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AUTHOR	Datcher-Loury, Linda; Loury, Glenn C.
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ABSTRACT

This paper presents a fixed effects model on the impact of individual high schools on adult earnings. This model not only captures the effects on observed and unobserved characteristics of high school on earnings, but also can control for selection bias resulting from correlation between school quality and student ability. The principal data used to estimate this model comes from the National Longitudinal Study of the High School Class of 1972. The sample for the analysis was restricted to out-of-school white males and females who lived in Chicago, Detroit, Los Angeles, New York, Philadelphia, or San Francisco. The findings suggest that such a model has a large impact on estimates of school quality and, as a result, on the policy conclusions that are drawn on the basis of such evidence. This report first describes a general model of the effects of school quality and outlines the conditions required to obtain consistent parameter estimates. Second, it points out the problems of previous work in conforming to these conditions. Third, it describes the approach used to estimate school quality. Finally, it presents empirical results. (PN)

THE EFFECTS OF SCHOOL QUALITY ON EARNINGS

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Linda Datcher-Loury
Tufts University
Assistant Professor of Economics

Glenn C. Loury
Harvard University
J. F. Kennedy School of Government
Professor of Political Economy

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I. INTRODUCTION

In recent years, a number of studies have focused on the effects of school quality on adult earnings. Th^se studies have been motivated by a number of important policy considerations. For example, Ribich and Murphy (1975) point out that such analysis is necessary to determine the effectiveness of the educational system in equalizing opportunities across individuals with varying backgrounds. They address the question of whether those from disadvantaged origins will be permanently handicapped in the acquisition of market-valued characteristics or can education help compensate for past inequities and contribute to significant intergenerational mobility. Other researchers (e.g. Johnson and Stafford, 1973; Wachtel, 1975; and Akin and Garfinkel, 1977) note that estimates of the marginal rates of return of both quality and quantity of schooling are needed to determine whether an optimal distribution of educational expenditure requires reallocation of resources between investment in school quality and investment in more years of schooling. In related work, analysts such as Welch (1973) and Link, Ratledge, and Lewis (1980) attempt to uncover the extent to which differences in the quality of education account for the differences in returns to schooling between blacks and whites. The primary motivation behind this work is to partition the gains made by blacks in recent years into those due to change in supply-side factors, e.g. quality of schooling, and those due to demand-side factors, e.g. affirmative action.

These studies have proceeded by adding district or state-wide per pupil expenditures to the standard human capital and background variables used in earnings regressions. There are three main problems with this procedure.

First, it fails to control adequately for upward bias in estimated schooling effects resulting from high ability students attending better schools. Second, the relationship between school quality and per pupil expenditures may be highly imperfect. Third, it fails to distinguish between differences in school quality within a given district. As a result of these problems, past estimates of both the effects on school quality may provide a misleading picture of the efficacy of differing school environments.

This paper improves on past work done in this area by using a fixed effects model of the impact of individual high schools on adult earnings. Such a model, not only captures the effects on observed and unobserved characteristics on high schools on earnings, but also can control for selection bias resulting from correlation between school quality and student ability. The findings of the paper suggest that such a refinement has a large impact on estimates of school quality and, as a result, on the policy conclusions that are drawn on the basis on such evidence.

The paper begins by first describing a general model of the effects of school quality and outlines the conditions required to obtain consistent parameter estimates. Second, it points out the problems of previous work in conforming to these conditions. Third, it describes the approach used in this paper to estimate school quality. Finally, it presents empirical results.

II. GENERAL EMPIRICAL MODEL

The general model used in the past by analysts assumes that log earnings (Y_i) of individual i depends linearly on the quality of the school that the individual attended (Q_i) and on unobserved productive ability from all other sources (A_i). That is,

(1) $Y_i = A_i + \alpha Q_i + \eta_1$

If $A_i = X_i \beta + \eta_2$ and X_i and η_2 are observed and unobserved productive characteristics respectively, then equation (1) can be rewritten as:

(2) $Y_i = X_i \beta + \alpha Q_i + \eta_1 + \eta_2$.

