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AUTHOR Matthews, Kenneth M.; And Others
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ABSTRACT

Findings of a study that examined the relationship between Pennsylvania teachers' salaries and local wealth are presented in this paper. Statistical analyses of 491 Pennsylvania school districts involved regression, t tests, and chi square. Findings indicate that two factors had a statistically significant impact on local teacher salaries: (1) the salaries paid to teachers in contiguous districts, and (2) local wealth. However, higher property wealth or higher income per pupil alone had no significant effect on local teacher salaries. Teacher salaries appear to be affected by a balance of several factors: regional markets (salaries paid in contiguous districts); the local tax base (property wealth per pupil); tax paying ability (personal income per pupil); and the willingness of local boards to pay higher salaries. Two figures and three tables are included. (Contains 7 references.) (LMI)

LOCAL WEALTH AND TEACHERS' SALARIES

IN PENNSYLVANIA

Kenneth M. Matthews

A. Dwight Watt

Carvin L. Brown

John Dayton

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LOCAL WEALTH AND TEACHERS' SALARIES IN PENNSYLVANIA

Background for the Study

Research on the influence of local wealth on teacher salaries has a long history. This study is the latest in a line of inquiry investigating the effects of resource cost differences on finance equity for public schools.

Matthews's initially studied the effect of resource cost differences including the "cost" of teachers on finance equity in Georgia (Matthews, 1978). In his 1978 study, Matthews found that differences among districts in the salaries paid to beginning teachers were associated with more than 88% of the differences among districts in composite resource cost indices (p. 98). He also found that more than 52% of the differences among districts in beginning teacher salaries were associated with differences in per capita personal income (p. 112).

Matthews (1980) examined the relationship between changes in per capita personal income and changes in beginning teacher salaries in 18 standard metropolitan statistical areas of the United States. Over a six year period he found there was a negative correlation between relative changes in per capita personal income and relative changes in beginning teacher salaries. This finding was highlighted by the fact that the metropolitan area with the largest increase in teachers salaries had the smallest increase in per capita personal income (pp. 7-

8).

Matthews and Brown (1980) reported that the responses of local superintendents in the 435 districts included in the 18 metropolitan areas may explain the negative relationship between changes in salaries and local income. Based on the superintendents' responses, Matthews and Brown found that "the amount of money available was considered the most important" of three factors considered in setting teacher salaries (p. 287).

Because the superintendents in the 18 metropolitan areas examined reported that salaries in other districts ranked second in importance, Matthews and Holmes (1982) examined the relationship between beginning teacher salaries in individual districts and those paid in neighboring districts in Florida. They found that competition among districts was dynamic rather than static. Over a period of seven years only one district paid higher beginning teacher salaries than all of the neighboring districts each year. During this same time period (1973-1980), 30 of Florida's 67 school districts paid salaries higher than all of their neighbors at least one year (pp. 349-350).

In a follow-up report, Matthews and Holmes (1984) examined the correlations between salaries in contiguous districts and individual districts in Florida. They found correlations ranging between .53 and .70 for the seven years examined (page 77). When they examined the tax revenue potentials of districts paying salaries higher than predicted from salaries in contiguous districts, they found that revenue potentials in these districts were significantly higher than in those districts paying teacher

less than predicted (p. 85). They advanced the following proposition to explain their finding: "If districts have greater revenue generating potential than the contiguous districts, they will tend to pay higher teachers' salaries than those districts that adjoin them" (page 84).

Watt (1989) conducted a study of the relationship between local property wealth and teacher salaries in contiguous districts and the salaries paid to teachers in individual school districts in Georgia. Watt, Matthews, and Holmes (1990) reported correlations ranging from .44 to .58 between local salaries and mean salaries in contiguous districts. Using mean salaries of contiguous districts to predict local salaries, they compared the property wealth of districts paying more than predicted with the property wealth of districts paying less than predicted. They found, that for each of eight different salary points those districts paying higher than predicted had significantly higher property wealth per child than those paying less than predicted (p. 6).

Kirby, Holmes, Matthews, and Watt (1991) examined alternative models for predicting teacher salaries in Georgia. In response to a questionnaire sent to local superintendents and chair persons of local boards of education, both groups ranked the local tax base and salaries in contiguous districts as being of more importance than either local costs of living or wages paid to other local groups (p. 6).

Kirby et al., replicated the findings of Watt (1989). However, they also found that districts with both higher property

wealth per pupil and higher per capita personal income than the means of the contiguous districts were more likely to pay teacher salaries that were higher than the mean of their neighbors than those districts with only higher property wealth or higher income levels than the means of the contiguous districts. They advanced the following propositions: (a) "If districts have either lower property wealth or lower per capital personal income than contiguous districts, they will pay teachers less than those districts that adjoin them" and (b) "If districts have both greater tax paying ability and greater willingness to support education than neighboring districts, they will tend to pay teachers higher salaries than contiguous districts" (p. 14).

