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THE DISTRIBUTION OF THE COSTS AND BENEFITS OF PUBLIC SCHOOLING

David W. Holland

INTRODUCTION

Arthur Okun recently observed [19] that even in economics the times are changing. Whereas the focus of the profession in the early 1960's was on the aggregative issues – mainly lagging economic growth – it has now shifted to a considerable degree to the distributive issues. Particular attention is being given to the problems of the low end of the distribution – “the poverty problem.” In agricultural economics we are witnessing a somewhat similar trend with increasing interest and professional time being allocated to rural poverty and rural development.

One of the manifestations of the trend in both general and agricultural economics to examine distributional questions has been a substantial increase in studies of the distributional impact of various public programs [cf. 6, 7, 23, 24]. Both because of the magnitude of expenditure involved and its presumed role in providing equality of opportunity, education has received particular attention.¹ Consequently substantial literature has now been accumulated on the distributive impact of public schooling.

The purposes of this paper are (1) to review the results of a study on the distributive effect of the elementary and secondary school system in Oklahoma – such a review should provide a general feeling for the methodology and data usually associated with distributional research; – (2) to summarize and interpret selected distributional studies for both higher and secondary education; and (3) to express some views on the conceptual and empirical problems of such research. Although the policy implications of distribution research are important, they will not be discussed in this paper as

to do so adequately would require another paper.

RELATED ISSUES IN EDUCATION

Before proceeding to the central topic, I would like to be permitted the slight digression of examining several closely related and, in my opinion, very interesting problem areas in the economics of education. The work of Coons, Clune, and Sugarman [5] although weak conceptually merits attention because it provided the basis upon which the school finance systems of several states have been challenged. The essential argument of Coons et al., [5] may be summarized as follows:

Equality of opportunity represents the defining rhetoric of American free-enterprise democracy; the public school is charged with its realization. This renders the distribution of quality of public education according to wealth, an incongruity in need of either powerful justification or speedy elimination.

Coons et al. point out that creation of the local school district with primary financial responsibility for support of public schools, while meritorious in many respects, has resulted in schooling expenditures being mainly a function of the wealth of the district. In addition, wealthy school districts not only enjoy greater revenues but bear smaller tax burdens relative to income.

Among the more interesting questions raised by the work of Coons et al. are the following:

1. Is the principle of equality of opportunity a useful policy guide for public school finance?

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¹ Indicative of the interest in the distributional consequences of education, the entire June 1972 issue of the J.P.E. [22] was devoted to the equity and efficiency aspects of investment in higher education.

2. What is the relationship between schooling expenditures and schooling quality?

Investigation of the second question has occupied much research effort, but the findings have been somewhat mixed and evidently have not had much impact upon the thinking of the legal profession.

A major portion of the Coleman Report [4] was addressed to the problem of schooling quality. Some of the more controversial conclusions of the Report were that:

1. Per pupil expenditures, books in the library and a number of other facilities and curricular measures show very little relation to achievement if the social background and attitudes of individual students and their schoolmates are held constant,
2. The effect of a student's peers on his own achievement level is more important than any other school influence,
3. There is a small positive effect of school integration on the reading and mathematics achievement of Negro pupils after differences in the socio-economic background of the students are accounted for.

Bowles and Levin [2] in a review of the Report found, however, that because of "poor measurement of school resources, inadequate control for social background, and inappropriate statistical techniques used in the presence of interdependence among the independent variables many of the findings of the Report are not supported." Subsequently much of the research in the economics of education has focused on identifying the effect of family background, student ability, peer group influence, and schooling inputs upon academic achievement [cf. 3, 4, 28]. and the area remains a fertile ground for continued research.

The implication of equality of opportunity for education policy has been less thoroughly investigated. Johnson [5] has pointed out that equality of opportunity is simply a sophisticated version of the income redistribution argument.

The recent work by Jencks et al. [14] indicates that conventional notions of equality of opportunity do not result in policy appropriate to reduction in income inequality. Since academic achievement is

related to not only schooling resources but also to family background and genetic endowment, equalization of schooling resources would not eliminate variation in achievement. The surprising finding of Jencks et al. is that none of these factors is strongly related to income in later life. Thus, even if academic achievement could somehow be equalized the change in income distribution would be relatively small. Jencks' conclusions have been criticized on several grounds but particularly because his income data were not accompanied by data on age and place of residence [16]. The result of these omissions is to seriously understate the way in which incomes vary with differences in family background and schooling. The questions raised by Jencks, however, particularly with regard to the relationship between family background, academic achievement, and income provide the opportunity for some very important additional research.

