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Contemporary efforts to adjust state finance plans for differences in teacher salaries are, at best, premature.

Teachers' Salaries and Finance Equity

by C. Thomas Holmes and Kenneth M. Matthews

Finding appropriate ways of adjusting state finance plans to compensate for differences in the costs of educational resources has been a persistent problem. Because differences in the salaries of teachers are considered to be the dominant source of differences among districts in the costs of resources, contemporary research focuses on ways of determining the cost of teachers. This article will briefly examine prominent efforts to arrive at teacher cost indices to illustrate the complexity of the problem and identify major areas of disagreement among researchers. Salary determination practices will be examined and implications for finance equity will be discussed.

The Cost of Teachers

Local costs of living, supply of and demand for teachers, and wages in local industries have been advocated as bases for deriving teacher cost indices. Although each of these approaches appears to be logical, none has proven adequate.

Costs of Living

The initial cost adjustments in Florida were based on differences among districts in the local costs of living.¹ Fox charged that this method was inadequate because "... it focuses on the cost of living within districts rather than the cost of living of teachers It focuses on point of employment, not point of expenditure, and these two points do not coincide this technique seems to be a device to channel funds into districts which contain wealthy residents."² Matthews and Brown examined changes in Consumer Price Indices and changes in beginning teachers' salaries in eighteen standard metropolitan statistical areas and found relative change in Consumer Price Indices to be "... an unreliable indicator of concurrent changes in beginning teacher salaries and an ineffi-

cient predictor of future salaries."³ Thus, even though adjustments based on local costs of living have strong emotional appeal, the empirical base supporting them has not been established.

Supply and Demand

Supply and demand approaches are based on the assumption that teachers' salaries reflect the strength of the desire of local officials to employ quality teachers and affect the supply of teachers. The arguments against the use of the economic concept of supply and demand are numerous.

A major argument against the use of supply and demand approaches is that the supply of teachers is not highly elastic. Matthews and Holmes asserted that the supply of teachers that may be assumed to be mobile is dominated by those entering the profession.⁴ If this assertion is correct, then supply and demand approaches would logically be limited to beginning teachers. If not, the error may be substantial. According to Stiefel and Berne, the use of beginning teachers' salaries results in teacher cost indices that are one-third to one-half as large as when average teachers' salaries are used.⁵

A second argument against supply and demand approaches is the disagreement among researchers as to what data are appropriate proxies for supply and demand factors. For example, Matthews and Brown challenged Chambers' use of average daily pupil attendance, the cost of land and housing, the degree of urbanization, population density, the population of the county, and the distance of the county from the nearest central city as proxies for supply and demand factors.⁶ Wentzler argued that district family income level could be classified as a district amenity or a district disamenity.⁷ As an amenity, higher income areas would presumably attract applicants. As a disamenity, higher income areas are assumed to reduce the number of teaching applicants. (The same logic holds for the cost of land and housing.) Wentzler also questioned the use of pupil counts in computing teacher cost indices.⁸

Local Industry Wages

Gensemer reasoned that high wages in local industries have a negative effect on the supply of teachers.⁹ The direct application of his logic to the computation of teacher cost indices is questionable because of his finding that the differential in classified personnel salaries between high wage areas and low wage areas was more than twice as great as for the salaries of certificated personnel.¹⁰ Although he used per capita personal income instead of local industrial wages, Matthews found a negative relationship between changes in local income levels and changes in beginning teachers' salaries in metropolitan areas.¹¹ An alternate to Gensemer's logic is that high local industrial wages may increase the supply of teacher applicants because of the opportunities for employment for family members who are not trained as teachers.

As pointed out in the brief discussion above, contemporary efforts to compute teacher cost indices have not been universally accepted.¹² Part of the reason for the level of disagreement that exists can be linked to the absence of credible teacher salary determination theory. An examination of recent data supports our contention that adjustments to state finance plans based on differences in teachers' salaries are, at best, premature.

