However, in some cases Automobile Mechanics is found in the Agriculture category, and in others it is found in Trades and Industry. So, data reporting enrollments in any one of the several vocational categories remain vague as to what is actually being taught. The sad fact is that no hard and fast definitions are followed. Hence no totally reliable information is available to determine what the Federal, State and Local governments are teaching with the funds spent for vocational education in the Nation's secondary schools.

Nor is the "target group" approach to program reporting, instituted by the Vocational Education Act of 1963, much better. In an effort to encourage new and relevant programs, the Congress provided for the transfer of funds appropriated under the George-Barden and other previous vocational education programs, from limited program categories to other programs - such as office occupations - with the approval of the Commissioner of Education. The 1963 Act also enables funds appropriated to be spent and reported on a "target group" (i.e.,secondary, post-secondary, adult, and special needs) basis. This change worsened the situation by providing no

indication of what was being taught and therefore of its occupational relevance. The support of vocational training for specific target groups in occupational areas of declining relevance for full-time employment is still present with no way of identifying the problems.

While "target groups" represent an improvement in one respect, in the concept of federal support for vocational training, it is insufficient for program evaluation. What is needed in addition to target group reporting, is data relevant to occupational skills for developing a job-relevant curriculum in a dynamic economy. Unless one uses the "category" reporting classification, however, he has no way of getting information at the regional level.

Manpower Demand

Data on the demand for manpower, suitable for curriculum planning, is likewise almost non-existent. It is true that the Bureau of the Census and the Bureau of Labor Statistics make interesting and meaningful manpower projections, but the utility of these projections for relevant curriculum planning is near zero. Projections are made by broad Industry Groups and often obscure specific jobs. More importantly, these projections are made in terms of national or large regional areas and bear little relevance to local district decisions necessary for curriculum planning. At times, specific projections are made for particular occupational groups, such as Engineering, or Health Personnel. These,

do not generally find their way to local schools. Hence, secondary school curriculum planners have had little or no feedback. They don't know, and can't find out about changes in occupations that reflect new manpower demands. This lack of information, plus the administrative structure that has developed about the "vocational categories" mentioned earlier, has tended to create great difficulties in planning vocational education curriculum. To overcome these difficulties, the Bureau of Employment Security and the Office of Education for some time have been trying to relate the broad industry and geographical employment projections made by the Bureau of the Census and the Bureau of Labor Statistics to meaningful curriculum planning. This effort has progressed far enough to be available (in draft form) for the purposes of this study; so far as can be determined, this is the first study to make use of the results of this joint Office of Education-Bureau of Employment Security endeavor.

The "coupling" of curriculum patterns and employment projections is made in the following way:

A conversion table[1/] has been prepared that relates the Bureau

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1
Conversion from BLS Occupation Group and Major Occupations to DOT Equivalents (mimeograph) 12/28/67. Bureau of Employment Security, Department of Labor.

of Labor Statistics Major Occupational Groups and Major Occupational Titles to related titles in the Dictionary of Occupational Titles (DOT) published by the Bureau of Employment Security. From the DOT titles one is then able to relate specific instructional programs, as defined by the Office of Education, into one of seven vocational categories used by vocational education planners, which reflects the administrative structure that has developed since the earliest days of Federal support for vocational education in the secondary schools.[1/] Thus, by using these conversion media, one can pass from the employment projections prepared by the Bureau of Labor Statistics to the administrative and curriculum clusters used in the planning and implementation of vocational education curricula. It should be stressed, however, that the instructional programs defined by the Office of Education need not be followed by local school boards, and are not in many cases. For example, the Office of Education defines Agricultural Marketing as Instructional Program 04.08.01, which places this curriculum in the vocational category of Distribution; but in point of fact many local school boards turn this Instructional Program over to Agricul-

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1 Standard Terminology for Instruction in Local and State School Systems, U.S. Department of Health, Education and Welfare, Office of Education, Washington, D.C. May, 1967 (Third Draft).

tural Education. In a similar way one can find Quantity Food Occupations, Program 17.29, defined under the vocational category of Trades and Industry, when in reality this type of vocational preparation is done in many school systems by Home Economics personnel. The following table illustrates the data problem. The training of Ornamental Horticulturist is defined by the Office of Education as a Trades and Industry curriculum component, but at least in one State, this instruction is provided by Vocational Agriculture. On the other hand, despite these ambiguities, the table also reveals that the dominant orientation, as measured by enrollment data, is still toward the historical mission of the "vocational categories" components - in this case Vocational Agriculture. Hence, one may surmise that, at least on the supply side of the manpower issue, the data which have been developed support a strong suspicion that the dominant instructional emphasis is still within the George-Barden meaning of the "vocational categories" terms. For this reason, as well as the quite pragmatic reason that nothing else is available, the "vocational categories" approach to grouping the supply and demand for manpower trained in the secondary school has been used.

TABLE 1

Student Enrollment in Instructional Programs under the Administrative Control of Vocational Agriculture 1965-1966

COURSE TITLE	NUMBER OF SCHOOLS (One Appalachian State)	ENROLLMENT (Number)	(Percent)
Agriculture I	484	16,534	
Agriculture II	474	11,430	89
Agriculture III	382	6,510	
Agriculture IV	308	4,610	
Ag. Construction	57	977	
Ag. Machinery	65	1,366	
General Horticulture	31	554	
Ornamental Horticulture	28	661	
Forestry	16	450	11
Crop & Soil Technology	11	149	
Livestock & Poultry	13	187	
Ag. Business	8	113	
Other Agriculture	3	34	
Total		43,575	100

Source: A State Department of Education Annual Report.

The discussion of the supply is restricted to that which emerges from vocational training within the secondary schools. The demand relates to those jobs forecast for 1975, and does not include replacement needs caused by retirements, death, and mobility - chiefly of women - into and out of the labor force. These demand deficiencies and supply deficiencies do not seriously inhibit providing a sketch in general terms, of the posture of secondary vocational education within Appalachia.

TABLE 2

Enrollments in Vocational Education by Grade Level and Vocational Category - 1966-67

Grade Level	Total Enrollment	Enrollment in Voc. Ed.	Vocational Education Cate				
			Agriculture	Distribution	Health	Home Economics	O
	1,818,223	360,667	76,392	8,515	492	144,862	
7	339,727	545	--	--	--	530	
8	330,840	4,422	1,054	--	--	3,192	
9	326,059	75,131	25,001	--	--	49,744	
10	297,416	88,044	21,228	769	18	39,757	
11	272,436	100,744	16,750	3,320	153	26,365	
12	251,745	91,781	12,359	4,426	321	25,274	

SOURCE: STATE DEPARTMENTS OF EDUCATION

TABLE 2

Enrollments in Vocational Education by Grade Level and Vocational Category - 1966-67

Vocational Education Category						
ıre	Distribution	Health	Home Economics	Office Ed.	Technical	Trades & Industry
	8,515	492	144,862	95,385	3,903	31,118
	--	--	530	--	--	15
	--	--	3,192	--	--	176
	--	--	49,744	1	--	385
	769	18	39,757	20,071	862	5,339
	3,320	153	26,365	39,379	1,557	13,220
	4,426	321	25,274	35,934	1,484	11,983

Enrollments

Of the 1,818,223 students enrolled in secondary schools in grades 7 - 12 within Appalachia, only 360,667 are enrolled in vocational education courses; less that 2 percent of these students are to be found in grades 7 and 8, as Table 2 shows. For all practical purposes one can say that, except for Agriculture and Home Economics, vocational education is non-existent below the 10th grade level within Appalachia. At the 10th grade level and through the 12th, the situation is better--but not much. Office Education, which has an enrollment of 20,071 at Grade 10, almost doubles in Grade 11, and continues to maintain a relatively high enrollment at Grade 12. Enrollments in Distribution, Health Occupations, and Technical Education are obviously low. Even though enrollment in Trades & Industry tends to approach the national rate of 10 percent of all vocational enrollments, in 1975, 49 percent of all the jobs available in Appalachia will be in this category.

