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THE APPROPRIATION, DISTRIBUTION AND ADMINISTRATION OF THE STATE EQUALIZATION FUND

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FOREWORD

This bulletin deals with the methods used in apportioning the equalization fund. It gives the procedures used in calculating the amounts due each district. It is hoped that the data presented and the procedures used will serve to answer many questions concerning the administration of the equalization law. You are invited to study this bulletin so that you may share with us your experiences in any attempt at further improvement in the equalization law. It is our hope, as you well know, that a larger number of districts may participate in the equalization fund as our total state appropriations increase, and that, through the increase in the equalization fund, we may be able to provide more adequate school services for all the children of the Commonwealth.

This bulletin was prepared by J. D. Falls, Chief of the Bureau of Finance.

JOHN FRED WILLIAMS
Superintendent Public Instruction

October, 1946

THE APPROPRIATION, DISTRIBUTION AND ADMINISTRATION OF THE STATE EQUALIZATION FUND FOR THE PUBLIC SCHOOLS OF KENTUCKY

It is a truism known to every thinking citizen of Kentucky, that there are wide differentials in the amounts of recurring revenue back of each pupil in the various school districts of the State. These differences are due largely to the variations in assessed valuations and the rates of the tax levies in the different school districts. To illustrate, each census child in Woodford County, 1944-45, had $10,717 of assessed wealth behind him, while the tax rate was only 30 cents on the $100. At the same time, each census child in Clinton County had only $408 behind him, and the tax rate was 75 cents which was then the legal maximum limit for general purposes. For that year, the mean average amount of assessed property for all the 257 independent and county school districts, was $2,267 with a range of $10,309. Thus, most of the less able county districts were putting forth two and a half times more fiscal effort than the more wealthy Woodford County district, and yet, they were collecting less per child. Obviously the children living in the richer districts have much better educational opportunities than those living in the less able districts. Therefore, knowing these conditions existed, the citizens of the State determined to make some amends.

In the year ending June 30, 1941, each school district received only $12.33 for each census child (from six to seventeen years of age inclusive) within its jurisdiction, which was the only state aid then available, other than that received from the Federal Government for vocational programs. So, in November, 1941 an amendment to the State Constitution received a favorable vote of the people, to permit the distribution of not more than ten per cent of the Common School Fund on bases other than per census. This enabled the 1942 General Assembly to make an appropriation and enact legislation to set up an equalization law whereby the less able school districts could receive additional aid from State sources.

The first equalization fund so appropriated was for the school year of 1942-43, which amounted to $400,000, and was distributed to six independent and thirty-three county districts; in 1943-44, the amount was $400,000, and was distributed to five independent and thirty-two county districts; in 1944-45, the amount was $1,500,000 and distributed to eighteen independent and sixty county districts; in

1945-46, the amount was $1,500,000 and distributed to twelve independent and fifty-seven county districts; and for the school year of 1946-47, the amount is $1,850,000 distributed to thirty-nine independent and fifty-one county districts. Table 1 shows a detailed tabulation of these data for the five years the equalization law has been in force.

Table 1

Table Showing Total Average Daily Membership, Net and Adjusted Recurring Revenue, Actual Equalization Distributed, Minimum Legal Limit, Mean Average Revenue Per Pupil, Mean Average Equalization Per Pupil, and Number of District Participating

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
School Year	Average Daily Membership	Total Net Recurring Revenue	Total Equalization Actually Distributed	Minimum Legal Limit Per Pupil	Total Revenue Per Pupil (3 + 4) ÷ 2	Mean Average Equalization Per Pupil 4 ÷ 2	Number of Participating Districts
1942-43	165,775	$4,332,126.00	$ 399,999.24	$30.00	$28.55	$2.41	39
1943-44	147,539	3,899,363.84	399,999.79	30.00	29.14	2.71	37
1944-45	242,492	7,281,246.57	1,499,855.96	40.00	36.21	6.19	68
1945-46	219,857	6,899,410.75	1,499,973.41	40.00	38.20	6.82	59
1946-47	[1]204,574	[2]9,044,076.46	1,850,000.00	[3]none	53.25	9.04	90

[1] $\left(\frac{ADM + ADA}{2}\right)$ is provided under the current equalization law, as a unit of distribution.

[2] This is "adjusted" and other recurring revenues which include for county districts only the amount that would have accrued, if collected at a tax rate of 75 cents per $100 of assessed valuation of property subject to local taxation, and for independent districts, if collected at $1 per $100. See Section 157.051 (2) KRS, 1946.

[3] The present law fixes no limit. See Section 157.053 (2) KRS, 1946.

Table 1 may be read as follows: In 1942-43 there were 165,775 (Item 2) pupils in average daily membership (ADM) in all the participating school districts. These districts collected a total of $4,332,126 net recurring revenue (Item 3). The amount in equalization actually distributed was $399,999.24 (Item 4). A minimum limit of $30 (Item 5) per pupil was fixed by law, but since the appropriated amount of $400,000 was not sufficient to guarantee the $30 limit, the money was distributed on a ratio or percentage basis according to law. This placed an average of $28.55 in local and State revenue (Item 6) back of each pupil instead of the $30 minimum. That same year when the equalization fund was distributed there was a mean average of $2.41 in equalization fund (Item 7) prorated by the State to each pupil in average daily membership in those 39 school districts partic-

ipating. In the school years of 1943-44, 1944-45, 1945-46, marked increases in equalization appropriations are shown.

Further, Table 1 shows that in 1946-47 there was an average of 204,574 pupil units in average daily membership (ADM) and average daily attendance[3] (ADA). This average of pupil-units is obtained by dividing the sum of ADM and ADA by two, according to Section 157.051 (3) KRS, 1946. In 1946-47 the amount of "adjusted" and other recurring revenues from local and State sources is $9,044,076.46 and the equalization fund is $1,850,000. The sum of these two revenue funds distributed among the 90 participating school districts guarantees $53.25 back of each of the 204,574 pupils represented as being in average daily membership and average daily attendance; and places a mean average of $9.04 in State equalization revenue back of each of these "average pupils" or pupil-units in the 90 districts.

EQUALIZATION LAW ENACTED IN 1946

In order that the 1946 Equalization Law may function more effectively, those whom it concerns should become thoroughly familiar with it; and know how it applies to the common school system of the State. Therefore it is quoted below in its entirety:

157.051 Definitions for KRS 157.052 to 157.055. As used in KRS 157.052 to 157.055:

(1) "Equalization fund" means a special fund of ten percent of the total appropriation for common school fund, appropriated by the General Assembly for the specific purpose of equalizing education service in the less able local school districts of Kentucky.

(2) "Adjusted recurring revenue" means all recurring revenue other than that produced by a subdistrict tax and that received by a school district from the equalization fund; provided that in a county school district only the amount of ad valorem revenue is included that was accrued at the tax rate of seventy-five cents per one hundred dollars of assessed valuation of property subject to local taxation, and that in an independent school district only the amount of ad valorem revenue is included that was accrued at the tax rate of one hundred cents per hundred dollars of assessed valuation of property subject to local taxation.

(3) "Arithmetic mean index" means the quotient obtained when the sum of the average daily membership and the average daily attendance in a school district is divided by two.

[3] The 1946 law added average daily membership as another factor in the distribution of equalization funds.

(4) "Net-ability index" means the quotient obtained when the total adjusted recurring revenue of a school district is divided by the arithmetic mean index.

157.052 School equalization fund distribution, who to make.

The equalization fund shall be distributed and administered under the direction of the Superintendent of Public Instruction, with the approval of the State Board of Education, as provided in KRS 157.053 to 157.055.

157.053 Eligibility for aid from equalization fund; how determined; annual study; ranking of districts; basis of distribution.