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Salary Determination Practices

The importance attached by superintendents and school board members to the salaries paid teachers in other districts is often clearly demonstrated when local officials choose to study their compensatory systems. A recent request for proposals from a large Louisiana school system included the following requirement:

"A review of salary data pertinent to the development of a salary compensation program must be conducted as a basis for understanding the relationships between employee salaries within the district and . . . similar salaries paid in the Standard Metropolitan Statistical Area (SMSA) within which the district is located, and other similar school districts' salaries."¹³

A Georgia school system was even more specific naming the districts with which it wanted to be compared, d.h.:

"The consultant will survey the 13 school districts in the Metro . . . area to obtain comparative data on salaries and supplements. (These systems are . . .)"¹⁴

Because school systems are apparently interested in the salaries being paid in neighboring districts, a metropolitan area was selected for a case study.

Salary schedules were obtained from thirteen school districts within one Standard Metropolitan Statistical Area (SMSA). These data were subsequently plotted to show relationships among the salaries of teachers in the selected districts. Figure 1 represents the annual salaries paid by the selected districts to teachers holding master's degree certification.

As can readily be seen from the figure, the thirteen districts have divided themselves into three distinct groups with respect to the salaries paid to teachers. We have chosen to label the higher paying group, composed of districts 1, 2, and 3, the "competitive elite." The middle group or "normalizers" consists of districts 4 through 9 and the bottom group or "laggards" is composed of districts 10 through 13.

The Competitive Elite

If the curves representing salaries paid in districts 1, 2, and 3 are studied closely, evidence of policy decisions in the districts become evident. The three districts have salary schedules, based on different philosophies, that allow each superintendent to claim the highest salaries in the area.¹⁵

Central office personnel in District 3 have designed a schedule in which all step raises are given in the first ten years of service. From the time a teacher is tenured through thirteen years of experience, the superintendent in this district can claim to be paying the highest salaries. Obviously an attempt is being made to attract the best young teachers in the market. Local officials apparently believe the relatively high salaries being paid to younger teachers will discourage them from relocating, and that after fourteen years of service within the district, the teachers are not likely to leave the system before retirement.

Officials in District 2 have chosen to give somewhat smaller increases per year of experience than District 3 but to give credit for more years of experience. It appears that the leaders in this district have decided to attempt to keep their more experienced teachers and to vie for the services of other experienced teachers. The result of this decision is that the superintendent of District 2 can claim the highest salaries in the metropolitan area for teachers with fourteen through twenty-six years of experience.

Officials in District 1 have made a policy decision to reward extended service within the system. This decision is reflected in the salary curve in Figure 1, as well as in official policies. (e.g., District 1 will only award one-half credit for any teaching or administrative experience prior to being employed in District 1.) After twenty-four years of experience, the salaries in District 1 catch up to the salaries being paid in District 2. After twenty-seven years of experience the teachers' salaries in District 2 are higher than in any other district within the SMSA.

The Normalizers

The largest group of districts is that where salaries are close to, or at, the mean salaries in the area. For various reasons (they don't believe they need to, they don't believe they can afford to, and so forth) officials in these districts have made policy decisions not to compete with the competitive elite in terms of teachers' salaries. In fact, in one of these districts the school board has adopted a policy that it will pay salaries at the average for the area. On close inspection, the six salary curves representing these districts reveal the same kind of status maneuvering within this group as was observed within the competitive elite.

The Laggards

This group of four districts is composed of those where salaries for the more experienced teachers fall substantially below those of the competitive elite and normalizers. It is interesting to note, however, that even these districts offer salaries that are reasonably competitive for beginning teachers with master's degrees. Thus it appears that competition for beginning teachers is stronger than competition for the services of highly experienced teachers.

Revenue Potential

In an earlier study of the salaries of beginning teachers with bachelor's degrees in Florida's sixty-seven school districts, Matthews and Holmes found that the revenue-generating potential per pupil of local districts had a significant effect on local salaries. Those with salaries above that predicted from the mean beginning salaries in contiguous districts were significantly more likely to have greater revenue potential than those whose salaries were lower than predicted.¹⁶

In an attempt to replicate the results of the Florida study, Spearman Rho correlation coefficients were calculated with the data for the thirteen districts. The districts were ranked in order from the highest nonexempt assessed property valuation per pupil in average daily attendance to the lowest.¹⁷ In addition, the districts were ranked on the salaries they were paying teachers at each of four certification levels, first with no years of experience and again at the maximum number of years of experience. The results of the correlations between rank in property wealth per pupil and salaries are reported in Table 1.