The reason enrollments in some vocational categories are low while they are high in others is simple: where enrollments are high, there are vocational education programs available; where enrollments are low, programs are not available. For example, enrollments in Health Occupations only average a little over one student per county. Consider the following data:

TABLE 3

Vocational Education Programs
Secondary Schools
Appalachia 1966-67

Vocational Category	Number of Programs
Agriculture	1160
Distribution	306
Health Occupations	15
Home Economics	1656
Office Education	1301
Technical Education	69
Trades & Industry	913
TOTAL	5420

The inference is clear: where there are programs and attractive program options, students will enroll in vocational education; where there are no programs, obviously there can be no enrollments. There is no use decrying high enrollments in Agriculture and Home Economics as some tend to do. The data in Table 2, combined with that shown in Table 3 clearly show that when choices are introduced at the 10th grade level, high enrollments in Agriculture and Home Economics drop sharply. Home Economics and Agriculture dominate the vocational education picture in grades 7 - 9; however, introduction of different programs at grades 10 - 12, even though there are relatively few in number, attract an ever-increasing share of the enrollments. What seems to be needed is not necessarily a curtailment of the programs in Agriculture and Home Economics to achieve balance, but an enlargement of other programs that will give students a real vocational choice and work-training experience. The data in Table 3 gives an interesting insight into the educational opportunities available to our vocational education students in Appalachia. At best it is meagre; at worst it is perhaps better than nothing.

TABLE 4

Enrollments in Appalachia in Grades 7-12
by State and Vocational Category 1966-67

Appalachia	Secondary Enrollment Grades 7-12	VOCATIONAL CATEGORY				
		Agriculture	Distribution	Health	Home Economics	Off. Ed.
Total	1,818,223	76,392	8,515	492	144,862	95,385
		21.2	2.4	0.1	40.2	26.4
Alabama	222,114	13,563	807	276	21,340	3,206
	Percent	31.7	1.9	0.6	49.9	7.5
Georgia	78,049	7,204	353	---	14,369	13,600
	Percent	19.9	1.0		39.7	37.6
Kentucky	102,554	5,424	345	---	12,044	787
	Percent	26.9	1.7		59.7	3.9
Maryland	19,906	596	86	---	774	4,516
	Percent	8.5	1.2		11.0	64.3
Mississippi	48,609	4,525	102	---	7,341	---
	Percent	35.9	0.8		58.2	
New York	105,775	4,055	1,427	24	6,010	19,283
	Percent	12.4	4.4	0.1	18.4	59.0
N. Carolina	89,324	8,775	1,466	---	12,143	---
	Percent	35.4	5.9		49.0	
Ohio	112,316	2,990	---	21	7,592	507
	Percent	25.0		0.2	63.4	4.2
Pennsylvania	542,923	6,796	1,375	151	22,299	32,764
	Percent	9.2	1.8	0.2	30.3	44.4
S. Carolina	65,558	4,479	528	---	5,060	1,791
	Percent	33.1	3.9		37.4	13.2
Tennessee	175,327	9,178	619	---	18,287	413
	Percent	27.5	1.9		54.9	1.2
Virginia	49,083	3,838	1,075	20	6,529	5,724
	Percent	20.7	5.8	0.1	35.2	30.9
West Virginia	206,685	4,969	332	---	11,074	12,794
	Percent	14.9	1.0		33.3	38.4

Source: State Departments of Education

TABLE 4

nts in Appalachia in Grades 7-12
and Vocational Category 1966-67

VOCATIONAL CATEGORY							Vocation Education AS % of Secondary
ibution	Health	Home Economics	Off. Ed.	Technical	Trades & Indus.	Total	
15	492	144,862	95,385	3,903	31,118	360,667	19.8
4	0.1	40.2	26.4	1.1	8.6	100	
07	276	21,340	3,206	70	3,534	42,796	19.3
9	0.6	49.9	7.5	0.2	8.3	100.0	
53	---	14,369	13,600	--	626	36,152	46.3
0		39.7	37.6		1.7	100.0	
45	---	12,044	787	42	1,539	20,181	19.7
7		59.7	3.9	0.2	7.6	100.0	
86	---	774	4,516	165	884	7,021	35.3
2		11.0	64.3	2.4	12.6	100.0	
02	---	7,341	---	29	624	12,621	26.0
8		58.2		0.2	4.9	100.0	
27	24	6,010	19,283	494	1,409	32,702	30.9
4	0.1	18.4	59.0	1.5	4.3	100.0	
66	---	12,143	---	--	2,395	24,779	27.8
9		49.0			9.7	100.0	
--	21	7,592	507	3	863	11,976	10.7
	0.2	63.4	4.2	0.0	7.2	100.0	
75	151	22,299	32,764	2,429	7,940	73,754	13.6
8	0.2	30.3	44.4	3.3	10.7	100.0	
28	---	5,060	1,791	75	1,594	13,527	20.6
9		37.4	13.2	0.6	11.8	100.0	
19	---	18,287	413	211	4,630	33,338	19.0
9		54.9	1.2	0.6	13.9	100.0	
75	20	6,529	5,724	--	1,339	18,525	37.7
8	0.1	35.2	30.9		7.2	100.0	
32	---	11,074	12,794	385	3,741	33,295	16.1
0		33.3	38.4	1.2	11.2	100.0	

Enrollments by States

The decision points for improving vocational education at the secondary level within Appalachia rest at the State level. In Table 4 the enrollments and the percent distribution by State in grades 7 - 12 are shown by vocational education category. For Appalachia as a whole, in grades 7 - 12 slightly less than 20 percent of the total secondary enrollment is in vocational education. For the country as a whole, less Appalachia, 25 percent of the students in grades 9 - 12 were enrolled in vocational education in 1966; in Appalachia, the comparable figure was 30 percent, indicating the greater need and a larger preference for vocational education within Appalachia than without.

Enrollments in Vocational Education Courses
Grades 9 - 12 in Non-Appalachia U. S.
and Appalachia, 1966

Total Enrollments		Enrollments in Vocational Ed.		Percent Enrollments	
N-Ap. U.S.	Appl.	N-Ap. U.S.	Appl.	N-Ap. U.S.	Appl.
10,852,344	1,147,656	2,705,851	335,690	25	30

The inference seems clear once more: vocational education is desired by a relatively larger share of students within the Appalachian Region than outside; but, apart from the Agriculture and Home Economics programs, their opportunities to get educational experience of this type are severely limited. Table 4 indicates a summary by State and by vocational category of the enrollments within the counties of each of the thirteen states that form the Region. It is interesting to note that the overall percentage of students enrolled in vocational education courses varies from 10.7 percent in Ohio to 46.3 percent in Georgia. The large emphasis

upon Agricultural Education and Home Economics in many States is apparent, and the rather small enrollments in other programs is equally obvious. Once again the message is clear: a greater variety of programs is needed to serve the young people of Appalachia. It is useless to lament high enrollments in Agriculture when agricultural employment is declining and other choices are scarce; and it is equally useless to look in wonderment at the high enrollment in a Home Economics curriculum oriented to "home and family life" when more and more women are working and there are few other secondary vocational education alternatives open to them. What Appalachian youngsters need is more attractive alternatives.