The Pennsylvania Study

Hypotheses

The study focusing on local wealth and teachers' salaries in Pennsylvania addressed three hypotheses:

1. Is there a statistically significant relationship between the teachers' salaries paid in individual districts and the means of the salaries paid in contiguous districts for teachers with comparable training and experience?

2. Do those districts that pay higher teacher salaries than predicted from regression lines derived from the means of the salaries paid in contiguous districts for teachers with comparable training and experience have higher property wealth per pupil and higher personal income per pupil than districts paying teacher salaries lower than predicted from the regression lines?

3. Do those districts that have higher property wealth per pupil and higher personal income per pupil than the means of contiguous districts pay higher teachers' salaries than the means of the salaries paid in contiguous districts for teachers with comparable training and experience?

Procedures

The population of this study consisted of 491 districts located in the state of Pennsylvania for whom adequate data could be collected. The procedures used in analyzing the data are listed below in chronological order:

1. Teacher salaries, property wealth per pupil, and personal income per pupil for individual districts and the means of these variables for contiguous districts were identified.

2. Regression equations and correlations between salaries in contiguous districts and means for contiguous districts were computed.

3. The predicted salaries for each of the individual districts were calculated from these regression equations.

4. *t* tests were performed on the property wealth per pupil and the personal income per pupil between those districts paying teachers' salaries higher than predicted from the regression equations and those paying less than predicted.

5. Chi square tests of significance were calculated for the differences in the distributions of salaries above or below the mean salaries of contiguous districts between districts with higher property wealth and higher personal income per pupil than the means of their neighbors and those districts with either

lower property wealth per pupil or lower personal income per pupil than the means of their neighbors.

Findings

One. The regression of mean beginning salaries of contiguous districts on beginning salaries of individual districts showed a statistically significant positive correlation ($r = .4398$, $p < .005$) between the two variables (see Figure 1). This finding is further supported by a finding of a statistically significant positive correlation ($r = .8770$, $p < .005$) between mean average teacher salaries of contiguous districts and average salaries of individual districts (see Figure 2).

Two. t tests of differences in property wealth per pupil and personal income per pupil between districts paying teachers more than predicted from the regression equations and those paying teachers less than predicted were statistically significant ($p < .005$). For districts paying beginning teachers salaries higher than predicted the mean property wealth per pupil was $122,000 and the mean personal income per pupil was $69,533. In contrast, for districts paying beginning teachers less than predicted, the mean property wealth per pupil was $94,774 and the mean personal income per pupil was $54,437. This finding is also supported by statistically significant ($p < .005$) differences in mean property wealth per pupil and mean personal income per pupil between those districts having average teacher salaries higher than predicted and those having average teacher salaries lower than predicted.