BURDEN AND BENEFITS OF COMMON SCHOOLING IN OKLAHOMA BY INCOME CLASS

The purpose of the study described in this paper was to determine the distribution of costs and benefits of government revenues and expenditures for common school education in Oklahoma among income classes. The need for such a study was suggested by the lack of any substantial knowledge of the distributional impact of the Oklahoma common school program as it is presently organized; and the strong possibility that the present schooling revenue system will require changes, which will necessitate some idea of the distributional impact of alternative tax schemes. The results of the study indicate that the costs of public primary and secondary education in Oklahoma are distributed very nearly proportional to income, while the benefits are distributed regressively.²

ALLOCATION OF THE TAX BURDEN

Several critical assumptions were made concerning the distribution of income and consumption patterns in Oklahoma. It was assumed that the consumer expenditure and income patterns in Oklahoma were sufficiently similar to the South to justify the use of patterns for the southern region as representative of Oklahoma. It was also assumed that the burden of the taxes that support education in

²Using the terminology adopted by the Tax Foundation in terms "regressive," "proportional," and "progressive," refer to both tax burdens and expenditure benefits as follows:

If the estimated benefits of government expenditures are a larger portion of the income of low income families than of high income families, the pattern of distribution will be called "regressive." That is a "pro-poor" pattern of government spending is regressive. Conversely, the term "progressive" means a distribution of tax burdens or benefits to income is larger for high income than for low income families [23].

Oklahoma accrued totally to Oklahoma residents.³ That is, tax exporting was assumed to be exactly offset by tax importing.

To briefly describe the analytical procedure, the percentage distribution by income class of the respective allocative bases was determined.⁴ These percentages were derived from income and

expenditure patterns in the South. The allocative bases were then multiplied by the major schooling revenue sources in Oklahoma in 1961. In this manner the tax burden of common school education in Oklahoma was determined according to income class. The allocation bases applied to the major revenue sources in 1961 are summarized in Table 1.⁵

Table 1

ALLOCATION OF MAJOR REVENUE SOURCES
FOR FINANCING OKLAHOMA SCHOOLS

Revenue Source	Allocation Base
Federal Revenues	Federal Taxes Excluding Social Insurance Contributions
State	
Automobile License Revenues	Automobile Expenditures
Revenues From Gross Production Tax	2/3 Total Consumption Expenditures 1/3 Dividend Income
Revenues From REA Tax	Utility Expenditures
All Other Revenues From State Sources	3/4 Total Consumption Expenditures 1/4 Dividend Income
Local	
Revenues From Ad Valorem Tax on Town Lots, Improvements on Town Lots, and Farm Improvements	1/2 Total Consumption Expenditures 1/2 Housing Expenditures
Revenues From Tax on Personal Property	1/2 Total Consumption Expenditures 1/2 Housing Expenditures
Revenues From Tax on Public Service Corporations	3/4 Total Consumption Expenditures 1/4 Dividends
Revenues From Tax on Farm Land	Farm Land Holdings by Income Class Adjusted to Oklahoma

³ This assumption is particularly suspect for the Federal contribution to financing of common schools. The Federal component is so small, however, that an exact adjustment would not change the general conclusions.

⁴ With the exception of the tax on farm land, the bases of allocation for the major revenue sources (taxes) were taken either from the *BLS Survey of Consumer Expenditures* [27] or the *Tax Foundation* [23]. The allocative base for the tax on Oklahoma farm land was derived from information in the *Farm Income Situation* [25] and the *1964 Census of Agriculture* [26].

⁵ Local revenues for public education were not identified with regard to tax source. The convention adopted was to allocate local schooling revenues to the tax bases identified in Table 1 in direct proportion to the percentage of assessed valuation in the various property classifications. In 1961, 17.54 percent of the total net assessed value of property in Oklahoma consisted of farm land. Thus, 17.54 percent of local revenues was estimated to have been derived from taxes on farm land.