(1) Any board of education that has had its budgets and salary schedule for the ensuing school year approved by the State Board of Education, whose ratio of assessed valuation of property to fair cash value is equal to the average ratio throughout the state, as certified to the State Board of Education by the Kentucky Tax Commission, and has levied for school purposes a tax of at least seventy-five cents on each one hundred dollars of property subject to local taxation and not less than the ad valorem tax levy made for the previous school year, shall have the privilege of applying for aid from the equalization fund.

(2) The Superintendent of Public Instruction shall make a careful study to determine annually the amount of adjusted recurring revenue that is available for the education of each pupil based on average daily membership and average daily attendance in the public schools in each school district in Kentucky. This study which shall be used as a basis for the distribution of moneys from the equalization fund, shall be based upon records and reports for the school year ending June 30 immediately preceding such study. After all school districts in the state have been arranged in a rank order from high to low according to their net-ability indices, the Superintendent of Public Instruction, with the approval of the State Board of Education, shall distribute the equalization fund to districts qualifying under KRS 157.051 to 157.055 so that, when the total adjusted recurring revenue of all participating districts plus the total equalization appropriation is divided by the total arithmetic mean indices of all participating districts, it will give the same amount of money per pupil per year represented in the arithmetic mean index in each participating school district.

157.054 Time of allotment and distribution of equalization fund.

The special fund shall be allotted to the local boards of education which meet the provisions of KRS 157.052 to 157.055 by the Superintendent of Public Instruction with the approval of the State Board of Education on or before April 1, prior to the beginning of each school year except in 1942, when such allotment shall be made on or before June 1. The funds so allotted shall be distributed to the local boards of education regularly as a supplement to the state per capita funds provided for such districts.

157.055 Administration and expenditure of equalization fund; rules for; liability for.

The Superintendent of Public Instruction with the approval of the State Board of Education shall prescribe rules and regulations governing the administration and expenditure of any moneys allotted to local school districts from this special fund. The money allotted to any local board of education under the terms of KRS 157.052 to 157.055 shall be received and held and expended by it under the same liability and responsibility as provided by law for other funds which come into the hands of such board.

157.060 Reports of funds received and spent by school districts.

The officials of each educational institution and each school district supported in whole or in part from taxation shall make a report to the State Board of Education at the close of each scholastic year, showing in detail all funds received from the state and from all other sources during the year, and a detailed statement of all expenditures for the year.

LEGAL TERMINOLOGY

The definitions set up in the 1946 law clarify the procedure and give to local school administrators information that will enable them to know and understand better how the money is distributed. Further illumination may not be amiss:

1. "Adjusted recurring revenue" is a necessary term. For example a county school district levying, say, $1.25 for general purposes will have its ad valorem revenue "adjusted" so as to charge it only with that portion of recurring revenue that would have accrued, had the tax levy rate been fixed at only 75 cents; or, if an independent district levies $1.50, its ad valorem revenue will be "adjusted" to that portion that

would have accrued, if it had been collected at a tax levy rate of $1. Hence, the term, "adjusted recurring revenue"[4] is used to explain this process of adjusting ad valorem revenue from the ratio of actual collections to the ratio for calculations fixed by the law. The difference between the rates of 75 cents for county and $1 for independent districts was considered as a just differential because county districts have the additional heavy expense of pupil transportation. It is estimated that, where the purchase, operation and maintenance of busses are considered, this differential is reasonably commensurate.

2. "Arithmetic mean index" corresponds to the term, "pupil" or "child" in the previous law. But, since this law gives the same weight to *attendance* as to *membership,* the ADM and ADA are added and divided by *two* to represent an average pupil-unit in membership and in actual attendance. This places emphasis where it should be. Since this 1946 law uses these *two* terms instead of *one,* as in the previous law, the mean average is used as a *pupil-unit* for determining the basis of proration. In effect, this combines census, membership and attendance so as to *locate* the child in the community, *get* him in school, and *encourage* keeping him there.

3. "Net ability index" is merely the adjusted ad valorem and other recurring revenue of a district, divided by the "average" number of pupil-units in membership and in actual school attendance. This index indicates the amount of local, per capita and other state revenue back of each "average" pupil-unit in that district before equalization revenue is applied.

SOME COMPARISONS BETWEEN THE OLD AND NEW LAWS

Herein certain comments are submitted in explanation of the pertinent changes made by enacting the 1946 law, regarding the distribution of the State equalization funds.

Fundamentally, the new law of 1946 is similar to the previous law. However, certain factors have been incorporated which improve and simplify the law. These changes are so made that it will not be necessary to rewrite the law every two years, as was necessary before. The derived formula will distribute any appropriated amount accu-

[4] *Revenue* is additions to cash or other current assets which do not increase any liability, nor represent the recovery of an expenditure. But *"recurring revenue"* is that which is normally collected and expected from time to time and on indefinitely.

rately, whether it be one million or ten million dollars. Some of the weaknesses in the old law are presented below:

1. It had to be rewritten every two years.
2. It set up an amount of $30, or $40 per pupil in average daily membership as a floor or minimum. But the amount so fixed was always higher than the available appropriated revenue could provide per pupil, because the exact appropriation could not be predetermined. Usually this minimum was little better than a guess and therefore necessitated the use of a ratio or percentage method, which still left unequal the amount of local and state revenue back of each pupil-unit.
3. The unit or base for distribution was the average daily membership. If a pupil came to school only one day and then dropped out for the remainder of the school year, there was (under this old Law) just as much equalization money allocated to that district for that pupil as would have been, if that pupil had attended full time. Naturally, it is important that a child become a member of his school, but it is also highly essential that he attend regularly.
4. Average daily membership was very little better than no method at all. It may have been selected, at first, because it was the easiest quantitative factor then obtainable and yet objective in a way. Now, it is realized that average daily attendance may be a better *single* measure, but that the combination of membership and attendance is still more logical.

The 1946 law facilitates distribution, and will actually equalize the amount of revenue (state and local) back of each "average" pupil in *all* the districts participating. This money is distributed on the basis of *need ability,* as indicated by data taken from the annual records and financial reports for the year immediately preceding the year of calculation. For example, the equalization apportionment to a participating district in 1946-47, was calculated in 1945-46, from data that were obtained from the 1944-45 official instruments which were the last complete records on file. (See law quoted above).

METHOD OF DISTRIBUTING THE EQUALIZATION FUND UNDER THE 1946 SCHOOL LAW

According to law, all districts in the State are listed in descending rank-order scale from the highest "net ability index" to the low-

est.[5] Then, the equalization revenue is simply prorated to the less able districts beginning at the bottom of the scale and advancing up this scale until all or 100% of the equalization revenue is distributed; and also, at the same time, when the local adjusted ad valorem and other recurring revenue in a district and equalization money are added, it will place the same minimum or total amount of money back of each "average pupil" therein, as will be back of every other such pupil in all the participating districts.

In order to meet this requirement of the law and to ascertain what districts, after meeting all other qualifications under the law, may participate in the equalization fund, and also to determine what their apportionments may be, the "CRITICAL REVENUE RATIO" must be determined between the summation of the all adjusted recurring revenue plus the equalization fund, and the corresponding cumulative frequencies of arithmetic mean indices of all these districts participating. All data are to be taken from the reports of the fiscal year ending June 30 immediately preceding the year in which calculations are made.[6]

THE DERIVED FORMULAE

In order to simplify the procedure in deriving the formulae that will precisely fix this *critical revenue ratio,* the following steps have been taken:

Step 1. Divide by *two* the sum of each district's average daily membership and average daily attendance. This quotient is called the Arithmetic Mean Index of that district, which is the "average pupil" used as a *unit* for distributing equalization fund.

Step 2. Divide the total of the adjusted ad valorem and other recurring revenue of each district by its own arithmetic mean index. This quotient is called the Net Ability Index of that district. See Table 2, Item 3.