Figure 1. Starting Salaries

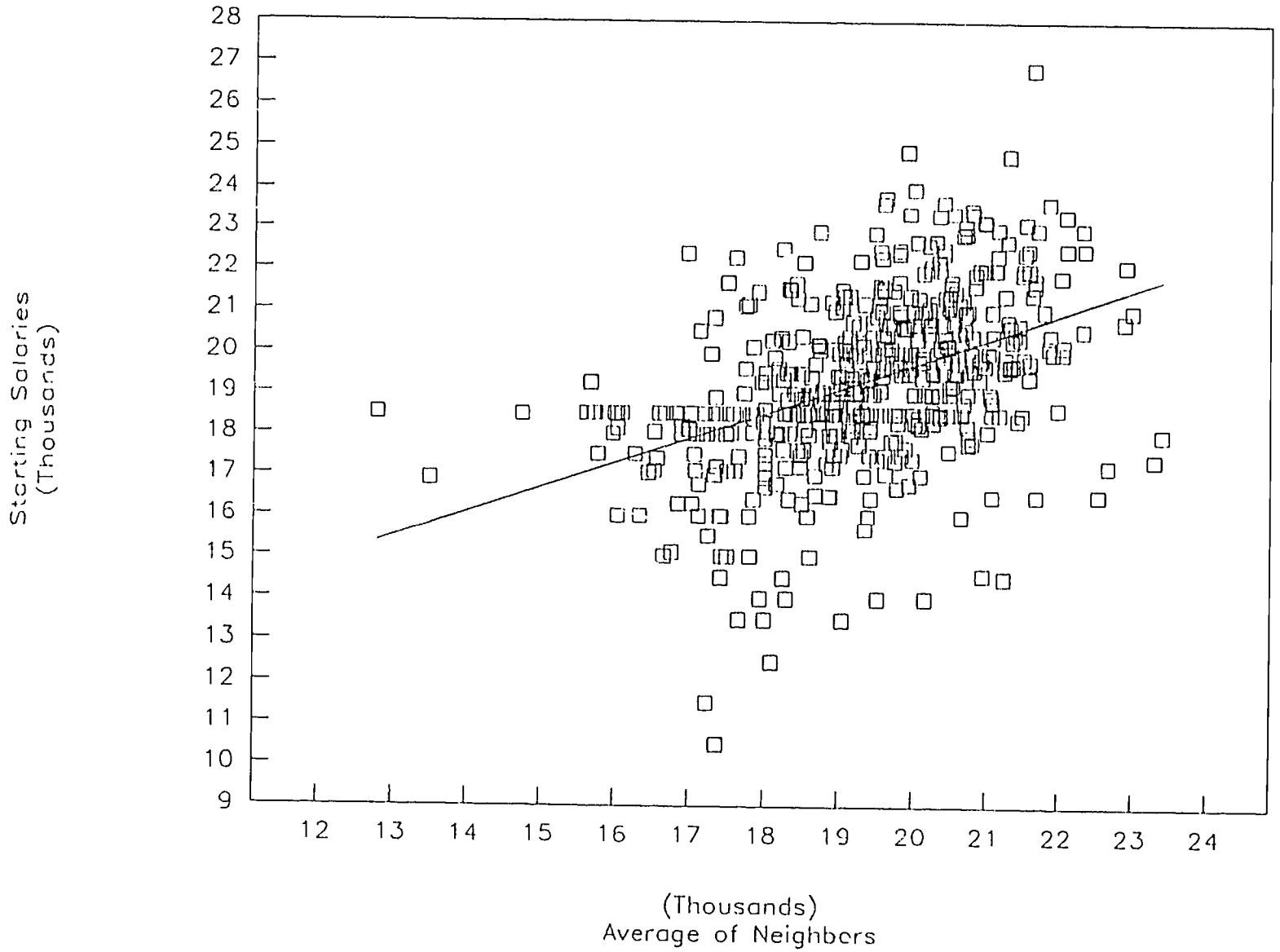
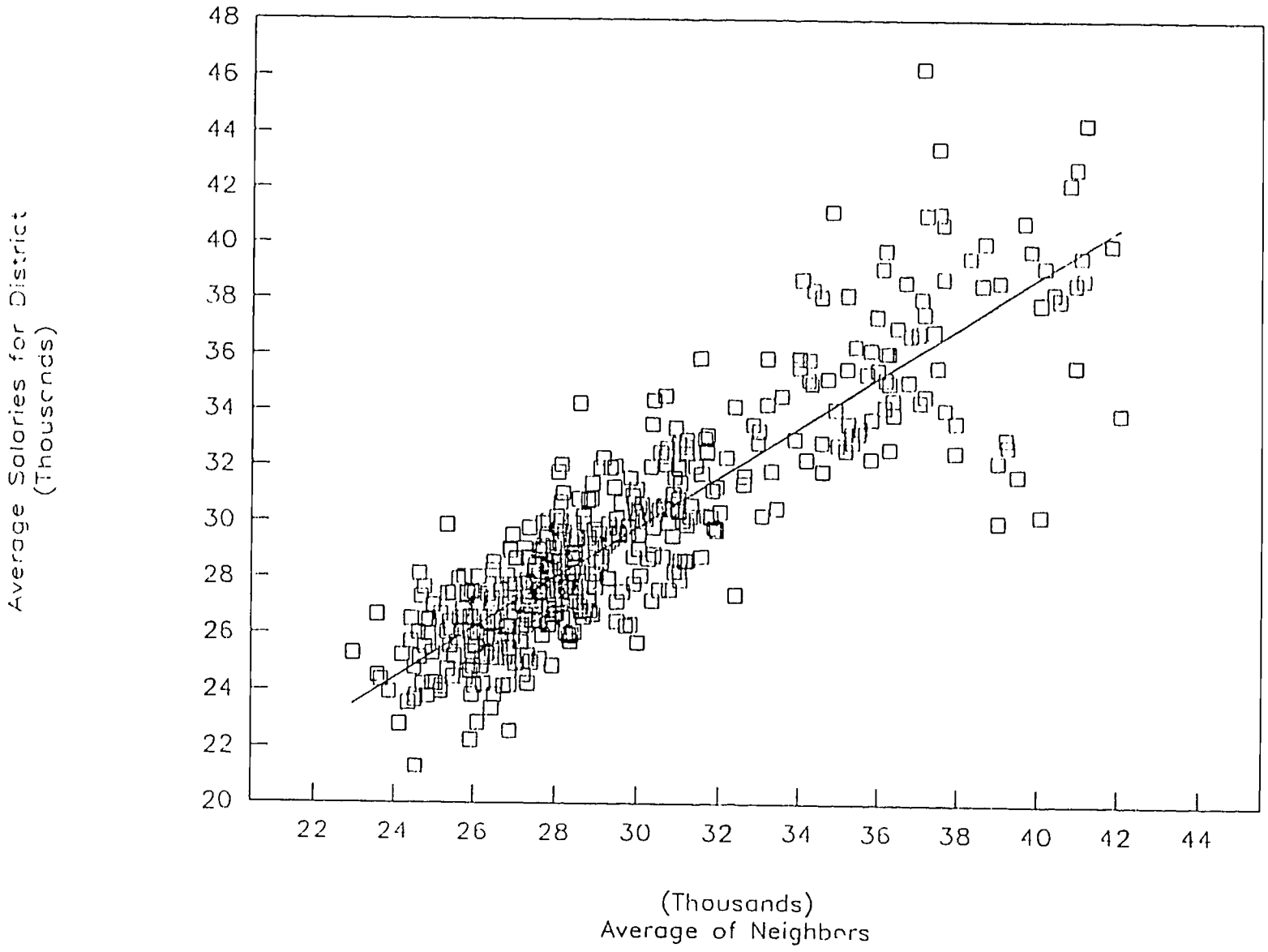