At the maximum experience end of the salary schedules, there is a high positive relationship between teachers' salaries and revenue potential. In fact, approximately sixty-five percent of the variation in the teachers' salaries is associated with the variation in assessed valuation per pupil in average daily attendance. Salaries paid beginning teachers with a certificate based on a bachelor's degree, however, correlate only moderately high with assessed valuation.

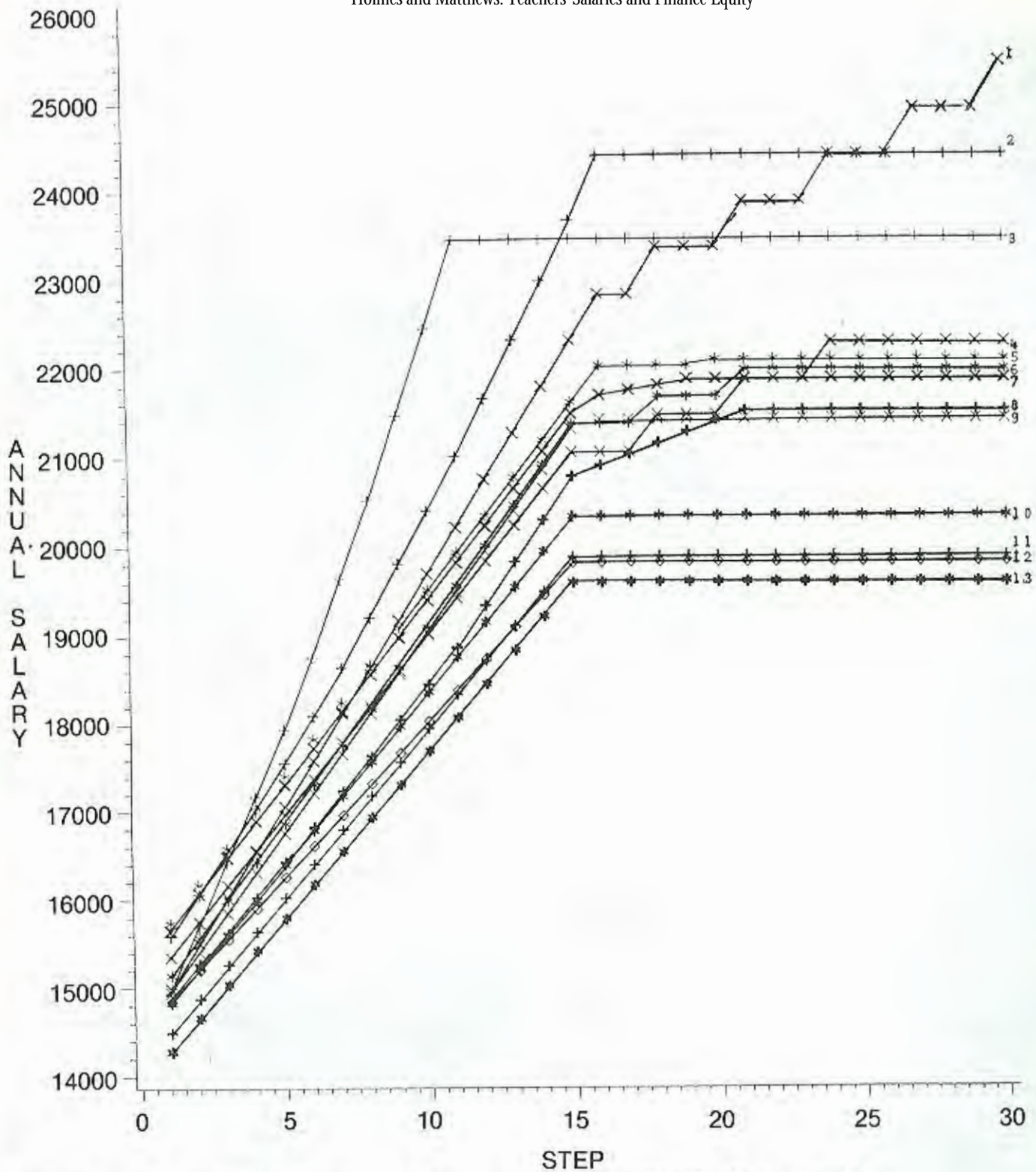


Figure 1. Salaries Paid Teachers with Master's Degrees in 13 Districts Within One Metropolitan Area.