Step 3. Rank the districts in descending order from high to low according to their Net Ability Indices. Then list opposite each of these indices, the respective Arithmetic Mean Index and its total amount of adjusted ad valorem and other recurring revenue. See Table 2, Items 3, 4 and 5.

[5] See Table 2, Item 4.
[6] See school law for definitions or terminology and procedures.

Step 4. Theoretically, one may begin at the bottom of these rank-order districts and proceed upward to determine by computation the first *point* on the ascending scale of Net Ability Indices where the ratio of "Tentative Cumulative Revenue,"[7] is equal to or greater than the Net Ability Index of the district last participating, but less than the Net Ability Index of the next succeeding district *not* participating. This will be the *minimum* or the *smallest* revenue ratio that can be obtained and is called the "CRITICAL OR TRUE REVENUE RATIO." See Step 5-b, below.

Step 5. To explain in more detail, continue to divide the cumulative frequencies of districts' revenue plus total equalization fund, by the respective cumulative frequencies of arithmetic mean indices, until the ratios cease to *decrease* and begin to *increase.* If these tentative cumulative ratios are plotted, a rough parabola will result; and the point of tangent[8] will be the smallest or minimum ratio which is determined as follows:

(a) From the bottom of this scale of rank-order districts begin adding the adjusted recurring revenue in *one column* and the corresponding arithmetic mean indices in another. (See Table 2, Items 5 and 7)

(b) *Practically,* it is not necessary to begin at the bottom of the scale as in Step 4, but by *inspection,* one may begin at any logical point to divide the cumulative frequencies or summations of Adjusted Recurring Revenue plus the equalization fund, by the cumulative frequencies or summations of the corresponding arithmetic mean indices. These quotients are called "tentative revenue ratios" which will become less and less until the minimum or CRITICAL OR TRUE REVENUE RATIO is determined. After that point is reached, then, if such divisions are continued up the scale, the quotients or revenue ratios will begin to increase slightly and gradually.

[7] In ascending the scale, the mean indices and Cumulative Frequencies are the sums obtained each time that another district's revenue is added to the cumulative frequencies of all preceding districts plus the total appropriated equalization fund. See Table 2, Items 5 and 7.

[8] See graph. 574-75.

(c) The minimum revenue ratio that becomes *equal* to or *greater than* the last respective net-ability index, considered, but *less than* the next succeeding net-ability index, will be the CRITICAL OR TRUE REVENUE RATIO[9] by which all apportionments will be made, and will determine the last district participating. (This CRITICAL OR TRUE REVENUE *RATIO* should be carried out to eight or more decimal places to insure the entire distribution of the appropriated equalization fund.)

Step 6. Multiply this "CRITICAL OR TRUE REVENUE RATIO" by the arithmetic mean index of each district, subtract from this product the district's corresponding recurring revenue, and the remainder will be the apportionment of equalization fund going to that district.[10]

This procedure will distribute all of the equalization fund; and each "average pupil" in each district, represented in the arithmetic mean of the average daily membership and the average daily attendance, will have the same total amount of local and State revenue behind him that is indicated by the "CRITICAL OR TRUE REVENUE RATIO." This conforms to Section 157.053 (2) KRS, 1946.

Staying away from technical mathematics in these explanations, it can be stated briefly that the principles evolving these formulae, are based on two theorems developed through certain equations:

1. The summation of the products of the *quotient* multiplied by each of the various *parts* of the divisor, will equal the dividend.
2. The point of tangent of the rough parabola formed in graphing the "tentative revenue ratios" of the various school districts, to the verticle side of the rectangular graph depicting the total revenue back of each pupil, is the minimum or critical revenue ratio that will distribute all of the equalization fund. See Table 2, Item 8; and Graph.

Avoiding technical phrasing, the statements of these theorems may be somewhat loosely worded, but their meanings seem reasonably clear and obvious.

[9] See formula 11-c, also Table 2, Item 8.
[10] See formula 12-a, and c.

THE DERIVED FORMULAE FOR DISTRIBUTING THE EQUALIZATION FUND

1. M_d is symbol for average daily membership in a district
2. A_d is symbol for average daily attendance in a district
3. I_d is symbol for arithmetic mean index of a district
4. SI_d is symbol for summation or the cumulative frequencies of all participating districts' arithmetic mean indices
5. R_d is symbol for total adjusted ad valorem and other recurring revenues of a district
6. SR_d is symbol for summation or the cumulative frequencies of all participating districts' recurring revenue
7. E_t is symbol for total state equalization fund
8. E_d is symbol for the amount of equalization fund going to a district
9. S is symbol for "summation of"
10. R_c is symbol for the critical or true revenue ratio
11. The Critical Ratio Formula or Equation

(a) $(SR_d + E_t)$ = total local and state revenue plus total equalization appropriation

(b) $S\left(\frac{M_d + A_d}{2}\right) = SI_d$, summation of or cumulative frequencies of pupils in all participating districts.

(c) Therefore:

$$\frac{(SR_d + E_t)}{S\left(\frac{M_d + A_d}{2}\right)} = R_c$$

, Critical ratio or minimum ratio between the total revenue and the total number of these pupils in participating districts.

(d) Since, $S\left(\frac{M_d + A_d}{2}\right) = SI_d$

Then, $\frac{\left(SR_d + E_t\right)}{SI_d} = R_c^*$

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* The *smallest* or minimum revenue ratio obtained from these divisions will be the "CRITICAL OR TRUE REVENUE RATIO" to be used in making the final distribution of the Equalization Fund going to each district.

(e) By substituting actual values:

$$\frac{\$9,044,076.46 + \$1,850,000.}{204,574} = \$53.25249767,$$ the total revenue back of each of these pupils.

12. The Formula or Equation for Determining District's Apportionment

(a) $\left(\frac{M_d + A_d}{2}\right)\left(\frac{SR_d + E_t}{SI_d}\right) - R_d = E_d$, apportionment of equalization going to each participating district

(b) But, $\left(\frac{M + A}{2}\right) = I_d$, and $\left(\frac{SR_d + E_t}{SI_d}\right) = R_c$

(c) By substituting in (a)

$$I_d \times R_c - R_d = E_d$$

By substituting in (c) actual values, say, for Webster County:
1600 x $53.25249767 — $84,956.21 = $247.79* apportionment to Webster County

The graph on pages 574–75 illustrates how one may follow the procedures in finding the Critical Ratio used in making the distribution of the equalization appropriation. Obviously it is not necessary to begin actually calculating the tentative revenue ratios at the very bottom of the scale; but wherever one begins, the preceding cumulative frequencies must be taken into account. The graph as well as Table 2 illustrates the theoretical procedure. By inspection, one may estimate that the last qualifying districts would fall in the upper eighties or lower nineties on this particular scale. However, it is very necessary when the calculations approach the critical or minimum revenue ratio, that each district be examined separately and carefully to insure that the smallest or minimum revenue ratio will be found.

In making this study, it was not necessary to rank all the 256 districts in a single table to determine those that were qualified under this Act. However, a sufficient number above was considered to insure that no qualified district would be omitted. For the purpose of making this study, the net-ability indices of all districts in the State

* See Table 3, Items 4, 5, 6 and 7.