Enrollments by Target Group

The unusually heavy dependence of Appalachia upon the Secondary Schools for vocational education is indicated in Table 5 below. While almost three out of four vocational enrollments in Appalachia can be found in high school, less than one-half of vocational enrollments outside of Appalachia are in high school. Appalachia lags considerably behind non-Appalachia in Post-Secondary vocational enrollments - in fact, Appalachia has just about one-half of the relative enrollments at the post-secondary level as non-Appalachia has. Even in the Adult category Appalachia is almost 50 per cent behind in relative enrollments with non-Appalachia. Only in the area of Special Needs does Appalachia approach the non-Appalachian rate of enrollments. One can say that the national trend to shift vocational enrollments from secondary schools to post-secondary schools has barely made any impression in Appalachia so far. That more post-secondary schools need to be built appears more than obvious from Table 5.

TABLE 7

SECONDARY ENROLLMENT - 1966
by Sub-Region
by Vocational Education Category

Sub-Region	Vocational Category							
	Agri.	Health	Dist.	Home Ec.	Office Occ.	Tech. Ed.	T & I	TOTAL
1	3,004	27	1,037	4,561	14,556	358	1,361	24,904
2	1,778	14	543	3,924	8,362	406	929	15,956
3	1,115	25	226	3,675	5,373	398	1,302	12,114
4	686	15	139	2,252	3,309	245	802	7,448
5	1,587	9	164	3,198	6,523	303	1,282	13,066
6	4,591	90	784	14,212	19,158	1,477	5,155	45,467
7	407	7	---	987	36	---	161	1,598
8	1,588	5	31	3,333	209	73	443	5,682
9	874	5	---	1,843	71	3	94	2,890
10	378	--	---	392	43	---	---	813
11	1,264	--	46	2,085	844	20	359	4,618
12	3,804	--	212	11,009	11,982	189	3,674	30,870
13	2,744	--	158	5,414	242	23	446	9,027
14	1,126	--	400	2,180	1,436	---	154	5,296
15	3,404	--	781	5,483	348	---	1,796	11,812
16	4,575	20	647	6,067	3,897	50	1,771	17,027
17	4,238	--	531	10,998	373	116	2,022	18,278
18	1,434	--	---	2,545	32	---	342	4,353
19	1,950	--	282	2,732	---	---	642	5,606
20	3,402	--	466	3,748	---	---	711	8,327
21	5,424	10	342	10,674	4,394	25	1,962	22,831
22	3,749	71	269	5,908	743	75	598	11,413
23	4,517	--	528	5,292	1,791	75	1,663	13,866
24	4,970	--	244	9,915	9,384	---	432	24,945
25	7,487	182	487	12,139	2,348	19	2,930	25,592
26	1,666	13	13	2,356	130	4	65	4,247
27	4,525	--	102	7,341	---	29	624	12,621
	76,287	493	8,432	144,263	95,584	3,888	31,720	360,667

Financial Support of Vocational Education in Appalachia

In 1966, $45,524,676 was spent in Appalachia for operations in vocational education. Of this amount, $11,135,579 came from the Federal Government, $15,786,399 came from State Governments, and $18,602,698 came from local sources. These sums do not include construction. Compared to national levels, Appalachian operational expenditures are as follows, rounded to the nearest million, with the per $1.00 equivalency included.

Area of Expenditure	Sources of Expenditure			
Non-Appalachian U.S.	Federal 161	State 176	Local 256	Total-All 593
Amount per Federal $1.00	$1.00	$1.09	$1.59	
Amount per State $1.00	1.10	1.00	1.48	
Amount per Local $1.00	.63	.69	1.00	
Appalachian U.S.	11	16	19	46
Amount per Federal $1.00	$1.00	$1.45	$1.73	
Amount per State $1.00	.70	1.00	1.19	
Amount per Local $1.00	.58	.84	1.00	

The data presented here suggest that the Appalachian States and localities are making a greater effort to support vocational education than those in non-Appalachia U.S. In a Region that has already been Congressionally designated in need of special help, it is difficult to understand why local dollars in non-Appalachia are matched by 63 cents of Federal money while local dollars in Appalachia are matched by only 58¢ of Federal money. Appalachia's ability to pay is considerably less than the rest of the Nation.

The total funds available for vocational education and the amounts spent on construction in 1966 are shown in Table 5. When money for construction is added, the Federal disparity is decreased somewhat.

Table 8
Expenditures on Vocational
Education 1966
under P.L. 88-210
(millions rounded)

Total

	Federal	State	Local	Total
Non - Appalachian	$216	$199	$323	$738
Appalachian	17	18	27	62
Total	$233	$217	$350	$800

Construction

	Federal	State	Local	Total
Non - Appalachian	$ 56	$ 22	$ 67	$145
Appalachian	6	2	8	16
Total	$ 62	$ 24	$ 75	$161

Although Appalachia has over 9% of the National population and 13% of the secondary vocational enrollment, it receives only 8% of the total money available for secondary vocational education.

In Appalachia, the States supported 29% of the total, Federal sources 27%, and local sources 44%. In non-Appalachia, Federal funds supported 29%, State funds 27%, and local funds 44% of the total outlay. Is the national effort to assist Appalachia deserving of as much Federal support for vocational education within the Region as without?

Where Money Went

To secure resources for vocational education within Appalachia is one thing; to apply existing and additional resources wisely is quite

another. But before the question of the wisdom of expenditures can be raised, one must first know where the money went; $46 million is not a great sum of money as educational expenditures go, but before we start spending additional money, it is well to see what this $46 million was spent for. Table 9 gives this for the Region as a whole.

TABLE 9

Expenditures on Vocational Education in Appalachia in 1966 by Source of Support

State & Source of Program Support	Total	Agriculture	Distribution	Health	Home Economics
APPALACHIA	$45,524,676	$ 9,692,990	$ 1,703,739	$ 1,161,806	$ 9,307,162
Federal	11,135,579	2,213,540	435,231	491,105	976,108
State	15,786,399	3,814,132	714,408	493,763	3,694,220
Local	18,602,698	3,665,318	554,100	176,938	4,636,834
ALABAMA	5,387,877	1,633,133	256,033	139,691	1,497,668
Federal	1,057,215	309,421	61,893	52,396	147,535
State	3,961,884	1,319,139	194,140	34,827	1,347,504
Local	368,778	4,573	---	52,468	2,629
GEORGIA	1,768,939	601,468	23,805	28,041	762,346
Federal	292,190	73,905	3,695	14,055	26,072
State	270,137	66,145	---	12,036	77,195
Local	1,206,612	461,418	20,110	1,950	659,079
KENTUCKY	1,767,803	601,240	40,105	---	603,125
Federal	303,128	42,988	1,578	---	15,947
State	1,362,563	526,438	37,912	---	558,914
Local	102,112	31,814	615	---	28,264
MARYLAND	749,850	80,975	342	---	95,999
Federal	161,330	22,674	342	---	4,998
State	307,633	32,380	---	---	51,732
Local	280,887	25,921	---	---	39,269
MISSISSIPPI	1,260,160	470,953	9,330	9,329	387,379
Federal	355,780	154,414	2,301	4,327	33,563
State	416,237	100,887	2,044	2,376	145,167
Local	488,143	215,652	4,985	2,626	208,649