Consistent OLS estimation of equation (2) requires that Q_i is not correlated with η_2 and that Q_i is measured accurately. This first condition may be violated if high ability students tend to go the better schools in a locality. This would occur for a variety of reasons. For example, some schools may have entrance requirements that limit enrollment to high ability students. Similarly, parents with the resources and preferences for augmenting their children's productive ability may make residential choices based in large part on school quality. In addition, given a choice among schools, especially at the high school level, students may self-select into environments that are closest to their own views about their abilities and ambitions. Previous studies have often not included proxies for non-school influences, e.g. pre-high school ability and parental family resources, that would limit the correlation between school quality and the error term in earnings regressions.

The second condition may be violated if Q_i is subject to measurement error. As mentioned earlier, previous work relies on using state or district-wide per pupil expenditures as a proxy for school quality. This procedure fails to distinguish between differences in school quality within a given district. This may not be important in the case of small school districts with only a few number of schools of relatively uniform quality. However, it clearly is a major drawback in the case of large city school systems. Here high schools may vary from city-wide or magnet schools with stringent entrance requirements that send the majority of their students to college to vocational-technical schools that emphasize acquiring a particular marketable trade to the poorest functioning ghetto school where the drop-out rate exceeds 50 percent.

Compounding this errors-in-variables problem is the imperfect relationship between school quality and per pupil expenditures. Schools located in large urban areas may be subject to higher area wages and higher property and maintenance costs and may spend more resources on discipline and maintaining order. In addition, different school systems may vary in how they allocate resources across factors that have varying impacts on their students' performance when they are adults. Finally, school characteristics unrelated to expenditure levels (e.g. leadership and values communicated by the school administration) may also alter school quality.

To illustrate the potential difficulties associated with the selection bias and errors-in-variables problems, consider a simple case where the true model is given by:

(3) $Y_i = \beta_1 X_{1_i} + \beta_2 X_{2_i} + \alpha Q_i + \eta_1 + \eta_2.$

X_{1_i} is the observed factor affecting productivity, X_{2_i} is the unobserved factor which is correlated with Q_i , η_2 are all other unobserved factors affecting ability, and the other terms are defined as above. Suppose also that Q_i is measured with error by Z_i where $Z_i = Q_i + \eta_3$. The actual equation that is estimated is therefore:

(4) $Y_i = \beta_1 X_{1_i} + \alpha Z_i + \varepsilon$

where $\varepsilon = \beta_2 X_{2_i} - \alpha\eta_3 + \eta_1 + \eta_2$. OLS will result in biased and inconsistent coefficient estimates of β_1 and α such that:

(5) $E(\beta_1) - \beta_1 = P_{13}\beta_2$

$E(\alpha) - \alpha = \ddot{P}_{23}\beta_2 - \alpha R$

where R is the correlation between Z_i and η_3 and the P values are the coefficients in the auxiliary regression: $X_{2_i} = P_{13}X_{1_i} + P_{23}Z_1$. Thus, the estimated coefficients of the observed variables include, not only the true values, but their correlations with the unobserved characteristic, X_{2_i}. If the correlation between the observed and unobserved variables is greater than zero but less than one, the total effect of all variables is understated, while the effects of the observed characteristics is biased upwards. In addition, errors in measuring school quality exert a downward bias on α.

The earnings equation estimated in this paper is of the form:

(6) $Y_{ijt} = X_{ijt}\beta + Z_{ijt}\gamma \quad \alpha_1 S_1 + \alpha_2 S_2 + \ldots + \alpha_J S_J + \nu_1$

where the Y_{ijt} equals ln hourly wages of individual i from high school j in year t, X_{ijt} are observed characteristics affecting the labor market value of the individual, the Z_{ijt} are controls for selection bias problems, and the S_j are separate dummy variables for each j=2,.....,J different high schools. This specification directly addresses the problem of errors in measuring school quality since a separate dummy variable coefficient is estimated for each individual school. Therefore, it is not subject to errors due to aggregating across states or school districts. In addition, the fixed-effects specification will pick up the effect of school characteristics, e.g. the quality of the leadership of the administration, which may have an important influence on the later success of its students but are difficult to quantify. In addition this specification lessens the extent of selection bias by controlling for characteristics that, while correlated with school quality, may alter student performance independent of direct school effects.