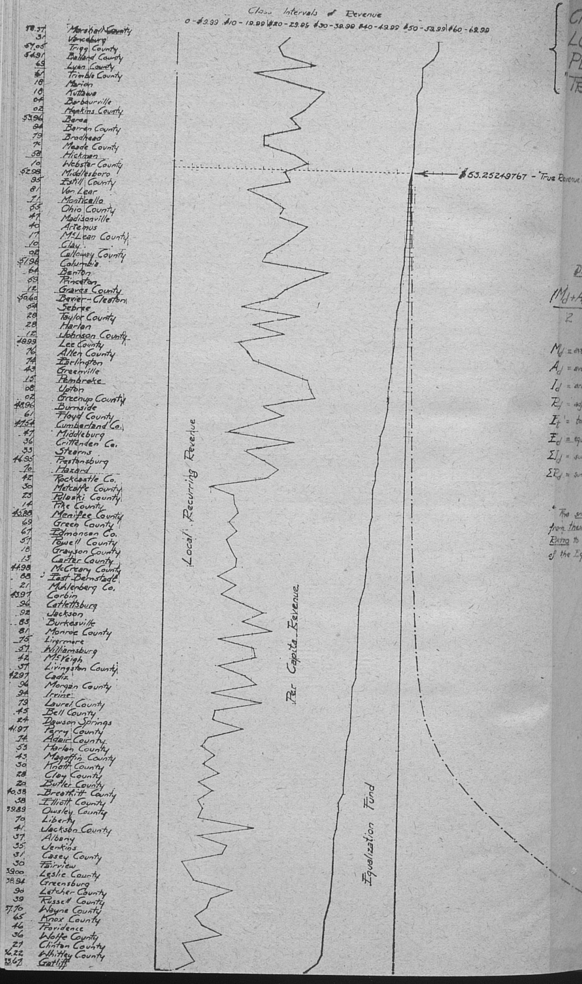
were calculated, but only 105 districts were actually ranked in a preliminary table according to their net-ability indices. The net-ability indices of these 105 districts spread from $33.67 for Gatliff Independent District to $58.37 for Marshall County District. It so happened in this instance that there were only 90 of these districts that actually qualified. But, for the purpose of illustrating further the method of calculating and reducing the number of operations to a minimum, these 90 districts have been thrown into step-intervals of five, except for the *first five* districts, and the *last five* districts in the scale to insure finding the exact critical ratio.

It should be definitely understood that *each* district near the top of the scale should be tested *singly* and not treated in large step-intervals. If kept in large step-intervals the *exact* district could not be found.

By substituting in the Formula the various step-intervals of the cumulative frequencies, it soon became evident that the $1,850,000 would be absorbed long before reaching Marshall County which was the 105th up from the bottom of the rank-order scale. So, it was found that Webster County with a net-ability index of $53.10 was the last to participate. This was true, because the smallest or minimum tentative ratio was found before reaching the next district, Hickman Independent, which has an index of $53.58.[11]

[11] In the districts ranked from 86 to 90, each district was considered as a separate single step-interval with its index as the *lower limit*, and as a continuous series *up to but not including* the next succeeding net-ability index.

CHART OF NET ABILITY INDICES; DISTRICTS; AMOUNTS OF LOCAL RECURRING, PER CAPITA, & EQUALIZATION REVENUES PER PUPIL IN ATTENDANCE; TENTATIVE REVENUE RATIOS; & "TRUE REVENUE RATIO" FOR KENTUCKY COMMON SCHOOLS IN 1946-47



DISTRIBUTION FORMULA

$$\frac{(M_d + A_d)}{2}\left(\frac{\Sigma R_d + E_t}{\Sigma I_d}\right)^{*} - R_d = E_d$$

M_d = average daily membership in a district

A_d = average daily attendance in a district

I_d = arithmetic mean index of a district

R_d = adjusted recurring revenue of a district

E_t = total state equalization fund

E_d = equalization fund going to district.

ΣI_d = summation of all arithmetic mean indices

ΣR_d = summation of all districts' recurring revenue

* The smallest tentative revenue ratio obtained from these divisions will be the TRUE REVENUE RATIO to be used in making the final distribution of the Equalization Fund.

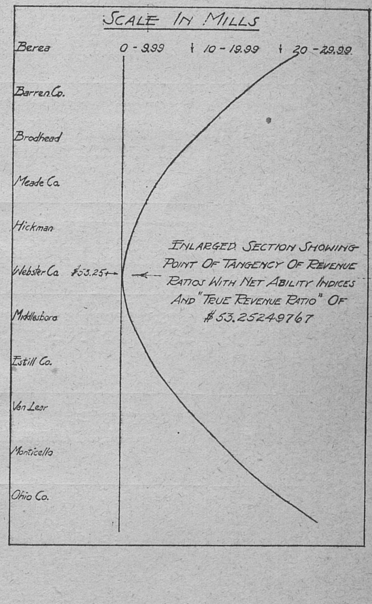


Table 2

SHOWING THE CUMULATIVE FREQUENCIES OF ARITHMETIC MEAN INDICES AND THE RESPECTIVE RECURRING REVENUE; AND THE CORRESPONDING TENTATIVE REVENUE RATIOS, FOR THE 90 PARTICIPATING SCHOOL DISTRICTS

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Rank Order	Name of School District	Net Ability Index (6 ÷ 4)	Arithmetic M. Index $\frac{ADM + ADA}{2}$	Cum. f. of Arithmetic Mean Indices	Adjusted and Other Recurring Revenue	Cum. f. of Adjusted and Recurring Revenue	Tentative Revenue Ratios [(7 + $1,850,000) ÷ 5]
90	Webster Co.	$53.10	1,600	[1]204,574	$ 84,956.21	[2]$9,044,076.46	$ [3]53.25249767
89	Middlesboro	52.98	2,423	202,974	128,362.64	8,959,120.25	53.25371844
88	Estill Co.	52.95	2,017	200,551	106,795.03	8,830,157.61	53.25407307
87	Van Lear	52.81	307	198,534	16,212.74	8,723,962.58	53.26021021
86	Monticello	52.71	438	198,227	23,086.04	8,707,749.84	53.26090714
85	Ohio Co.	52.55	3,528	197,789	185,403.11	8,684,663.80	53.26213186
84	Madisonville	52.47	1,557	194,261	81,699.54	8,499,260.69	
83	Artemus	52.40	194	192,704	10,164.82	8,417,561.15	
82	McLean Co.	52.17	1,551	192,510	80,908.63	8,407,396.33	
81	Clay	52.10	308	190,955	16,048.06	8,326,487.70	53.29339809
80	Calloway Co.	52.02	1,826	190,651	94,988.30	8,310,439.64	
79	Columbia	51.96	604	188,825	31,386.57	8,215,451.34	
78	Benton	51.64	557	188,221	28,764.54	8,184,064.77	
77	Princeton	51.59	1,109	187,664	57,212.27	8,155,300.23	
76	Graves Co.	51.12	3,662	186.555	187,200.06	8,098,087.96	
75	Bevier-Cleaton	50.60	212	182,893	10,727.44	7,910,887.90	53.36939027
74	Sebree	50.54	247	182.681	12,484.22	7,900,160.46	
73	Taylor Co.	50.29	1,525	182.434	76,688.25	7,887,676.24	
72	Harlan	50.28	1,698	180,909	85,372.63	7,810,987.99	
71	Johnson Co.	50.12	3,585	179,211	179,688.43	7,725,615.36	
70	Lee Co.	49.99	1,930	175,626	96,484.83	7,545,926.93	53.49963519
69	Allen Co.	49.76	1,680	173,696	83,602,01	7,449,442.10	
68	Earlington	49.74	559	172,016	27,804.99	7,365,840.09	

[1] Is the total number of pupils represented in the arithmetic mean indices of these 90 districts.
[2] Contains "adjusted" and other recurring revenues accruing to these 90 school districts.
[3] On this scale Hickman (Ind.) would have been the next to qualify, but by adding its revenue of $36,862.72 to $9,044,076.46 + $1,850,000; and dividing by 204,574 + 688 (Hickman's pupils) the ratio is $53.25359389 which is *larger* than the ratio, $53.25249767, preceding, thus disqualifying it.