TABLE 9

ditures on Vocational Education in
palachia in 1966 by Source of Support

Distribution	Health	Home Economics	Office Education	Technical	Trades and Industries
$ 1,703,739	$ 1,161,806	$ 9,307,162	$ 7,449,670	$ 3,169,162	$ 13,040,147
435,231	491,105	976,108	1,990,365	1,361,594	3,667,636
714,408	493,763	3,694,220	2,603,930	448,680	4,017,266
554,100	176,938	4,636,834	2,855,375	1,358,888	5,355,245
256,033	139,691	1,497,668	496,309	----	1,365,043
61,893	52,396	147,535	226,822	----	259,148
194,140	34,827	1,347,504	67,282		998,992
---	52,468	2,629	202,205	----	106,903
23,805	28,041	762,346	108,309	29,370	215,600
3,695	14,055	26,072	59,799	17,429	97,235
---	12,036	77,195	5,970	10,861	97,930
20,110	1,950	659,079	42,540	1,080	20,435
40,105	---	603,125	100,271	423,062	---
1,578	---	15,947	15,865	226,750	---
37,912	---	558,914	42,987	196,312	---
615	---	28,264	41,419	----	---
342	---	95,999	334,719	35,121	[illegible] 694
342	---	4,998	57,282	21,477	54,557
---	---	51,732	142,656	6,617	74,248
---	---	39,269	134,781	7,027	73,889
9,330	9,329	387,379	32,269	59,025	291,875
2,301	4,327	33,563	27,196	33,727	100,252
2,044	2,376	145,167	2,973	22,593	140,197
4,985	2,626	208,649	2,100	2,705	51,426

TABLE 9 (cont'd)

States Source of Program Support	Total	Agriculture	Distribution	Health	Home Economics	Offi Educat
NEW YORK	$ 7,577,357	$ 1,303,247	$ 445,248	$ 295,284	$ 228,086	$ 1,736
Federal	2,563,756	421,632	82,848	165,864	84,115	277
State	3,548,643	646,630	256,266	91,785	93,221	1,028
Local	1,464,958	234,985	106,134	37,635	50,750	430
NORTH CAROLINA	2,104,619	757,668	167,490	---	660,014	5
Federal	702,912	373,341	82,182	---	63,361	-
State	944,937	194,910	55,810	---	431,649	5
Local	456,770	189,417	29,498	---	165,004	-
OHIO	2,462,927	618,100	73,129	21,470	881,715	448
Federal	195,297	54,635	6,176	10,192	42,476	43
State	260,305	---	8,784	---	---	220
Local	2,007,325	563,465	58,169	11,278	839,239	184
PENNSYLVANIA	13,688,441	1,617,597	342,448	331,854	2,081,688	2,975
Federal	3,327,683	284,769	110,708	96,511	230,519	875
State	2,330,857	226,345	46,611	235,025	361,397	1,050
Local	8,029,901	1,106,483	185,129	318	1,489,772	1,050
SOUTH CAROLINA	1,585,062	470,867	51,412	42,782	487,804	172
Federal	423,864	97,395	14,693	25,268	83,233	86
State	493,772	215,564	7,418	16,114	140,264	-.
Local	667,426	157,908	29,301	1,400	264,307	86
TENNESSEE	1,145,596	209,220	62,358	143,189	224,001	35
Federal	384,854	66,914	21,026	48,707	76,219	12
State	380,371	71,153	20,666	47,241	73,891	11
Local	380,371	71,153	20,666	47,241	73,891	11
VIRGINIA	2,183,722	695,270	172,537	32,383	555,912	71
Federal	482,164	200,055	36,434	12,630	43,929	37
State	1,038,085	311,614	74,700	13,142	321,820	16
Local	663,473	183,601	61,403	6,611	190,163	17
WEST VIRGINIA	3,842,323	633,252	59,502	117,783	841,425	931
Federal	885,405	111,397	11,355	61,155	124,141	271
State	470,976	102,927	10,057	41,217	91,466	8
Local	2,485,942	418,928	38,090	15,411	625,818	651

SOURCE: STATE DEPARTMENT OF EDUCATION

TABLE 9 (cont'd)

stribution	Health	Home Economics	Office Education	Technical	Trades and Industries
445,248	$ 295,284	$ 228,086	$ 1,736,952	$ 17,843	$ 3,550,697
82,848	165,864	84,115	277,187	17,843	1,514,267
256,266	91,785	93,221	1,028,884	---	1,431,857
106,134	37,635	50,750	430,881	---	604,573
167,490	---	660,014	5,290	171,087	343,070
82,182	---	63,361	---	30,607	153,421
55,810	---	431,649	5,290	136,243	121,035
29,498	---	165,004	---	4,237	68,614
73,129	21,470	881,715	448,892	47,062	372,559
6,176	10,192	42,476	43,927	4,665	33,226
8,784	---	---	220,556	---	30,965
58,169	11,278	839,239	184,409	42,397	308,368
342,448	331,854	2,081,688	2,975,968	1,916,394	4,422,492
110,708	96,511	230,519	875,292	788,446	941,439
46,611	235,025	361,397	1,050,338	---	411,140
185,129	318	1,489,772	1,050,338	1,127,948	3,069,913
51,412	42,782	487,804	172,328	---	359,869
14,693	25,268	83,233	86,164	---	117,111
7,418	16,114	140,264	---	---	114,412
29,301	1,400	264,307	86,164	---	128,346
62,358	143,189	224,001	35,671	141,732	329,425
21,026	48,707	76,219	12,135	48,218	111,635
20,666	47,241	73,891	11,768	46,757	108,895
20,666	47,241	73,891	11,768	46,757	108,895
172,537	32,383	555,912	71,035	71,355	585,230
36,434	12,630	43,929	37,191	35,050	116,875
74,700	13,142	321,820	16,628	11,393	288,788
61,403	6,611	190,163	17,216	24,912	179,567
59,502	117,783	841,425	931,657	257,111	1,001,593
11,355	61,155	124,141	271,505	137,382	168,470
10,057	41,217	91,466	8,598	17,904	198,807
38,090	15,411	625,818	651,554	101,825	634,316

Some unusual information comes to light. While Agriculture and Home Economics programs are more than 50 percent of all vocational programs at the Secondary level, and enroll 60 percent of all vocational students within the Region, relatively fewer Federal dollars are spent on these two programs than on any other vocational category -- only 23 percent for Agriculture and 10.5 percent for Home Economics. Expenditures on Agriculture and Home Economics from all sources amount to $19 million, almost 40 percent of the total expenditure. Less than $4 million of this $19 million comes from Federal sources. Thus, within Appalachia, over $15 million or about one-third of all expenditures from all sources is spent from State and local funds on two vocational education programs. Stated another way, State and local governments within Appalachia spend about $35 million on secondary vocational education, and 43 percent of this is on two programs; the other five get only 57 percent of the combined state and local resources.