THE DISTRIBUTION OF LOCAL, STATE AND FEDERAL REVENUES

Local

The ad valorem tax falling on the residential portion of town lots and improvements was assumed to have an incidence proportional to the distribution of housing expenditure. Taxes on the non-residential portion of the same property class were assumed to be shifted forward to the consumer and were allocated proportionally to total consumption expenditures.

Taxes on public service companies were assumed to be largely shifted forward to consumers but also partially paid by stockholders of the corporation in the form of lower dividends.

Farm land taxes were not assumed to be shifted forward in the form of higher commodity prices. The rationale for this assumption is that Oklahoma farmers face essentially a horizontal demand curve for their products.

State

The burden of the REA tax was distributed proportionally to utility expenditures. Two other major taxes fall into the the state-dedicated revenue - ear marked category. Automobile license fees were allocated directly on an automobile expenditure basis and the gross production tax was assumed partially shifted forward to consumers and partially shifted to owners of the factors of production in the form of reduced dividends.

The burden of most of the taxes which constitute the category "All Other Revenues From State Sources" was assumed to be shifted forward to consumers. This assumption is most easily justified when the tax in question applies to a narrow range of products such as tobacco or liquor. For more general taxes such as the state sales tax, the issue is in more doubt. Some economists have argued that general sales taxes are partially shifted backward to the owners of the factors of production - reducing the estimated burden on lower income groups and increasing the burden on higher income groups. To account for this possibility and for the fact that certain state taxes are distributed progressively with respect to income, one quarter of the burden "All Other Revenues" was assumed shifted backward to factor owners in proportion to dividends.

Federal

Federal revenues for primary and secondary education in Oklahoma were assumed to be derived from federal taxes less social insurance contributions. The incidence of federal taxes by income class for the United States was then adjusted to the southern regional income distribution.

EXPENDITURE BENEFITS

The expenditure benefits of government spending in Oklahoma for public primary and secondary education were allocated by income class as a function of the number of children under eighteen estimated to be enrolled in school. School enrollment is sensitive to both parental income and educational level. Enrollment percentages representing the median years of education for Oklahoma residents over twenty-five were used for each income group.⁶

FINDINGS

The incidence of educational benefits and costs per family and as a percent of income per family is presented in Table 2. First, consider the incidence of benefits and costs per family. From the under \$2,000 class to the \$4,000-\$4,999 class the estimates of benefits of education per family exceed estimates of the costs per family. The evidence indicates that a considerable public subsidy is being provided to low income families through public primary and secondary education. This conclusion, however, must be tempered by the following considerations: (1) participation rates of children from low income families may be overestimated; (2) low income school districts typically spend less per student on education and consequently the quality of schooling is often inferior in these districts; (3) poor school districts often must tax their property at higher rates in order to raise the necessary schooling revenues. Thus, the benefits are smaller and burden greater for the poor than the present analysis indicates.

A second item of interest in Table 2 is the incidence of the costs and benefits with respect to income. The tax burden is roughly proportional to income from the under \$2,000 class through the \$9,000-\$14,999 class, with some slight regressivity appearing in the higher classes. For the \$15,000 and over class, the structure is progressive with respect to the lower classes. The expenditure benefits of

⁶National enrollment data [4] for white males were modified for the age distribution of Oklahoma school enrollment. For the 1960 median education level in Oklahoma not a great deal of difference in enrollment percentage by income was apparent. In areas with a large percentage of low income non-whites, the available data indicated that enrollment rates could be sufficiently low to alter substantially the estimate of benefits received for lower income groups. Even more difficult to quantify is the quality of education each group received, although the clues are evident [4].

education are distributed regressively with respect to income. This conclusion would seem to hold even if, for reasons given above, the benefits for low income families have been overestimated. Public elementary and secondary schooling is characterized by larger

benefit-cost ratios for low income families and apparently tends to redistribute wealth from high income to low income families in Oklahoma. Geographic disassociation of benefits and costs remains a serious problem, however [cf. 12, 13].