67	Greenville	49.43	694	171,457	34,306.23	7,338,035.10	
66	Pembroke	49.15	360	170,763	17,694.03	7,303,728.87	
65	Upton	49.08	185	170,403	9,080.13	7,286,034.84	53.61438402
64	Greenup Co.	49.02	2,700	170,218	132,366.24	7,276,954.71	
63	Burnside	48.96	201	167,518	9,841.77	7,144,588.47	
62	Floyd Co.	48.61	10,311	167,317	501,256.06	7,134,746.70	
61	Cumberland Co.	47.54	1,529	157,006	72,690.73	6,633,490.64	
60	Middleburg	47.47	200	155,477	9,494.05	6,560,799.91	54.09674685
59	Crittenden Co.	47.36	1,400	155,277	66,308.37	6,551,305.86	
58	Stearns	47.33	467	153,877	22,104.36	6,484,997.49	
57	Prestonsburg	46.95	747	153,410	35,074.94	6,462,893.13	
56	Hazard	46.70	2,053	152,663	95,874.28	6,427,818.19	
55	Rockcastle Co.	46.42	2,059	150,610	95,586.27	6,331,943.91	54.32536958
54	Metcalfe Co.	46.30	1,674	148,551	77,507.23	6,236,357.64	
53	Pulaski Co.	46.23	5,148	146,877	237,994.72	6,158,850.41	
52	Pike Co.	46.14	14,205	141,729	655,458.48	5,920,855.69	
51	Menifee Co.	45.88	1,038	127,524	47,627.23	5,265,397.21	
50	Green Co.	45.69	1,544	126,486	70,542.14	5,217,769.98	55.87788356
49	Edmonson Co.	45.67	1,834	124,942	83,755.20	5,147,227.84	
48	Powell Co.	45.57	1,259	123,108	57,374.58	5,063,472.64	
47	Grayson Co.	45.18	2,448	121,849	110,610.99	5,006,098.06	
46	Carter Co.	45.13	4,862	119,401	219,351.49	4,895,487.07	
45	McCreary Co.	44.98	2,999	114,539	134,899.27	4,676,135.58	56.97741013
44	East Bernstadt	44.88	221	111,540	9,917.83	4,541,236.31	
43	Muhlenberg Co.	44.21	4,379	111,319	193,593.79	4,531,318.48	
42	Corbin	43.97	1,394	106,940	61,299.76	4,337,724.69	
41	Catlettsburg	43.96	1,049	105,546	46,110.15	4,276,424.93	
40	Jackson	43.92	408	104,497	17,920.82	4,230,314.78	58.18650085
39	Burkesville	43.83	375	104,089	16,435.23	4,212,393.96	
38	Monroe Co.	43.81	2,627	103,714	115,099.31	4,195,958.73	
37	Livermore	43.75	357	101,087	15,618.06	4,080,859.42	
36	Williamsburg	43.57	649	100,730	28,276.63	4,065,241.36	
35	McVeigh	43.42	332	100,081	14,415.31	4,036,964.73	58.82200147
34	Livingston Co.	43.37	1,349	99,749	58,511.80	4,022,549.42	
33	Cadiz	42.97	359	98,400	15,426.55	3,964,037.62	
32	Morgan Co.	42.96	3,098	98,041	133,103.91	3,948,611.07	
31	Irvine	42.94	803	94,945	34,477.25	3,815,507.16	

Table 2—Continued

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Rank Order	Name of School District	Net Ability Index (6 ÷ 4)	Arithmetic M. Index ADM + ADA / 2	Cum. f. of Arithmetic Mean Indices	Adjusted and Other Recurring Revenue	Cum. f. of Adjusted and Recurring Revenue	Tentative Revenue Ratios [(7 + $1,850,000) ÷ 5]
30	Laurel Co.	42.79	4,103	94,140	175,559.78	3,781,029.91	59.81548661
29	Bell Co.	42.45	5.512	90,037	234,001.84	3,605,470.13	
28	Dawson Springs	42.24	512	84,525	21,627.85	3,371,468.29	
27	Perry Co.	41.97	7,811	84,013	327,843.68	3,349,840.44	
26	Adair Co.	41.74	2,454	76,202	102,436.98	3,021,996.76	
25	Harlan Co.	41.53	12,837	73,748	533,151.72	2,919,559.78	64.67375088
24	Magoffin Co.	41.43	3,210	60,911	132,999.45	2,386,408.06	
23	Knott Co.	41.30	4,396	57,701	181,545.95	2,253,408.61	
22	Clay Co.	41.28	4,368	53,305	180,293.97	2,071,862.66	
21	Butler Co.	41.20	2,264	48,937	93,272.20	1,891,568.69	
20	Breathitt Co.	40.38	3,814	46,673	154,003.53	1,798,296.49	78.16717352
19	Elliott Co.	40.38	1,963	42,859	79,264.50	1,644,292.96	
18	Owsley Co.	39.89	1,589	40,896	63,377.73	1,565,028.46	
17	Liberty	39.70	375	39,307	14,887.61	1,501,650.73	
16	Jackson Co.	39.41	2,578	38,932	101,610.07	1,486,763.12	
15	Albany	39.37	384	36,354	15,119.73	1,385,153.05	88.99029130
14	Jenkins	39.35	2,032	35,970	79,952.36	1,370,033.32	
13	Casey Co.	39.31	2,934	33,938	115,335.24	1,290,080.96	
12	Fairview	39.30	729	31,004	28,650.47	1,174,745.72	
11	Leslie Co.	39.00	2,948	30,275	114,970.79	1,146,095.25	
10	Greensburg	38.94	451	27,327	17,563.04	1,031,124.46	105.43142167
9	Letcher Co.	38.90	6,941	26,876	269,982.65	1,013,561.42	
8	Russell Co.	38.39	2,645	19,935	101,530.70	743,578.77	
7	Wayne Co.	37.70	2,909	17,290	109,661.39	642,048.07	
6	Knox Co.	37.65	5,056	14,381	190,344.73	532,386.68	
5	Providence	37.46	837	9,325	31,353.09	342,041.95	235.0715227
4	Wolfe Co.	37.36	1,869	8,488	69,823.07	310,688.86	254.5580655
3	Clinton Co.	37.26	1,589	6,619	59,228.13	240,865.79	315.8884710
2	Whitley Co.	36.22	4,809	5,030	174,196.67	181,637.66	403.904103
1	Gatliff	33.67	221	221	7,440.99	7,440.99	8,404.710361

Table 2

Table 2 is presented herein to show the distributions of the cumulative frequencies of arithmetic mean indices, the cumulative frequencies of recurring revenue, and the respective tentative revenue ratios of the 90 districts actually participating. To interpret this Table further and facilitate calculation, these data were tabulated into step-intervals of five *except* for districts from 1 to 5 and from 86 to 90 which were broken down further into single district as separate class-intervals for illustration. For example, beginning at the bottom of the scale, the *single* index as a step-interval is indicated by the cumulative arithmetic mean index frequency in each of the *first* five districts in Item 5. Their respective cumulative frequencies of revenue accruing to these districts are shown in Item 7, and also the corresponding tentative revenue ratios (Item 8). These ratios are determined by the Formula. *Theoretically,* it works like this: If it should be assumed, that only *one* district could participate, then the sum of the recurring revenue of that district plus $1,850,000 of equalization revenue, the total revenue (State and local) back of each pupil in this one district would be $\frac{\$7,440.99 + \$1,850,000}{221}$ or $8,404,710,361. Further if only the first two districts were considered, it would be $\frac{\$181,637.66 + \$1,850,000}{5030}$ or $403,904,103, the total amount of revenue back of each of these "average" pupils in these two districts, and so on.

Similarly, by calculation, each step-interval of five was examined by applying the formula until the step-interval of 86—90 was reached. Here, again each *single* index was considered until the 90th was reached where the ratio was found to be $53.25249767, which is the total State (including Equalization) and local revenue back of each pupil in the 90 districts.