It appears that local officials feel a need to compete as much as possible for beginning teachers and this competition is only somewhat moderated by available revenue. Toward the higher end of the scales, the amount of revenue moderates the competition more and seems to become a highly significant determinant of teachers' salaries.

Implications for Equity

As stated earlier, the evidence indicates that contemporary efforts to adjust state finance plans for differences in the salaries paid teachers are, at best, premature. If, as demonstrated in the Florida study, districts with higher revenue-generating potential pay higher salaries, then giving districts with high teachers' salaries more revenue ap-

appears to be illogical. If given more revenue, the data indicate districts would pay teachers higher salaries. Subsequent studies of the cost of teachers would show those districts currently having high teacher cost indices to have even higher indices following the receipt of additional revenue. Thus, a cyclic closed system would be in operation. Higher salaries generate more revenue and greater revenue generates higher salaries which generate more revenue and so on.

Finance equity dictates that differences in the quality of education among districts is not to be a function of the wealth of the districts. With differences in the cost of educational resources dominated by differences in the salaries of teachers and the salaries of teachers strongly affected by district wealth, cost adjustments can, and are likely to, contribute to a reduction in finance equity.

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¹Florida has recently moved from its initial price level indices toward a Cost of Education Index based on the techniques reported by Jay G. Chambers in "Development of a Cost of Education Index: Some Empirical Estimates and Policy Issues," *Journal of Education Finance*, 5 (Winter 1980). See Analysis and Development of a Cost of Education Index for Use in the Florida Education Finance Program, Tallahassee, Florida: Florida Department of Education, SRI Project 1161, 1979-1980.

²James N. Fox, "Cost-of-Living Adjustments: Right Intent, Wrong Technique," *Phi Delta Kappan*, 56 (April 1975): 548-549.

³Kenneth M. Matthews and Carvin L. Brown, "Determinants of Metropolitan Teachers' Salaries: Implications for School Finance," *Journal of Education Finance*, 5 (Winter 1980): 286.

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⁵Leanna Stiefel and Robert Berne, "Price Indexes for Teachers in Michigan," *Selected Papers in School Finance*, (Washington, D.C.: National Institute of Education), 1981: 184.

⁶Kenneth M. Matthews and Carvin L. Brown, "Response to: The Development of a Cost of Living Index: Some Empirical Estimates and Policy Issues," *Journal of Education Finance*, 6 (Fall 1980): 236-237.

⁷Nancy Wentzer, "Adjusting for Input Price Differences Across School Districts: A Comparison of Alternative Techniques," *Journal of Education Finance*, 6 (Winter 1981): 313.

⁸*Ibid.*, 326.

⁹Bruce L. Gensemer, "School District Responses to Variations in the Cost of Purchasing Resources," *Journal of Education Finance*, 7 (Fall 1981): 138.

¹⁰*Ibid.*, 149.

¹¹Kenneth M. Matthews, "An Exploratory Study of Changes in Economic Conditions and Teacher Salaries in Metropolitan Areas," (Paper presented to the American Education Finance Association, March 1980): 6-7.

¹²The issues involved are discussed in depth in "Implications of Regional Cost Adjustments" by Kenneth M. Matthews and C. Thomas Holmes (paper presented to the American Education Finance Association, March 1983) and "Implications of Regional Cost Adjustments to School Finance Plans" by Kenneth M. Matthews and C. Thomas Holmes (paper submitted for publication).

¹³Jefferson Parish School Board, "Request for Proposals for Conducting a Comprehensive Salary and Job Classification Study," August 18, 1982, (mimeographed).

¹⁴Rockdale County School Board, "Request for Proposals for Conducting a Comprehensive Wage and Salary Study," November, 1982, (mimeographed).

¹⁵The authors have heard officials from each of these three districts claim that their respective districts "pay the highest salaries."

¹⁶Matthews and Holmes, "Implications," 1983.

¹⁷Rank order of the school districts on assessed property valuation per pupil in average daily attendance was obtained from the Georgia School Finance Project, Michael W. LaMorte, director.

Table 1. Correlations Between Rank in Teacher Salary Paid and Rank in Assessed Valuation per Average Daily Attendance.

	B.S.	M.Ed.	Ed.S.	Ed.D.
0 years experience	.51	.72	*	*
maximum years experience	.78	.82	.78	.81

*The state does not certify teachers at these levels until they have three years of experience.