While this general pattern emerges for the Region, there are wide State variations. Alabama State sources support 80 percent of vocational agriculture, but Ohio reports no support to vocational agriculture within Appalachia. Alabama supports 90 percent of total expenditures on Home Economics, but Georgia spends 10 percent in this category. Georgia's localities support 87 percent of the cost of Home Economics, but only 9.5 percent of the cost for Trades and Industry courses. Thus, one can find wide variations within the spending patterns of States--variations among the vocational categories and variations among the levels of government that give them support.

TABLE 10

Where expenditures went for Vocational Education within Appalachia in 1966 by State and by Vocational Category and by Source of Funds.

	Total	Percent		
		Federal	State	Local
Total	45,524,676	11,135,579	15,786,399	18,602,698
Agriculture	9,692,990	22.8	39.3	37.8
Distributive	1,703,739	25.5	41.9	32.5
Health Occupations	1,161,806	42.3	42.5	15.2
Home Economics	9,307,162	10.5	39.7	49.8
Office Education	7,449,670	26.7	35.0	38.3
Technical	3,169,162	43.0	14.2	42.9
Trades & Industry	13,040,147	28.1	30.8	41.2

ALABAMA	Total	Federal	State	Local
Total	5,387,877	1,057,215	3,961,884	368,778
Agriculture	1,633,133	18.9	80.8	0.3
Distributive	256,033	24.2	75.8	---
Health Occupations	139,691	37.5	24.9	37.6
Home Economics	1,497,668	9.9	90.0	0.1
Office Education	496,309	45.7	13.6	40.7
Technical	--	--	--	--
Trades & Industry	1,365,043	19.0	73.2	7.8

TABLE 10(cont'd)

GEORGIA	Total	Percent Federal	State	Local
Total	1,768,939	292,190	270,137	1,206,612
Agriculture	601,468	12.3	11.0	76.7
Distributive	23,805	15.6	--	84.5
Health Occupations	28,041	50.1	42.9	7.0
Home Economics	762,346	3.4	10.1	86.5
Office Education	108,309	55.2	5.5	39.3
Technical	29,370	59.3	37.0	3.7
Trades & Industry	215,600	45.1	45.4	9.5

KENTUCKY	Total	Federal	State	Local
Total	1,767,803	303,128	1,362,563	102,112
Agriculture	601,240	7.1	87.6	5.3
Distributive	40,105	3.9	94.5	1.5
Health Occupations	--	--	--	--
Home Economics	603,125	2.6	92.7	4.7
Office Education	100,271	15.8	42.9	41.3
Technical	423,062	53.6	46.4	--
Trades & Industry	--	--	--	--

TABLE 10(cont'd)

MARYLAND

	Total	Federal	State	Local
Total	749,850	161,330	307,633	280,887
Agriculture	80,975	28.0	40.0	32.0
Distributive	342	100.0	--	--
Health Occupations	---	--	--	--
Home Economics	95,999	5.2	53.9	40.9
Office Education	334,719	17.1	42.6	40.3
Technical	35,121	61.2	18.8	20.0
Trades & Industry	202,694	26.9	36.6	36.5

MISSISSIPPI

	Total	Federal	State	Local
Total	1,260,160	355,780	416,237	100,887
Agriculture	470,953	32.8	21.4	45.8
Distributive	9,330	24.6	21.9	53.4
Health Occupations	9,329	46.4	25.5	28.1
Home Economics	387,379	8.7	37.5	53.9
Office Education	32,269	84.3	9.2	6.5
Technical	59,025	57.1	38.3	4.6
Trades & Industry	291,875	34.3	48.0	17.6

TABLE 10(cont'd)

NEW YORK

	Total	Federal	State	Local
Total	7,577,357	2,563,756	3,548,643	1,464,958
Agriculture	1,303,247	32.4	49.6	18.0
Distributive	445,248	18.6	57.6	23.8
Health Occupations	295,284	56.2	31.1	12.7
Home Economics	228,086	36.8	40.9	22.2
Office Education	1,736,952	16.0	59.2	24.8
Technical	17,843	100.0	--	--
Trades & Industry	3,550,697	42.6	40.3	17.0

NORTH CAROLINA

	Total	Federal	State	Local
Total	2,104,619	702,912	944,937	456,770
Agriculture	757,668	49.3	25.7	25.0
Distributive	167,490	49.1	33.3	17.6
Health Occupations	--	--	--	--
Home Economics	660,014	9.6	65.4	25.0
Office Education	5,290	--	100.0	--
Technical	171,087	17.9	79.6	2.5
Trades & Industry	343,070	44.7	35.3	20.0

TABLE 10(cont'd)

OHIO	Total	Federal	State	Local
Total	2,462,927	195,297	260,305	2,007,325
Agriculture	618,100	8.8	--	91.2
Distributive	73,129	8.4	12.0	79.5
Health Occupations	21,470	47.5	--	52.5
Home Economics	881,715	4.8	--	95.2
Office Education	448,892	9.8	49.1	41.1
Technical	47,062	9.9	--	90.1
Trades & Industry	372,559	8.9	8.3	82.8

PENNSYLVANIA	Total	Federal	State	Local
Total	13,688,441	3,327,683	2,330,857	8,029,901
Agriculture	1,617,597	17.6	14.9	68.4
Distributive	342,448	32.3	13.6	54.1
Health Occupations	331,854	29.1	70.8	0.1
Home Economics	2,081,688	11.1	17.4	71.6
Office Education	2,975,968	29.4	35.3	35.3
Technical	1,916,394	41.1	--	58.9
Trades & Industry	4,422,492	21.3	9.2	69.4

Source: State Departments of Education

TABLE 10(cont'd)

SOUTH CAROLINA

	Total	Federal	State	Local
Total	1,585,062	423,864	493,772	667,426
Agriculture	470,867	20.7	45.8	33.5
Distributive	51,412	28.6	14.4	57.0
Health Occupations	42,782	59.1	37.7	3.3
Home Economics	487,804	17.1	28.8	54.2
Office Education	172,328	50.0	--	50.0
Technical	---	--	--	--
Trades & Industry	359,869	32.5	31.8	35.7

TENNESSEE

	Total	Federal	State	Local
Total	1,145,596	384,854	380,371	380,371
Agriculture	209,220	32.0	34.0	34.0
Distributive	62,358	33.7	33.1	33.1
Health Occupations	143,189	34.0	33.0	33.0
Home Economics	224,001	34.0	33.0	33.0
Office Education	35,671	34.0	33.0	33.0
Technical	141,732	34.0	33.0	33.0
Trades & Industry	329,425	33.9	33.1	33.1

TABLE 10(cont'd)

VIRGINIA

	Total	Federal	State	Local
Total	2,183,722	482,164	1,038,085	663,473
Agriculture	695,270	28.8	44.8	26.4
Distributive	172,537	21.1	43.3	35.6
Health Occupations	32,383	39.0	40.6	20.4
Home Economics	555,912	7.9	57.9	34.2
Office Education	71,035	52.3	23.4	24.2
Technical	71,355	49.1	16.0	34.9
Trades & Industry	585,230	20.0	49.3	30.7

WEST VIRGINIA

	Total	Federal	State	Local
Total	3,842,323	885,405	470,976	2,485,442
Agriculture	633,252	17.6	16.3	66.2
Distributive	59,502	19.1	16.9	64.0
Health Occupations	117,783	51.9	35.0	13.1
Home Economics	841,425	14.8	10.9	74.4
Office Education	931,657	29.1	0.9	69.9
Technical	257,111	53.4	7.0	39.6
Trades & Industry	1,001,593	16.8	19.8	63.3

That different criteria are used to allocate resources to these activities would seem obvious. Table 10 deserves a lot of thoughtful reflection.