III. DATA AND EMPIRICAL RESULTS

The principal data used to estimate this model comes from the National Longitudinal Study (NLS) of the High School Class of 1972. This is a nationally representative sample of individuals who were seniors in high school in the spring of 1972. The original base year survey obtained information concerning the student's personal-family background, educational and work experiences, aspiration, attitudes, abilities, and opinions. Fourth follow-up surveys were begun in 1973, 1974, 1976, and 1979 to update information on the individual's progress since leaving high school. Approximately 18 students were interviewed for each high school included in the sample. (For more information about this data set, see Riccobono et al, 1981). The NLS data was merged with the 1970 Census School District Fourth Count/1970 Elementary-Secondary Education General Information Survey. This source provides socio-economic information, public school staffing, and public school finances by school district.

The sample for the analysis was restricted to out-of-school white males and females who lived in the Chicago, Detroit, Los Angeles, New York, Philadelphia, or San Francisco SMSAs and whose high schools reported the test data that will be described later. Since several high schools were sampled in each of these SMSAs, they provide the opportunity to uncover within as well as across school district differences in school effects. The log of hourly earnings was measured for 1977, 1978, and 1979 so that all individuals enter the sample once for each year with nonzero earnings. Means and standard deviations of all variables used in the analysis are listed in Table 1. Table 2 identifies the high schools included in the analysis and lists the number of observations per high school.

The basic regression results for all variables except the high school dummies are given in Table 3. They show that, consistent with other analyses, years of schooling and work experience (defined in terms of number of weeks during the 1973-1979 period) significantly raise hourly wages. The coefficient for years of schooling is smaller than conventional estimates. This outcome may result from the homogeneity in schooling for the sample since it includes only those who were in the 12th grade as of 1972. In addition, it may also be explained by the relative youth of the sample as differences in educational attainment may become more pronounced as the sample ages. Union members are paid significantly more than their non-union counterparts ceteris paribus and women average lower earnings than men. The dummy variables for SMSA and year show that there are significant variations in hourly wages by area and over time. San Francisco and Philadelphia fall below New York and hourly wages in 1979 are notably higher than in 1977 or 1978.

The other variables included in the wage regression are the high school dummy variables, parental income, and mosaic score. Parental income equals the log income of the family of origin as reported in 1972 by the high school respondents. The mosaic score is based on a test which measures perceptual speed and accuracy through items which require that small differences be detected between pairs of otherwise identical mosaics or tile-like patterns. Scores on this test ranged from 1 to 100. The NLS data included also scores from a five other tests. Two of these tests - mathematics and letter groups - had a positive and significant effect on wages holding all other variables constant. The mosaic score was used alone here since scores on all three tests were highly correlated and the coefficients of the others were notably reduced with the inclusion of the mosaic score in the wage regression.

Parental income and mosaic score were included to lower bias resulting from high ability students attending better schools. Independent of school effects, parents with greater financial resources may provide better opportunities for their children's achievement. Similarly, students with higher ability may perform better in the labor market regardless of high school training. Given the correlation between these variables and school quality, their omission from the wage regression could generate the bias outlined earlier. Table 3 shows that both variables are positively correlated with wages. A ten-percent increase in parental income raises hourly wages by .8 percent. Each ten point gain in the standardized value of the mosaic score raises hourly wages by .03 percent.

It may be argued that, even if the inclusion of parental income and test scores reduces selection bias, it may not be completely eliminated. It would, therefore, be useful to provide other evidence of the existence and size of selection bias. First, note that the inclusion of the mosaic score may overcorrect for this problem. If school quality raises test scores independent of ability, then the coefficient of mosaic score would pick up part of the true effect of school quality so that the effect of the dummy variables would be biased downward instead of upward. Second, note that one key consideration that is generally thought to affect parents' and students' decisions about high school choice is its effect on college admissions. More able students and students from families with greater financial and other resources are more likely to enroll in high schools where the probability of attending college is high. This may occur either because parents move to the appropriate school districts or because students choose the better schools within a given district. Students in schools where a large fraction the senior class goes to college are, therefore, more likely to have high levels of the unobserved "ability" variables that can potentially bias estimates of school quality. This suggests that one test of the existence of selection bias would be to include the percentage of seniors enrolled in college from the high school that the sample member attended as an explanatory variable in the wage regression instead of the high school dummy variables. If selection bias is a major problem, then the coefficient of this variable should be positive and significant.