Figure 2. Average Salaries



Three. Chi square analyses showed statistically significant ($p < .0005$) differences in the distribution of beginning teacher salaries above or below the mean salaries of contiguous districts between those districts with lower property wealth per pupil and lower personal income per pupil than the means for contiguous districts and those with both higher property wealth per pupil and personal income per pupil than the means of contiguous districts (see Table 1). Districts with higher property wealth and personal income per pupil than their neighbors were likely to pay higher salaries than their neighbors. Districts with lower property wealth and personal income per pupil than their neighbors were likely to pay lower salaries than their neighbors.

Tables 2 and 3 show that when districts had either higher property wealth or higher personal income per pupil than their neighbors, but not both, that they were nearly equally as likely to pay lower or higher salaries than their neighbors. When these conditions existed 38 districts paid lower salaries and 46 districts paid higher salaries than the mean salaries of their neighbors.

When districts had both lower property wealth and personal income per pupil than the means of their neighbors about 62% paid lower salaries than the means of their neighbors. However, table 1 shows that about three of each eight districts paid higher teachers salaries than the means of their neighbors even though they had lower property wealth and lower personal income than the means of their neighbors.

Table 1

	Districts with Salaries Lower than $\bar{x}$ Salary of Neighbor	Districts with Salaries Higher than $\bar{x}$ Salary of Neighbor
Districts with Lower Property Wealth and Personal Income than $\bar{x}$ of Neighbors	158	94
Districts with Higher Property Wealth and Personal Income than $\bar{x}$ of Neighbors	50	105

$x^2 = 35.3776$
$p < .0005$

Table 2

	Districts with Salaries Lower than $\bar{x}$ Salary of Neighbor	Districts with Salaries Higher than $\bar{x}$ Salary of Neighbor
Districts with Higher Property Wealth and Lower Personal Income than $\bar{x}$ of Neighbors	20	20
Districts with Higher Property Wealth and Personal Income than $\bar{x}$ of Neighbors	50	105

$x^2 = 4.3476$
$p < .05$

Table 3

	Districts with Salaries Lower than $\bar{x}$ Salary of Neighbor	Districts with Salaries Higher than $\bar{x}$ Salary of Neighbor
Districts with Lower Property Wealth and Higher Personal Income than $\bar{x}$ of Neighbors	18	26
Districts with Higher Property Wealth and Personal Income than $\bar{x}$ of Neighbors	50	105

$x^2 = 1.1364$
$p < .25$

Implications

This study showed that two factors had a statistically significant relationship with local teacher salaries: (1) the salaries paid to teachers in contiguous districts, and (2) local wealth. The study showed that having either higher property wealth or higher personal income per pupil alone is insufficient to result in a significant difference in local teacher salaries above that which could have been expected from the salaries in contiguous districts. Teacher salaries appear to be affected by a balance of several factors: (1) regional markets (salaries paid in contiguous districts), (2) local tax base (property wealth per pupil), (3) tax paying ability (personal income per pupil), and (4) the willingness of local boards to pay teachers higher salaries.

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