Relevant Employment Opportunities

The purpose of vocational education must be to prepare students for meaningful employment. In this preparation, the school system tends to "be behind" industrial development. In order to keep pace, the curriculum must respond, and respond rapidly, to changing employment opportunities that have and are being developed. The most usual form of response is to increase the supply of students in areas of employment that are growing, and reduce the supply of students training for employment opportunities that are decreasing. No greater harm could be done to a young person than to train him for a job soon to become obsolete. It is, therefore, pertinent to ask: How relevant are current curriculum offerings, as reflected in the traditional vocational categories, to future employment opportunities? The table below shows what is now going on in vocational education as compared to future job opportunities.

TABLE 11
Enrollments and Expenditures in 1966
Employment in 1960 with Estimated Employment for 1975
by Vocational Categories - Appalachian Region

Vocational Category	Enrollment in 1966	Employment in		Expenditures in 1966
	(percent)	1960 (percent)	1975	(percent)
Agriculture	21.2	.06	.03	21.3
Distribution	2.4	.16	.17	3.7
Home Economics	40.2	.03	.02	20.4
Health Occupations	.1	.01	.02	2.6
Office Occupations	26.4	.11	.12	16.4
Technical	1.1	.02	.03	7.0
Trades & Industry	8.6	.49	.49	28.6
Other Employment	---	.12	.12	---

In a sense, Table 11 summarizes much of the "profile" of vocational education in Appalachia at the secondary level. In Agriculture, 21 percent of the students enrolled get 21 percent of the expenditures (which comes from State and local sources, primarily). This training prepares only about 3 percent of those who will be gainfully employed in 1975. There is little wonder that another study showed, only 15 percent of the vocational agriculture graduates found gainful employment using the skills for which they were trained. For the graduating classes of 1966 in Appalachia, this would mean about 2,000 were placed in Agricultural occupations and over 10,000 had to seek employment in occupations for which they were not prepared. Thus, relative equality of expenditures and enrollments are not appropriate criteria for optimizing the output of vocational education programs. What is meaningful is to equate enrollments with potential employment opportunities at some future point in time, or relate current enrollment to some inadequate supply in the current labor market, even though the cost per student may be higher.

In a more sophisticated sense, a cost-benefit analysis that would relate costs to the discounted stream of future income, balanced against the probabilities of full-time lifetime employment, would be a useful criterion to use. In a sense, too, it is possible to say more about what ought not to be allocation criteria than what should be. Thus, enrollments ought not to be encouraged, or large expenditures undertaken where there is a decline in employment -- such as Production Agriculture. Also, expenditures for Home Economics, and the encouragement of large enrollments within this category ought to be done

carefully because they do not correspond with the trend toward increasing employment of women, or a larger female labor force participation rate.

Manpower Requirements

Between 1960 and 1975, employment in Appalachia will grow by almost 3,000,000 new jobs, or at an annual rate of 197,000. For 1966, if we assume this is a typical year, the secondary schools will turn out about 92,000 vocationally trained individuals. This is 105,000 less people available from the secondary schools per year than job openings. When one examines the twelfth grade vocational enrollments for 1966 by sub-region, every sub-region has more job openings, on the average, per year, than the secondary schools turn out students to fill. If we relate the output of the secondary schools to relevant employment opportunities for the Region as a whole, the picture is somewhat like that shown in Table 12.

Table 12 — Average Graduates Per Year and Average New Job Opportunities by Vocational Category - Appalachia - (Graduates for 1966, New Jobs Annual Average 1960-1975)

Vocational Category	Average Secondary School Output	Average Annual New Job Openings	Employment Outlook
Agriculture	12,400	- 20,500	Surplus
Distribution	4,400	+ 38,700	Shortage
Health Occupations	300	+ 7,200	Shortage
Home Economics	25,200	+ 500	Surplus
Office Occupations	36,000	+ 34,100	Break-Even
Technical Education	1,500	+ 17,600	Shortage
Trades & Industry	12,000	+ 86,000	Shortage

Overall, Appalachia has approximately 130,000 new job openings each year for which secondary enrollments are not furnishing relevant job-trainees. On the other hand, the secondary schools are turning out almost 37,000 students in a vocational curriculum which shows a decline or static job relevance each year. Of the 197,000 annual new jobs developing in Appalachia, the secondary schools are furnishing trainees for about 60,000, less than one-third. The impression is rather easy to form that such unemployment and underemployment as exists in Appalachia arises from an unskilled and underskilled work force rather than a lack of job opportunities.

One can also say that the imbalance between secondary school vocational graduates and job opportunities is not a general condition over the entire Region. Tables 14 and 15 indicate the secondary school 1966 enrollments and new job opportunities open by 1975 by sub-regions, and by vocational categories.

It should be emphasized that these data do not present a complete picture of supply of and demand for skilled labor.

1) The supply created by post-secondary programs of various types is not included as yet.

2) The demand figures would be increased by the amount of super-annuation that occurs.

3) Out and in-migration is not included.

4) The establishment of new industrial and service occupations may increase the demand figures. For instance, the long-term effect of

ARC investment has not been established sufficiently to affect supply and demand data.

5) Technological change may cause major shifts in demand figures in unforseeable directions.

TABLE 13

MANPOWER REQUIREMENTS
by Sub-Region

1960, 1975

Sub-Region	1960	1975	Annual Change
	TOTALS		
1	343,837	400,099	3,752
2	1,104,141	1,320,225	14,412
3	339,723	377,139	2,495
4	195,993	238,087	2,808
5	639,326	784,453	9,681
6	1,330,346	1,510,979	12,047
7	1,576,365	2,009,501	28,890
8	530,149	726,225	13,077
9	979,591	1,245,324	17,724
10	104,253	135,163	2,061
11	101,235	115,140	927
12	416,518	455,285	2,586
13	229,750	283,532	3,588
14	245,495	303,230	3,851
15	415,386	565,707	10,027
16	193,547	242,960	3,295
17	266,590	351,401	5,655
18	413,346	457,824	2,967
19	479,549	589,343	7,324
20	113,977	143,261	1,952
21	253,899	325,898	4,802
22	176,424	269,632	6,217
23	291,719	383,908	6,148
24	653,990	914,159	17,352
25	453,003	581,868	8,595
26	271,018	320,803	3,321
27	131,999	154,584	1,507
	12,251,169	15,205,730	197,061

TABLE 14
Annual Manpower Requirements 1960-1975
and
Secondary Vocational Education Graduates for 1966
Appalachia - by Sub-Regions