Table 2
INCIDENCE OF FEDERAL, STATE, AND LOCAL TAXES AND EXPENDITURES FOR
PUBLIC EDUCATION IN OKLAHOMA IN 1961

	Income Class ^a								
	Under \$2,000	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$14,999	\$15,000 and Over
Local Taxes (000)	5,461	7,087	9,416	11,573	13,751	15,969	15,434	9,718	6,630
Local Taxes Per Family	33	58	85	117	163	171	204	276	733
State Taxes (000)	3,752	5,556	8,746	8,167	9,361	11,529	11,374	8,107	6,044
State Taxes Per Family	23	46	79	83	111	123	150	231	669
Federal Taxes (000)	359	591	964	1,148	1,274	1,796	1,999	1,548	1,531
Federal Taxes Per Family	2	5	9	12	15	19	26	44	169
Total Taxes Per Family	58	109	173	212	289	313	380	551	1,571
Total Expenditure Benefit (000)	19,536	26,173	25,654	23,633	24,233	26,155	21,450	9,857	2,111
Total Expenditure Benefit Per Family	119	216	232	240	287	279	283	281	233
Average Family Income (Money Income Before Personal Taxes)	1,245	2,557	3,724	4,861	5,995	7,421	9,729	13,542	30,643
-----Percent-----									
Total Tax and Expenditure as Percent of Before Tax Income									
Tax:	4.67	4.15	4.64	4.36	4.78	4.17	3.92	4.05	5.13
Expenditure:	9.55	8.44	6.22	4.94	4.78	3.75	2.90	2.07	.76

^aIncome class limits expressed in money income after taxes.

A COMPARISON OF STUDIES: ELEMENTARY AND SECONDARY EDUCATION

The principle findings of some of the studies dealing with the distributional impact of primary and secondary education are summarized in Table 3. Of particular interest is the study of the Boston Public School System by Grubb [7]. First consider the tax incidence by income class. The tax incidence is considerably more regressive in the Boston study than it is in the Oklahoma study. The difference may be partially explained by the following considerations: (1) Grubb based the allocation of the tax burden on Gillespie's [6] work which tends to be a more regressive than other sources such as the Tax Foundation [23], (2) the local-state-federal mix of schooling revenue sources is not the same for the two areas, (3) the sources of property tax revenue in Boston are much different than in Oklahoma, and (4) the income bases may not be the same.

Grubb's treatment of the benefits of education represents an important departure in one respect -- the measure of benefits as increased lifetime earnings instead of expenditures -- and the addition of some very interesting information in one other respect -- benefit magnitudes for non-whites. The estimated benefits are presented on a per person basis and for that reason appear more evenly distributed than the Oklahoma estimates which are presented on a family basis.⁷

Since the Boston study accounted for whites and non-whites separately, the effect of high drop-out rates for non-whites, alluded to in an earlier footnote, was identified. The failure of non-whites to complete as many years of schooling as whites results in estimated increased earnings being approximately one-half that of whites for all income classes.

The distribution of net benefits (discounted earnings less compounded costs) in the Boston study is regressive. This is the same conclusion as in the

⁷If the benefits in the Oklahoma study were presented upon a per student basis, the enrollment adjustment procedure would result in a nearly uniform increase in estimated benefits from low income children to high income children. This is in contrast to the Boston Study in which the estimated benefits decline slightly in the middle income range for whites.

Oklahoma study. Apparently, the general tendency of elementary and secondary systems is to transfer benefits to low income families. That is, the net