Table 4 verifies the presumption that students from wealthier families and in more affluent school districts attend high schools where larger fractions of the seniors go to college. The dependent variable is the percentage of the 1971 high school seniors who enrolled in 2 or 4 year colleges as of 1972. It is positively correlated with the log of parental income, with the percentage of individuals in the school district with some college, and with the log of mean family income by school district.

Table 4 implies that students are not randomly distributed across high schools. Instead it suggests that the more select students are concentrated in high schools that send a large fraction of their seniors to college. If selection bias is a problem in the wage regression, then the percentage of seniors in college from the high school of origin should have a positive and significant effect on hourly wages. When included in the wage regression instead of the high school dummy variables, the coefficient of this percentage equals -.00036 with a standard error of .00054. While this finding is not firm proof of the absence of selection bias, it does provide some evidence against the existence of large and important effects ceteris paribus.

Columns 1 and 2 of Table 5 list the estimated coefficients and standard errors of the high school dummy variables by SMSA holding constant the variables listed in Table 3. The omitted categories for each SMSA include both high schools with only a few observations and high schools with the smallest effects on wages. The dummy variables, therefore, represent the percentage difference in hourly wages of students in the included high schools relative to the smallest and/or poorest quality high schools in the SMSA. The significant effects (at the 10% level or better) occur for each SMSA and range from approximately .15 to about .40. They imply that there are substantial differences in hourly wages across students who attend different high schools holding all other factors constant. The evidence concerning selection bias suggests that these effects are not simply due to more "able" students attending a select set of high schools but instead arise because other characteristics of the school environment.

These effects would not have been captured using the standard tecnnique of including district-wide per-pupil school expenditures as a proxy for school quality. When this variable is included in the wage regression instead of the high school dummies, its coefficient equals -.0048 with a standard error of .0037. In the absence of the evidence from the high school fixed effects model, this finding would imply that differences across schools have no impact of earnings holding other things constant. The low size of this coefficient relative to other findings (Johnson and Stafford, 1973; Wachtel, 1976; Link, Ratledge, and Lewis, 1980) may reflect the geographic restriction of this sample. As mentioned earlier, schools located in large urban areas may be subject to higher area wages and higher property and maintenance costs and may spend more resources on discipline and maintaining order. Thus higher expenditures may be less correlated with higher quality in large urban areas.

IV. SUMMARY

This paper has demonstrated that there are large and significant earnings differences across otherwise identical individuals who attend different high schools. Compared to the poorest performing schools within a given SMSA, the significant effects range from 15 to 40 percent gains in hourly wages. The paper has also provided some evidence which suggests that this outcome is not merely the spurious result of high ability or wealthier students attending the better schools, but instead occurs because of other aspects of the school environment. While uncovering the exact source of the impact is beyond the scope of this paper, the measured effect is independent of years of schooling attained and the available measures of achievement and aptitude. This paper has also shown that reliance on per pupil school expenditures as a measure of quality will significantly understate differences across schools.

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TABLE 1. MEANS AND STANDARD DEVIATIONS OF VARIABLES

VARIABLE	MEAN	STANDARD DEVIATION
LOG HOURLY WAGES	1.68221504	0.42363246
YEARS OF SCHOOLING	13.76935660	1.59024540
WORK EXPERIENCE IN WEEKS	186.19634678	74.00561496
LOG OF PARENTAL INCOME	7.23681612	3.99104167
DONT KNOW PARENTAL INCOME	0.23118866	0.42170775
UNION	0.27044711	0.44431195
LOS ANGELES	0.18811341	0.39090930
CHICAGO	0.12431843	0.33003447
SAN FRANCISCO	0.09760087	0.29685517
DETROIT	0.15757906	0.36444523
PHILADELPHIA	0.17611778	0.38102423
YEAR 1977	0.31297710	0.46383159
YEAR 1978	0.33696838	0.47280289
FEMALE	0.48800436	0.49999241
MOSAIC SCORE	51.60305344	9.26211104
PERCENT 1971 CLASS IN COLLEGE	60.95065431	18.56846467
DSTR PERCENT WITHOUT HS DIPLOMA	0.38745156	0.12099528
DSTR PERCENT BLACK	0.07586861	0.10521655
DSTR LOG FAMILY INCOME	9.54368250	0.22611218
LOG PER PUPIL EXP	5.73881266	2.51356841