*Code
+ = Manpower Surplus
- = Manpower Deficit*

Sub-Regions	Annual Needs	Annual Voc-Graduates	Difference *
	TOTALS		
1	3,752	8,880	+ 5,128
2	14,412	5,621	- 8,791
3	2,495	4,536	+ 2,041
4	2,808	2,885	+ 77
5	9,681	4,384	- 5,297
6	12,047	16,572	+ 4,525
7	28,890	234	- 28,656
8	13,077	1,235	- 11,842
9	17,724	416	- 17,308
10	2,061	104	- 1,957
11	927	813	- 114
12	2,586	6,862	+ 4,276
13	3,588	1,777	- 1,811
14	3,851	993	- 2,858
15	10,027	3,055	- 6,972
16	3,295	3,647	+ 352
17	5,655	3,409	- 2,246
18	2,967	606	- 2,361
19	7,324	1,140	- 6,184
20	1,952	2,249	+ 297
21	4,802	4,772	- 30
22	6,217	2,410	- 3,807
23	6,148	3,085	- 3,063
24	17,352	5,197	- 12,155
25	8,595	5,399	- 3,196
26	3,321	558	- 2,763
27	1,507	942	- 565
	197,061	91,781	-105,280

TABLE 15

Annual Manpower Requirements 1960-1975 and Secondary School Vocational Graduates 1966 Appalachia by sub-region and Vocational Category.

*Code
+ = Manpower Surplus
- = Manpower Deficit

Sub-Region	AGRICULTURE			HEALTH		
	Annual Needs	Grads.	Diff. *	Annual Needs	Grads.	Diff. *
1	- 1,110	892	+ 2,002	172	26	- 146
2	- 999	531	+ 1,530	591	9	- 582
3	- 236	241	+ 477	132	17	- 115
4	- 184	148	+ 332	129	10	- 119
5	- 758	317	+ 1,075	356	6	- 350
6	- 738	992	+ 1,730	659	63	- 596
7	- 882	86	+ 968	1,012	7	- 1,005
8	- 664	319	+ 983	426	5	- 421
9	- 1,086	139	+ 1,225	596	5	- 591
10	- 286	67	+ 353	59	-	- 59
11	- 158	265	+ 423	48	-	- 48
12	- 638	620	+ 1,258	216	-	- 216
13	- 1,433	548	+ 1,981	151	-	- 151
14	- 693	87	+ 780	160	-	- 160
15	- 786	712	+ 1,498	240	-	- 240
16	- 632	730	+ 1,362	129	20	- 109
17	- 779	540	+ 1,319	190	-	- 190
18	- 1,692	193	+ 1,885	153	-	- 153
19	- 786	280	+ 1,066	204	-	- 204
20	- 358	652	+ 1,010	58	-	- 58
21	- 702	811	+ 1,513	140	4	- 136
22	- 795	412	+ 1,207	155	26	- 129
23	- 514	421	+ 935	186	-	- 186
24	- 869	760	+ 1,629	538	-	- 538
25	- 964	994	+ 1,958	305	119	- 186
26	- 930	210	+ 1,140	192	3	- 189
27	- 839	373	+ 1,212	78	-	- 78
TOTAL	- 20,511	12,340	+ 32,851	7,275	320	- 6,955

TABLE 15 (continued)

Annual Manpower Requirements 1960-1975 and Secondary School Vocational Graduates 1966 Appalachia by sub-region and Vocational Category.

* Code
\+ = Manpower Surplus
\- = Manpower Deficit

Sub-region	DISTRIBUTION			HOME ECONOMICS		
	Annual Needs	Grads.	Diff. *	Annual Needs	Grads.	Diff. *
1	886	408	- 478	- 41	1,705	+ 1,746
2	2,464	81	- 2,383	- 68	1,232	+ 1,300
3	491	147	- 344	- 58	1,113	+ 1,171
4	473	91	- 382	16	685	+ 669
5	2,028	82	- 1,946	55	653	+ 598
6	2,388	511	- 1,877	- 111	4,077	+ 4,188
7	4,954	--	- 4,954	273	106	- 167
8	2,226	31	- 2,195	138	475	+ 337
9	2,992	--	- 2,992	86	190	+ 104
10	442	--	- 442	- 6	17	+ 23
11	187	46	- 141	- 28	117	+ 145
12	708	203	- 505	- 43	1,139	+ 1,182
13	862	74	- 788	13	812	+ 799
14	879	31	- 848	23	312	+ 289
15	2,131	441	- 1,690	71	1,338	+ 1,267
16	770	135	- 635	48	780	+ 732
17	1,204	411	- 793	53	1,220	+ 1,167
18	785	--	- 785	- 165	211	+ 376
19	1,478	181	- 1,297	- 89	386	+ 475
20	401	319	- 82	- 16	941	+ 957
21	1,075	198	- 877	17	1,465	+ 1,448
22	1,263	168	- 1,095	91	868	+ 777
23	1,190	290	- 900	35	1,168	+ 1,133
24	3,532	124	- 3,408	182	1,725	+ 1,543
25	1,763	298	- 1,465	12	1,976	+ 1,964
26	912	8	- 904	- 28	221	+ 249
27	270	65	- 205	4	284	+ 280
TOTAL	38,754	4,343	- 34,411	464	25,216	+ 24,752

TABLE 15 (continued)

Annual Manpower Requirements 1960-1975 and Secondary School Vocational Graduates 1966 Appalachia by sub-region and Vocational Category.

* Code
+ = Manpower Surplu
- = Manpower Defici

Sub-Region	OFFICE OCCUPATIONS			TECHNICAL EDUCATION		
	Annual Needs	Grads.	Diff. *	Annual Needs	Grads.	Diff. *
1	743	5,199	+ 4,456	428	151	- 277
2	2,436	3,373	+ 937	1,510	122	- 1,388
3	535	2,568	+ 2,033	410	149	- 261
4	456	1,581	+ 1,125	281	92	- 189
5	1,750	3,063	+ 1,313	990	105	- 885
6	2,360	9,056	+ 6,696	1,494	561	- 933
7	4,244	11	- 4,233	2,385	-	- 2,385
8	1,925	151	- 1,774	953	32	- 921
9	2,829	18	- 2,811	1,633	3	- 1,630
10	374	20	- 354	178	-	- 178
11	204	225	+ 21	109	8	- 101
12	692	3,102	+ 2,410	495	84	- 411
13	751	124	- 627	328	6	- 322
14	681	512	- 169	318	-	- 318
15	1,592	129	- 1,463	631	-	- 631
16	595	1,270	+ 675	282	29	- 253
17	948	208	- 740	549	37	- 512
18	965	32	- 933	476	-	- 476
19	1,306	-	- 1,306	582	-	- 582
20	338	-	- 338	177	-	- 177
21	868	1,291	+ 423	375	21	- 354
22	964	413	- 551	381	48	- 333
23	967	497	- 470	389	18	- 371
24	2,907	2,354	- 553	1,098	-	- 1,098
25	1,571	862	- 709	675	6	- 669
26	847	80	- 767	350	2	- 348
27	305	-	- 305	179	12	- 167
TOTAL	34,153	36,139	+ 1,986	17,656	1,486	-16,170

TABLE 15 (continued)

Annual Manpower Requirements 1960-1975 and Secondary School Vocational Graduates 1966 Appalachia by sub-region and Vocational Category.