When the next district (Hickman Independent) was examined by adding its revenue of $36,862.73 to the cumulative frequencies of $9,044,076.46 plus $1,850,000, and dividing this sum by 204574 + 688 (number of pupils in that district) the revenue was $53.25359389 which is slightly larger than the $53.25249767. Therefore, $53.25249767, being the *smallest revenue ratio,* becomes the critical or minimum revenue ratio which will distribute all equalization appropriation.

Table 3

CALCULATIONS FOR THE DISTRIBUTION OF STATE EQUALIZATION FUND FOR 1946-47
$1,850,000.00

(Calculated on data obtained from annual reports 1944-45)

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7
Rank Order High–Low	Name of School District	Net Ability Index (5 ÷ 4)	A. Mean Index $\frac{(ADM + ADA)}{2}$	Adjusted and Other Recurring Revenue	Adj. Recur. Revenue + Equalization (4 X Cri. Ratio)	Equalization Apportionment to District (6 — 5)
90	Webster Co.	$53.10	1,600	$ 84,956.21	$ 85,204.00	$ 247.79
89	Middlesboro	52.98	2,423	128,362.64	129,030.80	668.16
88	Estill Co.	52.95	2,017	106,795.03	107,410.29	615.26
87	Van Lear	52.81	307	16,212.74	16,348.52	135.78
86	Monticello	52.71	438	23,086.04	23,324.59	238.55
85	Ohio Co.	52.55	3,528	185,403.11	187,874.81	2,471.70
84	Madisonville	52.47	1,557	81,699.54	82,914.14	1,214.60
83	Artemus	52.40	194	10,164.82	10,330.98	166.16
82	McLean Co.	52.17	1,551	80,908.63	82,594.62	1,685.99
81	Clay	52.10	308	16,048.06	16,401.77	353.71
80	Calloway Co.	52.02	1,826	94,988.30	97,239.06	2,250.76
79	Columbia	51.96	604	31,386.57	32,164.51	777.94
78	Benton	51.64	557	28,764.54	29,661.64	897.10
77	Princeton	51.59	1,109	57,212.27	59,057.02	1,844.75
76	Graves Co.	51.12	3,662	187,200.06	195,010.65	7,810.59
75	Bevier-Cleaton	50.60	212	10,727.44	11,289.53	562.09
74	Sebree	50.54	247	12,484.22	13,153.37	669.15
73	Taylor Co.	50.29	1,525	76,688.25	81,210.06	4,521.81
72	Harlan	50.28	1,698	85,372.63	90,422.74	5,050.11
71	Johnson Co.	50.12	3,585	179,688.43	190,910.20	11,221.77
70	Lee Co.	49.99	1,930	96,484.83	102,777.32	6,292.49
69	Allen Co.	49.76	1,680	83,602.01	89,464.20	5,862.19
68	Earlington	49.74	559	27,804.99	29,768.15	1,963.16
67	Greenville	49.43	694	34,306.23	36,957.23	2,651.00
66	Pembroke	49.15	360	17,694.03	19,170.90	1,476.87
65	Upton	49.08	185	9,080.13	9,851.71	771.58
64	Greenup Co.	49.02	2,700	132,366.24	143,781.74	11,415.50
63	Burnside	48.96	201	9,841.77	10,703.75	861.98
62	Floyd Co.	48.61	10,311	501,256.06	549,086.50	47,830.44
61	Cumberland Co.	47.54	1,529	72,690.73	81,423.07	8,732.34
60	Middleburg	47.47	200	9,494.05	10,650.50	1,156.45
59	Crittenden Co.	47.36	1,400	66,308.37	74,553.50	8,245.13
58	Stearns	47.33	467	22,104.36	24,868.92	2,764.56
57	Prestonsburg	46.95	747	35,074.94	39,779.62	4,704.68
56	Hazard	46.70	2,053	95,874.28	109,327.38	13,453.10
55	Rockcastle Co.	46.42	2,059	95,586.27	109,646.89	14,060.62
54	Metcalfe Co.	46.30	1,674	77,507.23	89,144.68	11,637.45
53	Pulsaki Co.	46.23	5,148	237,994.72	274,143.86	36,149.14
52	Pike Co.	46.14	14,205	655,458.48	756,451.72	100,993.24
51	Menifee Co.	45.88	1,038	47,627.23	55,276.09	7,648.86
50	Green Co.	45.69	1,544	70,542.14	82,221.86	11,679.72
49	Edmonson Co.	45.67	1,834	83,755.20	97,665.08	13,909.88

Table 3—Continued

Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7
Rank Order High–Low	Name of School District	Net Ability Index (5 ÷ 4)	A. Mean Index $\frac{(ADM + ADA)}{2}$	Adjusted and Other Recurring Revenue	Adj. Recur. Revenue + Equalization (4 X Cri. Ratio)	Equalization Apportionment to District (6 — 5)
48	Powell Co.	45.57	1,259	57,374.58	67,044.89	9,670.31
47	Grayson Co.	45.18	2,448	110,610.99	130.362.11	19,751.12
46	Carter Co.	45.13	4,862	219,351.49	258,913.64	39,562.15
45	McCreary Co.	44.98	2,999	134,899.27	159,704.24	24,804.97
44	East Bernstadt	44.88	221	9,917.83	11,768.80	1,850.97
43	Muhlenberg Co.	44.21	4,379	193,593.79	233,192.69	39,598.90
42	Corbin	43.97	1,394	61,299.76	74,233.98	12,934.22
41	Catlettsburg	43.96	1,049	46,110.15	55,861.87	9,751.72
40	Jackson	43.92	408	17,920.82	21,727.02	3,806.20
39	Burkesville	43.83	375	16,435.23	19,969.69	3,534.46
38	Monroe Co.	43.81	2,627	115,099.31	139,894.31	24,795.00
37	Livermore	43.75	357	15,618.06	19,011.14	3,393.08
36	Williamsburg	43.57	649	28,276.63	34,560.87	6,284.24
35	McVeigh	43.42	332	14,415.31	17,679.83	3,264.52
34	Livingston Co.	43.37	1,349	58,511.80	71,837.62	13,325.82
33	Cadiz	42.97	359	15,426.55	19,117.65	3,691.10
32	Morgan Co.	42.96	3,098	133,103.91	164,976.24	31,872.33
31	Irvine	42.94	803	34,477.25	42,761.76	8,284.51
30	Laurel Co.	42.79	4,103	175,559.78	218,495.00	42,935.22
29	Bell Co.	42.45	5,512	234,001.84	293,527.76	59,525.92
28	Dawson Springs	42.24	512	21,627.85	27,265.29	5,637.44
27	Perry Co.	41.97	7,811	327,843.68	415,955.26	88,111.58
26	Adair Co.	41.74	2,454	102,436.98	130,681.63	28,244.65
25	Harlan Co.	41.53	12,837	533,151.72	683,602.30	150,450.58
24	Magoffin Co.	41.43	3,210	132,999.45	170,940.52	37,941.07
23	Knot Co.	41.30	4,396	181,545.95	234,097.98	52,552.03
22	Clay Co.	41.28	4,368	180,293.97	232,606.91	52,312.94
21	Butler Co.	41.20	2,264	93,272.20	120,563.65	27,291.45
20	Breathitt Co.	40.38	3,814	154,003.53	203,105.03	49,101.50
19	Elliott Co.	40.38	1,963	79,264.50	104,534.65	25,270.15
18	Owsley Co.	39.89	1,589	63,377.73	84,618.22	21,240.49
17	Liberty	39.70	375	14,887.61	19,969.69	5,082.08
16	Jackson Co.	39.41	2,578	101,610.07	137,284.94	35,674.87
15	Albany	39.37	384	15,119.73	20,448.96	5,329.23
14	Jenkins	39.35	2,032	79,952.36	108,209.08	28,256.72
13	Casey Co.	39.31	2,934	115,335.24	156,242.83	40,907.59
12	Fairview	39.30	729	28,650.47	38,821.07	10,170.60
11	Leslie Co.	39.00	2,948	114,970.79	156,988.36	42,017.57
10	Greensburg	38.94	451	17,563.04	24,016.88	6,453.84
9	Letcher Co.	38.90	6,941	269,982.65	369,625.58	99,642.93
8	Russell Co.	38.39	2,645	101,530.70	140,852.86	39,322.16
7	Wayne Co.	37.70	2,909	109,661.39	154,911.52	45,250.13
6	Knox Co.	37.65	5,056	190,344.73	269,244.63	78,899.90
5	Providence	37.46	837	31,353.09	44,572.34	13,219.25
4	Wolfe Co.	37.36	1,869	69,823.07	99,528.92	29,705.85
3	Clinton Co.	37.27	1,589	59,228.13	84,618.22	25,390.09
2	Whitley Co.	36.22	4,809	174,196.67	256,091.26	81,894.59
1	Gatliff	33.67	221	7,440.99	11,768.80	4,327.81
	Totals	.....	204,574	$9,044,076.46	$10,894,076.46	$1,850,000.00