TABLE 2. NUMBER OF OBSERVATIONS BY HIGH SCHOOL

SMSA	HSCODE	NUMBER OF OBSERVATIONS
CHICAGO	590	24
	2034	30
	2435	17
	3692	27
	5109	25
	5911	19
	5938	21
	6125	21
	8772	19
	9200	25
DETROIT	1417	26
	2192	20
	2807	19
	3021	31
	3208	33
	4278	22
	4465	19
	6283	24
	6524	12
	7299	19
	7326	22
	7941	25
	8529	17
LOS ANGELES	272	8
	432	10
	1234	24
	1689	11
	2063	17
	2304	7
	2518	23
	3239	10
	5057	14
	5271	14
	5780	14
	6287	24
	6368	10
	6501	17
	6528	17
	6902	13
	6983	6
	7758	15
	8641	15
	8934	21
	9443	19
	9576	8
	9630	11
	9817	17

TABLE 2. NUMBER OF OBSERVATIONS BY HIGH SCHOOL

SMSA	HSCODE	NUMBER OF OBSERVATIONS
NEW YORK	345	15
	532	15
	746	20
	933	24
	1388	10
	1816	8
	1949	21
	2377	8
	2591	1
	2618	7
	2805	1
	3046	3
	3179	14
	3634	13
	4276	12
	4463	20
	4650	15
	5425	14
	5479	19
	5826	22
	6040	16
	6067	11
	6495	22
	6655	28
	6709	17
	7083	14
	7297	12
	8072	10
	8714	28
	8955	9
	9142	7
	9302	22
	9944	12
PHILADELPHIA	1442	25
	1974	8
	2001	12
	2188	19
	2458	30
	3391	9
	4621	13
	5637	31
	5664	17
	5747	26
	6252	4
	7910	6
	8097	29
	8180	24
	8608	22
	9327	18
	9728	30

TABLE 2. NUMBER OF OBSERVATIONS BY HIGH SCHOOL

SMSA	HSCODE	NUMBER OF OBSERVATIONS
SAN FRANCISCO	1502	23
	2250	24
	3854	13
	6100	16
	6127	18
	7170	15
	7357	11
	7411	9
	7571	17
	8988	21
	9389	3
	9416	9

TABLE 3. EFFECTS OF SELECTED VARIABLES ON LOG HOURLY WAGES

DEP VARIABLE: LOG HOURLY WAGES

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	75	83.008965	1.106786	7.911	0.0001
ERROR	1758	245.949	0.139903		
C TOTAL	1833	328.958			

ROOT MSE	0.374036	R-SQUARE	0.2523
DEP MEAN	1.682215	ADJ R-SQ	0.2204
C.V.	22.23473		

PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	VARIABLE LABEL
0.330143	0.240852	1.371	INTERCEPT
0.021794	0.006910523	3.154	YEARS OF SCHOOLING
0.001005104	0.001558306	6.450	WORK EXPERIENCE
0.080258	0.023657	3.393	PARENTAL INCOME
0.776797	0.222174	3.496	DONT KNOW PARENTAL INCOME
0.137286	0.020829	6.591	UNION
-0.031933	0.045601	-0.700	LOS ANGELES
-0.018694	0.050318	-0.372	CHICAGO
-0.116666	0.048275	-2.417	SAN FRANCISCO
-0.0095028	0.061295	-0.155	DETROIT
-0.080355	0.040018	-2.008	PHILADELPHIA
-0.143959	0.026195	-5.496	YEAR 1977
-0.070105	0.022752	-3.081	YEAR 1978
-0.201805	0.019322	-10.444	FEMALE
0.003416166	0.001152136	2.965	MOSAIC SCORE

TABLE 4. EFFECTS OF SELECTED VARIABLES ON HIGH SCHOOL CHOICE

DEP VARIABLE: PERCENT 1971 HIGH SCHOOL CLASS IN COLLEGE AS OF 1972

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	4	37241.268	9310.317	32.505	0.0001
ERROR	637	182452	286.423		
C TOTAL	641	219693			

ROOT MSE	16.924039	R-SQUARE	0.1695
DEP MEAN	61.573676	ADJ R-SQ	0.1643
C.V.	27.48584		

PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	VARIABLE LABEL
-61.901842	45.934100	-1.348	INTERCEPT
3.729341	1.664099	2.241	PARENTAL INCOME
37.868872	15.719319	2.409	DONT KNOW PARENTAL INCOME
47.634211	9.323491	5.109	DSTR PERCENT WITH COLLEGE
7.851388	4.977423	1.577	MEAN LOG DSTR FAMILY INCOME