benefits of primary and secondary education are distributed regressively.⁸

Table 3
THE DISTRIBUTION OF THE COSTS AND BENEFITS OF
ELEMENTARY AND SECONDARY EDUCATION: SOME COMPARISONS

	Income Class								
	Under \$2,000	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$14,999	\$15,000 and Over
Holland - Oklahoma									
Total Taxes Per Family	58	109	173	212	289	313	380	551	1571
Total Expenditure Per Family	119	216	232	240	287	279	283	281	233
Total Taxes/Income Per Family	4.67%	4.15	4.64	4.36	4.78	4.17	3.92	4.05	5.13
Total Expenditure/Income Per Family	9.55%	8.44	6.22	4.94	4.78	3.75	2.90	2.07	.76
Tax Foundation - United States									
Total Expenditure/1965 Income Per Family	6.1%	6.2	5.2	5.0	4.4	3.8	2.8	1.8	.7
Grubb - Boston Public School						\$6,000 to \$7,999	\$8,000 to \$9,999		
Total Taxes/Income Per Family - Whites (Includes Higher Education)	7.83%	4.72	4.00	3.69	3.59	3.19	2.75	2.14	2.63
Benefits Per Person - Whites (Discounted Increase in Earnings)	19629	19628	19165	19276	18667	18921	19232	19791	21328
Benefits Per Person - Non-whites	9617	9617	9642	9767	9753	9874	9996	10367	11885
Net Benefits as a Percent of Income - Whites (Discounted Earning - Compounded Cost)	76.01%	35.27	23.73	17.82	13.26	10.25	8.11	5.72	0.71
Gillespie - United States (Includes Higher Education)									
Expenditure/Adjusted Broad Income Per Family	11.2%	7.7	9.3	7.8	--5.7--		3.4	--2.1--	
Musgrave-Daicoff - Michigan (Includes Higher Education)				\$4,000 to \$5,999	\$6,000 to \$7,999		\$8,000 to \$9,999	\$10,000 and Over	
Expenditure/1956 Income Per Family	9.69	4.14	4.12	3.30	3.10		1.55	.70	

HIGHER EDUCATION: A COMPARISON

The principle findings of selected studies dealing with higher education are summarized in Table 4. Windham [29], in his study of the Florida system, found that taxes exceeded expenditure benefits for all income groups up to \$10,000.

The Hansen-Weisbrod [9] study of the California system found that the families enjoying the largest net transfers (subsidy less taxes paid) were also characterized by the highest income.⁹ Hansen's [8] study of the distribution of costs and benefits of higher education in Wisconsin found, as in California, that for those families with children in the higher education system that average taxes paid did not match average subsidies. However, in the Wisconsin system net transfers for families in the system were

inversely related to income, while in California the transfers were proportional to income. The implication of both the California and Wisconsin studies is that publicly subsidized higher education promotes:

greater rather than less inequality among people of various social and economic backgrounds by making available substantial subsidies that lower income families are not eligible for or cannot make use of because of other conditions and constraints associated with their income [9].

It should be noted that quite a different view of the California study is provided by the Pechman [21] rearrangement of the Hansen-Weisbrod data. Pechman restricted the population to families with children in

⁸ Although data indicate that the distribution of net benefits is regressive within racial groups [7, 13], the evidence also indicates that whites receive a much larger subsidy than non-whites [7].

⁹ Grubb's measure of the distribution of the benefits of higher education, although not in Table 4 is extremely progressive for both whites and non-whites.

the higher education system. He compared benefits and costs by income class rather than by average income for various types of families. Pechman's results indicated that families with incomes between \$4,000 and \$12,000 received a net subsidy, while those above \$20,000 paid a large net tax. Thus, there was a redistribution from families in the highest classes to those between \$4,000 and \$12,000.

Hartman [11], with the use of hypothetical data, showed how each of the respective author's apparently divergent conclusions could be perfectly consistent with the same data. He summarized his view of the facts as follows:

1. Poor people pay taxes and very few of them use public higher education. Those who do, gain thereby; those who don't, don't.

Table 4

THE DISTRIBUTION OF THE COSTS AND BENEFITS OF
HIGHER EDUCATION: FLORIDA, WISCONSIN, CALIFORNIA

	Income Class			
	0 to \$2,999	\$3,000 to \$4,999	\$5,000 to \$9,999	\$10,000 and Over
Windham - Florida (Total Higher Education System)				
State and Local Costs (000)	12,895	24,976	68,821	29,049
Federal Costs	1,363	4,002	13,697	10,554
Total Costs	14,259	28,979	82,518	39,603
Total Benefits	10,419	20,296	70,395	64,278
Benefits - Costs	-3,839	-8,682	-12,122	+24,675
Hansen-Weisbrod - California				
	All Families	Families w/o Children in California Higher Education	Families with Children in California Public Higher Education	
			University of California	California State College
(1) Average Family Income	8,000	7,900	12,000	10,000
(2) Average Higher Education Subsidy	-	-	1,700	1,400
(3) Average State Taxes Paid	192	182	350	260
(4) Net Transfers (2-3)	-	-182	1,350	1,140
Hansen - Wisconsin				
(1) Average Family Income	6,800	6,500	9,700	6,500
(2) Average Higher Education Subsidy	-	-	900	1,010
(3) Average State Taxes Paid	240	240	430	270
(4) Net Transfers (2-3)	-	-240	470	740
Pechman - Restatement of Hansen-Weisbrod				
	0 to \$3,999	\$4,000 to \$5,999	\$6,000 to \$7,999	\$8,000 to \$9,999
			\$10,000 to \$11,999	\$12,000 to \$13,999
				\$14,000 to \$19,999
				\$20,000 to \$24,999
				\$25,000 and Over
(1) Average Tax Payment	66	77	88	112
(2) Average Higher Education Subsidy	56	122	129	126
(3) Net Transfer (2-1)	-10	45	41	14
				37
				8
				-
				-77
				-683