Table 3 is the results of the application of both formulae to the 90 qualifying districts. As previously stated, all district net-ability indices were ranked. They gave a spread from $33.67 for Gatliff Independent to $53.10 for Webster County, as indicated in Item 3. This Item shows the amount of local, per capita and other State aid (not including equalization revenue) back of each pupil represented in the mean average of membership and attendance in each of the 90 districts. Item 4 gives the number of such pupils, and by dividing Item 5 by Item 4, these net ability indices were obtained, thus, $84,856.21 divided by 1600 pupils gives Webster County a net-ability index of $53.10 or about 15¢ less than the Critical Revenue Ratio.

Item 6 in Table 3, is determined by multiplying the Critical Revenue Ratio, $53.25249767, by the arithmetic mean index (Item 4) of each district. For Webster County, this equals $85,204, which is the amount required to guarantee a minimum of approximately $53.25 for each pupil. But Webster County has $84,956.21 in recurring revenue, and therefore the state has apportioned the difference which is $247.79 from the equalization fund. This procedure is a simple matter when once the critical revenue ratio is determined. Therefore, Item 7 shows the amount of equalization money apportioned to each of the 90 districts that qualified.

Table 4

SHOWING THE AMOUNT OF LOCAL ADJUSTED RECURRING, PER CAPITA, AND EQUALIZATION REVENUES PER PUPIL REPRESENTED IN THE AVERAGE OF ADM & ADA IN EACH DISTRICT

Item 1	Item 2	Item 3	Item 4
School District	Local Adjusted Recurring Revenue	State Per Capita Revenue	Equalization Revenue
Webster Co.	$24.70	$28.40	$ 0.15
Middlesboro	26.35	26.63	0.27
Estill Co.	16.85	36.10	0.30
Van Lear	21.54	31.27	0.44
Monticello	24.98	27.73	0.54
Ohio Co.	23.71	28.84	0.70
Madisonville	30.27	22.20	0.78
Artemus	27.51	24.89	0.85
McLean Co.	24.91	27.26	1.08
Clay	21.56	30.54	1.15
Calloway Co.	21.53	30.49	1.23
Columbia	35.08	16.88	1.29
Benton	30.28	21.36	1.61
Princeton	26.76	24.83	1.66
Graves Co.	23.44	27.68	2.13
Bevier-Cleaton	15.90	34.70	2.65
Sebree	27.89	22.65	2.71
Taylor Co.	18.37	31.92	2.96
Harlan	25.15	25.13	2.97
Johnson Co.	15.20	34.92	3.13
Lee Co.	17.55	32.44	3.26
Allen Co.	18.72	31.04	3.49
Earlington	25.44	24.30	3.51
Greenville	31.07	18.36	3.82
Pembroke	31.64	17.51	4.10
Upton	32.72	16.36	4.17
Greenup Co.	21.06	27.96	4.23
Burnside	25.90	23.06	4.29
Floyd Co.	19.94	28.67	4.64
Cumberland Co.	13.74	33.80	5.71
Middleburg	28.02	19.45	5.78
Crittenden Co.	17.04	30.32	5.89
Stearns	21.73	25.60	5.92
Prestonsburg	24.69	22.26	6.30
Hazard	22.43	24.27	6.55
Rockcastle Co.	9.63	36.79	6.83
Metcalfe Co.	15.19	31.11	6.95
Pulaski Co.	15.34	30.89	7.02
Pike Co.	16.33	29.81	7.11
Menifee Co.	14.28	31.60	7.37
Green Co.	16.00	29.69	7.56
Edmonson Co.	13.62	32.05	7.58
Powell Co.	14.59	30.98	7.68
Grayson Co.	16.03	29.15	8.07
Carter Co.	15.96	29.17	8.12
McCreary Co.	12.30	32.68	8.27
East Bernstadt	16.10	28.78	8.37

Table 4—Continued

Item 1	Item 2	Item 3	Item 4
School District	Local Adjusted Recurring Revenue	State Per Capita Revenue	Equalization Revenue
Muhlenberg Co.	$12.88	$31.33	$ 9.04
Corbin	17.75	26.22	9.28
Catlettsburg	22.46	21.50	9.29
Jackson	17.72	26.30	9.33
Burkesville	24.37	19.46	9.42
Monroe Co.	12.26	31.55	9.44
Livermore	20.41	23.34	9.50
Williamsburg	20.63	22.94	9.68
McVeigh	12.78	30.64	9.83
Livingston Co.	18.71	24.66	9.88
Cadiz	21.57	21.40	10.28
Morgan Co.	11.41	31.55	10.29
Irvine	22.40	20.54	10.31
Laurel Co.	12.04	30.75	10.46
Bell Co.	11.73	30.72	10.80
Dawson Springs	18.59	23.65	11.01
Perry Co.	10.74	31.23	11.28
Adair Co.	9.37	32.37	11.51
Harlan Co.	12.06	29.47	11.72
Magoffin Co.	9.68	31.75	11.82
Knott Co.	13.13	28.17	11.95
Clay Co.	8.74	32.54	11.97
Butler Co.	11.79	29.41	12.05
Breathitt Co.	8.77	31.61	12.87
Elliott Co.	9.67	30.71	12.87
Owsley Co.	8.78	31.11	13.36
Liberty	21.36	18.34	13.55
Jackson Co.	8.84	30.57	13.84
Albany	15.37	24.00	13.88
Jenkins	14.23	25.12	13.90
Casey Co.	5.49	33.82	13.94
Fairview	8.45	30.85	13.95
Leslie Co.	8.17	30.83	14.25
Greensburg	16.96	21.98	14.31
Letcher Co.	12.08	26.82	14.35
Russell Co.	10.38	28.01	14.86
Wayne	8.94	28.76	15.55
Knox Co.	10.25	27.40	15.60
Providence	14.82	22.64	15.79
Wolfe Co.	6.17	31.19	15.89
Clinton Co.	7.44	29.83	15.98
Whitley Co.	8.67	27.55	17.03
Gatliff	4.97	28.70	19.58

Table 4 is a most interesting array of data. Item 1 shows the rank-order of county and independent districts participating which was mathematically determined when the net-ability indices were calculated (See Table 2, Item 3). Item 2 is the amount of local recurring revenue back of each pupil-unit. Item 3 is the amount of *per capita* back of each of these pupil-units, and Item 4 is the amount of equalization the State apportions per each of these pupils. To illustrate, Webster County placed $24.70 behind each pupil, the State gave $28.40 in per capita money, and also made up the difference of 15¢ per pupil-unit to guarantee the $53.25 necessary to meet the total required to place this minimum back of the 204,574 pupils in these 90 participating districts.