*Code
+ = Manpower Surplus
- = Manpower Deficit

Sub-Region	TRADES AND INDUSTRY			OTHER		
	Annual Needs	Grads.	Diff. *	Annual Needs	Grads.	Diff. *
1	1,961	499	- 1,462	713		
2	6,249	273	- 5,976	2,229		
3	778	301	- 477	443		
4	1,149	278	- 871	488		
5	3,738	158	- 3,580	1,522		
6	3,829	1,312	- 2,517	2,166		
7	12,405	24	- 12,381	4,499		
8	6,158	222	- 5,936	1,915		
9	7,983	61	- 7,922	2,691		
10	979	-	- 979	321		
11	391	152	- 239	174		
12	548	1,714	+ 1,166	608		
13	2,236	213	- 2,023	680		
14	1,862	51	- 1,811	621		
15	4,804	435	- 4,369	1,344		
16	1,494	683	- 811	609		
17	2,588	993	- 1,595	902		
18	1,879	170	- 1,709	566		
19	3,630	293	- 3,337	999		
20	1,084	337	- 747	268		
21	2,350	982	- 1,368	679		
22	3,238	475	- 2,763	920		
23	3,050	691	- 2,359	845		
24	7,381	234	- 7,147	2,583		
25	3,908	1,144	- 2,764	1,325		
26	1,381	34	- 1,347	597		
27	1,165	208	- 957	345		
TOTAL	88,218	11,937	- 76,281	31,052		

Note:
The jobs in the "other" category are those for which vocational education provides no specific program.

STATE	SUBREGIONS
New York	1, 2
Pennsylvania	1, 2, 3, 4, 5, 6
Maryland	5
West Virginia	5, 6, 8, 10, 11, 12
Ohio	6, 7, 8, 9, 12
Kentucky	9, 12, 13, 17, 18
Virginia	10, 14, 15, 16
North Carolina	14 (NA), 15, 19, 20, 21, 23
Tennessee	16, 17, 18, 21, 22
South Carolina	19(NA), 23
Georgia	21, 24, 26
Alabama	21, 22, 25, 26
Mississippi	27

NA means that this subregion is in the Non Appalachian portion of the state.

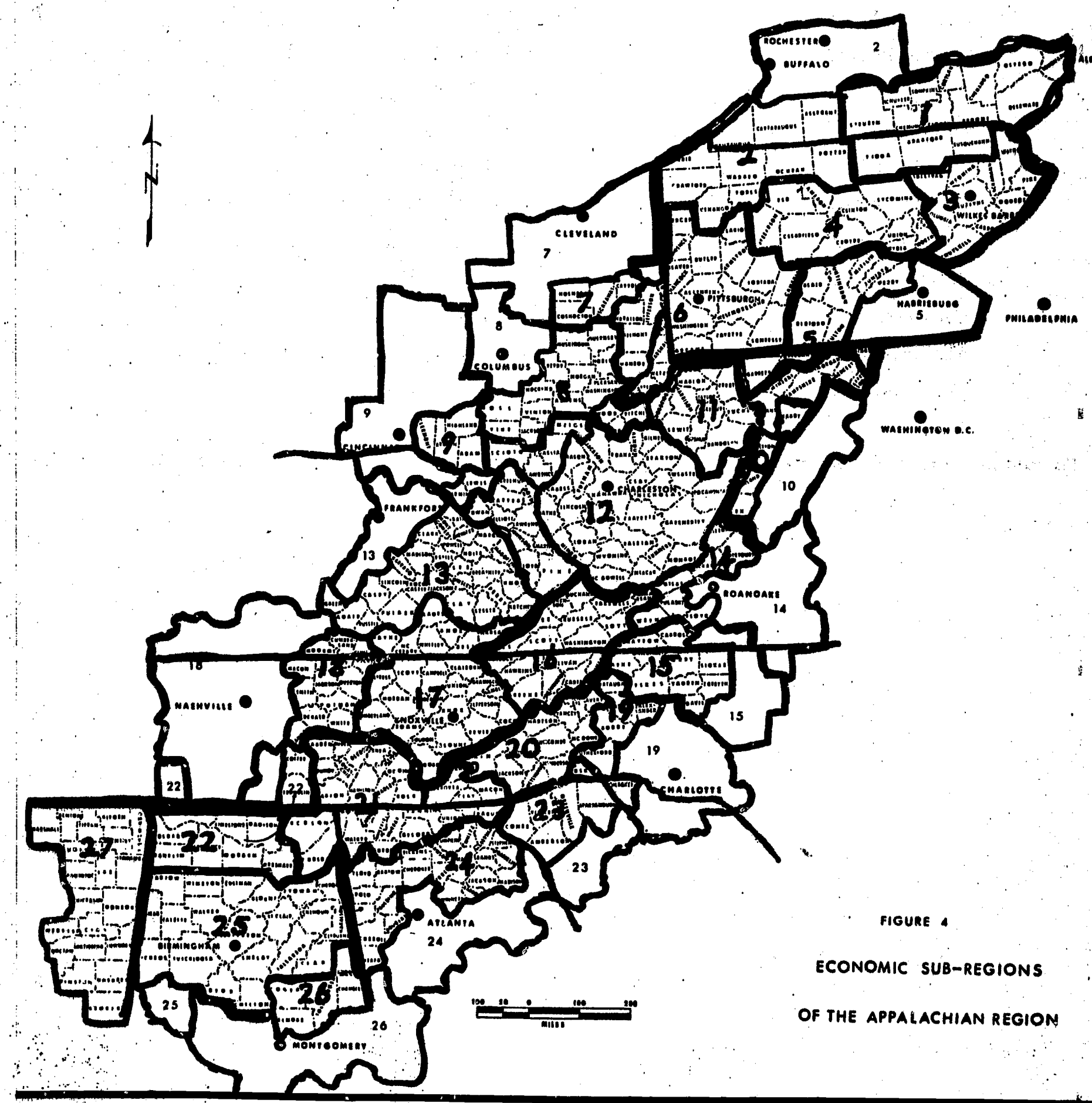

FIGURE 4

ECONOMIC SUB-REGIONS

OF THE APPALACHIAN REGION

Conclusions

The following conclusions seem reasonable:

(1) Vocational education at the secondary level in Appalachia is inadequate in scope and needs strengthening by giving a broader base of choice to high school students;

(2) Federal funds tend to support vocational education slightly more outside of Appalachia than within Appalachia;

(3) The bulk of vocational enrollments within Appalachia do not correspond to current or projected job opportunities;

(4) Criteria for the appropriate allocation of resources to job training should be developed and assistance provided to the States to enable them to plan their vocational education programs with relevance.

(5) More jobs are being created by economic growth within Appalachia than the Secondary Schools are producing graduates to fill;

(6) Appalachian unemployment appears concentrated in the unskilled and underskilled;

(7) Appalachia faces a shortage of skilled labor that could inhibit its economic growth.

Recommendations

The Commission should:

(1) Use such resources as it has to fund those educational projects submitted to it that offer the highest prospect for gainful employment to a student when he completes his vocational education experience;

(2) Provide assistance to the several State Departments of Education to help them to provide curriculum relevant for future employment possibilities; and

(3) At the earliest possible time, urge the Commissioner of Education to develop an adequate information reporting system that would permit an evaluation and appraisal of vocational education programs.

(4) Seek new sources of support for vocational education in Appalachia, most especially at the Post-Secondary and Adult levels, with a re-direction of funds now being used for the development manpower suited for relevant job openings.