-16-

CONCEPTUAL AND EMPIRICAL DIFFICULTIES WITH DISTRIBUTIONAL RESEARCH

Although the research findings which are summarized in this paper are fairly straightforward, there are some very important and difficult problems, a few of which merit additional discussion. The comments are restricted to elementary and secondary education, although studies of higher education are subject to many of the same problems. The cost side is discussed first.

2. Middle income people are heavy users of the system. Their taxes don't cover the costs.
3. A few rich people use the system and gain handsomely thereby. The rest of the rich pay substantial taxes and get no direct return.

Based upon a consensus of currently available studies the evidence seems to indicate that if all families - those with and without children in any given higher education system - are considered, the distribution of the net burden (expenditure benefit less tax burden) of higher education is negative for low income groups and positive for higher income groups. That is, the redistributive effect is from the poor to the rich.

A number of critical assumptions must be made relative to the incidence of numerous taxes. Particularly elusive is the issue of tax exporting and importing. Thus it is necessary that the assumptions be very explicit and grounded to the greatest degree upon reasonable criteria. Determination of the difference in results under varying assumptions is to be recommended. It is realized, however, that the issue of tax incidence is a subject upon which there will be reasonable disagreement.

The other very serious problem in cost allocation, at least for studies involving a large number of school districts, is that many low income families are likely to be concentrated in a few school districts. Their local, effective tax rates may be very high, and the "average based" allocation procedures are likely to underestimate the tax burden of the low income family.

On the benefit side, the measure of benefits as increased lifetime earnings rather than expenditures or "enrollment adjusted" expenditures has the advantage of being conceptually correct. The disadvantage of the earnings approach is that it is very difficult to implement empirically. That is, adequate information on education attainment by parental income is very difficult to obtain. Even more serious is the fact that through time families are not likely to remain in the same income group. Measuring the schooling attainments of former students whose parents fall into a particular income class at a given point in time assumes that the parents have always been in the same class so that the benefits may be associated with that class. If there is much shifting between classes through time the estimates will be incorrect.

Both the "adjusted" expenditure and earnings measure of benefits suffer a common handicap through the implicit assumption that education is of the same quality across income classes. Not only is the quality of the education received by the children of low income parents likely to be quite inferior, but because of family background differences, low income children are not as likely to be able to translate the level of education that they do receive into earning increases. The benefit-cost approach does

not address these realities and overstates the value of education to low income children.¹⁰

Finally there is the conceptual difficulty of matching costs with benefits. The costs of education are paid for by the parents of the children who receive the benefits. The computation of benefits per family -- earnings or expenditure -- attributes the benefits received by students to their parents.

The purpose of this section was not to depreciate my own as well as others research on the distributive effect of public education, but rather to indicate some of the problems with the cost-benefit approach. The advantage of this work is that it is usually not difficult to determine potential error direction. Detection of error magnitude is more difficult and may be critical.

In my opinion, possible error magnitudes are not sufficient to invalidate conclusions for common schooling regarding the manner in which the tax burden of parents compares to the public expenditures received by their children. This is useful information and has been heretofore unavailable. Conclusions about the way in which the elementary and secondary school system affects the distribution of income of students relative to the distribution of parental income and tax burden must be viewed with less confidence.

CONCLUSIONS

The conclusions of this paper may be stated quite simply. The distribution of net benefits associated with elementary and secondary education is regressive. The distribution of net benefits associated with higher education is progressive.

¹⁰ The separate treatment of whites and non-whites by Grubb [7] to some degree overcomes this criticism.

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