Further, Columbia Independent District placed $35.08 in local recurring revenue back of each of its pupils in membership and in attendance, which was the largest amount so placed by any of these 90 districts. The State put up the remainder of $16.88 in per capita and $1.29 in equalization revenue. The smallest amount of local recurring revenue was put up by Gatliff Independent, which was only $4.97 per pupil. The remainder of the $53.25 (which was $48.28) was contributed by the State in per capita and equalization.

It is interesting to note that thirty-six of these ninety districts contribute in local revenue, less than $15 or 28% of the $53.25 per pupil in membership and attendance. Of this group of thirty-six districts, sixteen contribute less than $10 or 18% per pupil. These districts are as follows:

1. Districts whose local contributions are from $10.25 to $14.82 per child.

Bell County	$11.73	McCreary County	$12.30
Butler County	11.79	McVeigh Independent	12.78
Cumberland County	13.74	Menifee County	14.28
Edmonson County	13.62	Monroe County	12.26
Harlan County	12.06	Morgan County	11.41
Jenkins Independent	14.23	Muhlenberg County	12.88
Knott County	13.13	Perry County	10.74
Knox County	10.25	Powell County	14.59
Laurel County	12.04	Providence Ind.	14.82
Letcher County	12.08	Russell County	10.38

2. Districts whose local contributions are from $4.97 to $9.68.

Adair County	$9.37	Jackson County	$8.84
Breathitt County	8.77	Leslie County	8.17
Casey County	5.49	Magoffin County	9.68

Clay County	8.74	Owsley County	8.78
Clinton County	7.44	Rockcastle County	9.63
Elliott County	9.67	Wayne County	8.94
Fairview Independent	8.45	Whitley County	8.67
Gatliff Independent	4.97	Wolfe County	6.17

FORM USED IN ASSEMBLING DATA FROM ANNUAL FINANCIAL REPORT

Data Used as Bases in Calculating and Distributing Equalization Fund For 194-—194-

(From records and reports as of June 30, immediately preceding "study")

1. School District ..... County.....
2. Adjusted Recurring Revenue for school year 194-—194-

(a) State per Capita	Code 1000	$.....
(b) Other State Aid (Exclude Equalization)	Code 1050	.....
(c) Property Tax (Include delinquent)	Code 1100	.....
(d) Bank Shares (Include delinquent)	Code 1110	.....
(e) Franchises (Include delinquent)	Code 1120	.....
(f) Tuition Received	Code 1200	.....
(g) Other Revenue[1]	Code 1300	.....
(h) Other non-revenue sources[2]	Code 1500	.....

3. Total Adjusted Recurring Revenue $.....
4. Less Transferred Tuition Code 661 .....
5. Total Net Ability for Calculation of Index $.....
6. ADM[3]..... ADA[4]..... AMI[5].....
7. Net Ability Index .....(Item 5 divided by AMI in Item 6)

THE GRAPH OF EQUALIZATION REVENUE

The cumulative frequency graph, page 574–75, is another way of showing how the tentative revenue ratios are calculated, and also of representing the data in Table 3, by means of a diagram. Here, by using the net-ability indices (Item 3) as the ordinate or Y-axis and

[1] Moneys placed in this code must be itemized in writing as to their sources before the exact amount of recurring revenue can be determined which in turn may effect a district's eligibility.

[2] Ordinarily this code (1500) would not contain recurring revenue but sometimes inadvertently perhaps such revenue is miscoded here, and therefore a "breakdown" as to sources, is also required.

[3] Average daily membership.

[4] Average daily attendance.

[5] Arithmetic mean index representing the average number of pupils in average daily membership and average daily attendance.

the tentative revenue ratios (Item 8) as the abscissa or X-axis, thus forming the first quadrant, the formula for determining the minimum or critical revenue ratio is illustrated. For the purpose of exemplifying how this graph is formed, the tentative ratios are calculated for each of the first five districts at the bottom of the scale (Item 8). These tentative ratios become points at the junctures of the coordinate axes, or they may be visualized as a "moving point" up the scale to the point of tangent (See Theorem 2, page 570). *Theoretically,* each of the 90 districts would be considered as have been each of these first five districts. However, by inspection, it is readily seen that such detailed calculations are neither necessary nor desirable.

By trial, it can be estimated where to begin in Columns 3 and 8 to use these cumulative frequencies for accurate calculations of the tentative revenue ratios, until the true or critical ratio is determined which will be the *minimum.* Note the last five districts participating: The ratios of these last five districts were calculated; and as a check the next succeeding districts were considered. The graph inset showing an enlarged section of the tangent area is displayed to depict what takes place mathematically. This area treats eleven districts—five below and five above the point of tangency of the parabola. This tangent point is the minimum ratio of $53.25249767 and is the true or critical ratio.

THE PURPOSE OF EQUALIZATION

The purpose of the equalization fund is to guarantee a more adequate foundation program of education to every pupil in the State. But this cannot be done unless a more uniform and equitable minimum local tax effort is provided for state school support. Tax effort must be defined in terms not only of levy rates, but also in terms of a true and fair assessed valuation of property, and a high percentage of tax collections. Only then, can a sound basis for an economic index of tax-paying ability be established and a minimum program of education be guaranteed, provided state funds can be distributed on bases other than per capita.

After these conditions have been met there is still left a problem of the State's distribution of such equalization funds. Various methods are used in different parts of the Nation, and may be summarized under the following five plans.

First. By *matching funds* with local districts, the difference in revenue between the high and low expenditure groups is increased. This is not equalization of educational opportunities.

Second. By *giving equally* to all districts on a per pupil ratio basis, the unequal margin of revenue between the high and low expenditure groups is kept about the same. Again this does not equalize, but may tend to lessen the percentage gap between the upper and lower groups.

Third. By *taking part* of the revenue from the high expenditure group and giving it to the low group, will approach equalization; but this is unfair to the upper expenditure group.

Fourth. By *giving all* of the equalization appropriation to the low group and prorating a state-wide per capita revenue to all groups on a per pupil bases, will still lessen the difference between these high and low expenditure groups.

Fifth. By *giving some additional revenue* to all groups, but *giving more* to the low group, the margin of difference may still be decreased.

Plan *Four* is now being used in this State. But a combination of plans Four and Five may prove a better plan, if equalization appropriations were sufficient whereby the formula used herein, could be applied to all districts. Further, if the State Constitution would permit, the Equalization Fund should be much larger and an out-right appropriation should be made, rather than as a percentage of the census per capita revenue as is now being done.

HOW EQUALIZATION FUNDS MAY BE USED

Section 157.051 states that the equalization fund has been "appropriated by the General Assembly for the specific purpose of equalizing education service in the less able local school districts of Kentucky." This "Education Service" is construed by the State Department of Education to mean the provision for immediate improvements, and necessary aids and facilities to develop a better instructional program of education for the *current* school year.

Such improvements, aids and facilities are:

1. Increasing teachers' salaries over those of the previous year.
2. Employing additional teachers to relieve over-crowded conditions.
3. Employing helping teachers to aid in evaluating, coordinating, supervising and improving classroom instruction.
4. Increasing the school terms in county and independent districts.

5. Creating and extending library service through the purchase of suitable books and essential supplies.
6. Increasing instructional materials and supplies to aid in the teaching processes during the current year.
7. Improving the total environment of instruction by removing insanitary conditions from the classrooms, the school buildings and school grounds.
8. Adjusting miscellaneous hampering conditions peculiar to the locale. This means that the equalization funds should be used as *current expenditures* for temporary and emergency purposes to facilitate the educational services in the school system, and should not be applied to fixed charges, capital outlay and debt service.