TABLE 5. LISTING OF HIGH SCHOOL DUMMY VARIABLE COEFFICIENTS

CHICAGO SMSA

HIGH SCHOOL CODE	DUMMY VARIABLE COEFFICIENT	STANDARD ERROR	T-STAT
590	0.201187	0.087108	2.310
2034	0.130571	0.079981	1.633
2435	-	-	-
3692	0.103502	0.083622	1.238
5109	-	-	-
5911	0.183762	0.095843	1.917
5938	-	-	
6125	0.095677	0.092109	1.039
8772	-	-	-
9200	0.279376	0.085867	3.254
DETROIT SMSA			
1417	-	-	-
2192	0.344168	0.105836	3.252
2807	0.088998	0.102513	0.868
3021	0.123690	0.086813	1.425
3208	0.130077	0.084782	1.534
4278	-	-	-
4465	0.243538	0.102151	2.384
6283	0.167093	0.094512	1.768
6524	0.056450	0.121357	0.465
7299	0.076154	0.101836	0.748
7326	0.232103	0.097043	2.392
7941	0.041615	0.092844	0.448
8529	0.217127	0.106059	2.047
PHILADELPHIA SMSA			
1442	-	-	-
2001	0.160698	0.113416	1.417
2188	0.088191	0.091876	0.960
2458	-	-	-
4621	0.143394	0.108153	1.326
5637	-	-	-
5747	0.126098	0.079079	1.595
8098	0.153201	0.076593	2.000
8180	-	-	-
8608	0.088263	0.085359	1.034
9728	0.208581	0.074988	2.782

TABLE 5. LISTING OF HIGH SCHOOL DUMMY VARIABLE COEFFICIENTS

LOS ANGELES SMSA

HIGH SCHOOL CODE	DUMMY VARIABLE COEFFICIENT	STANDARD ERROR	T-STAT
272	0.217305	0.137175	1.584
432	0.086719	0.123887	0.700
1234	0.064335	0.084224	0.764
2063	-	-	-
2518	-0.000915343	0.086186	-0.011
3239	0.046452	0.123885	0.375
5057	0.127237	0.106568	1.194
5271	0.341912	0.106948	3.197
6287	0.106669	0.083989	1.270
6368	0.064548	0.123655	0.522
6501	0.090752	0.097530	0.931
6528	0.161286	0.097911	1.647
7758	0.093829	0.103443	0.907
8641	0.311164	0.103134	3.017
8934	-	-	-
9443	0.137193	0.093873	1.461
9576	0.134444	0.137647	0.977
9817	-	-	-

NEW YORK SMSA

HIGH SCHOOL CODE	DUMMY VARIABLE COEFFICIENT	STANDARD ERROR	T-STAT
532	0.058752	0.101028	0.582
746	0.179338	0.088661	2.023
933	0.009997958	0.081300	0.123
1816	0.078241	0.136366	0.574
1949	0.130634	0.086450	1.511
2377	-	-	-
2618	0.085922	0.144670	0.594
3634	0.056790	0.107956	0.526
4276	0.311480	0.111829	2.785
4463	0.075358	0.088790	0.849
5425	0.222146	0.104447	2.127
5479	-	-	-
5826	-	-	-
6067	0.075319	0.116847	0.645
6494	0.146023	0.084846	1.721
6655	0.141365	0.077252	1.830
[illegible]	-	-	-
[illegible]	0.028781	0.122070	0.236
8714	0.240869	0.076708	3.140
8955	-	-	-
9302	0.085844	0.084962	1.010
9944	0.168158	0.112017	1.501

TABLE 5. LISTING OF HIGH SCHOOL DUMMY VARIABLE COEFFICIENTS

SAN FRANCISCO SMSA

HIGH SCHOOL CODE	DUMMY VARIABLE COEFFICIENT	STANDARD ERROR	T-STAT
2250	0.119723	0.086024	1.392
3854	-	-	-
6100	-	-	-
6127	-	-	-
7170	0.321160	0.105049	3.057
7144	-	-	-
7571	0.301698	0.100413	3.005
8988	0.348292	0.091093	3.823
9416	0.402089	0.130866	3.073