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The New York State Reform Strategy: Raising the Bar Above Minimum Competency

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The New York State Reform Strategy: Raising the Bar Above Minimum Competency

Abstract

[Excerpt] Educational reformers and most of the American public believe that teachers ask too little of their pupils. African-American and Hispanic parents, in particular, criticize the low expectations and goals that teachers and school administrators often set for their children. These low expectations, they believe, result in watered down curricula and a tolerance of mediocre teaching and inappropriate student behavior. The result is that the prophecy of low achievement becomes self-fulfilling.

The problem of low expectations is not limited to minority students or lower income communities. It's endemic. High school subjects are taught at vastly different levels. Research has shown that learning gains are substantially larger when students take more demanding courses. Controlling for teacher qualifications and student ability and socio-economic status does not significantly reduce the positive effects of course rigor on test score gains (Kulik 1984, Monk 1994, Bishop 1996). Why then do students not flock to more demanding courses? First, these courses are considerably more work and grades tend to be lower. Secondly, the rigor of these courses is not well signaled to parents, neighbors, employers and colleges, so the rewards for the extra work are small for most students. Admissions staff of selective colleges learn how to read the transcripts of high schools they recruit from and they evaluate grades in the light of course demands. However, most colleges have, historically, not factored the rigor of high school courses into their admissions decisions. Employers hardly ever consider the rigor of high school courses when they make hiring decisions. Consequently, the bulk of students who do not aspire to attend a selective college quite rationally avoid rigorous courses and demanding teachers.

Keywords

HR, education, reform, minimum competency, American, teacher, student, school, minority, employer

Comments

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WORKING PAPER SERIES

The New York State Reform Strategy: Raising the Bar above Minimum Competency

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Working Paper 98-27



The New York State Reform Strategy: Raising the Bar above Minimum Competency

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**The New York State Reform Strategy:
Incentive Effects of Raising the Bar above Minimum Competency**

by John H. Bishop and Ferran Mane

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Educational reformers and most of the American public believe that teachers ask too little of their pupils. African-American and Hispanic parents, in particular, criticize the low expectations and goals that teachers and school administrators often set for their children. These low expectations, they believe, result in watered down curricula and a tolerance of mediocre teaching and inappropriate student behavior. The result is that the prophecy of low achievement becomes self-fulfilling.

The problem of low expectations is not limited to minority students or lower income communities. It's endemic. High school subjects are taught at vastly different levels. Research has shown that learning gains are substantially larger when students take more demanding courses. Controlling for teacher qualifications and student ability and socio-economic status does not significantly reduce the positive effects of course rigor on test score gains (Kulik 1984, Monk 1994, Bishop 1996). Why then do students not flock to more demanding courses? First, these courses are considerably more work and grades tend to be lower. Secondly, the rigor of these courses is not well signaled to parents, neighbors, employers and colleges, so the rewards for the extra work are small for most students. Admissions staff of selective colleges learn how to read the transcripts of high schools they recruit from and they evaluate grades in the light of course demands. However, most colleges have, historically, not factored the rigor of high school courses into their admissions decisions.¹ Employers hardly ever consider the rigor of high school courses when they make hiring decisions. Consequently, the bulk of students who do not aspire to attend a selective college quite rationally avoid rigorous courses and demanding teachers.

Many parents support their children's preference for taking easier courses. Even in wealthy communities, they often pressure guidance counselors to let their child switch to easier courses where it is easier to get good grades:

A lot of... parents were in a 'feel good' mode. "If my kids are not happy, I'm not happy." ...Probably...25 percent ...were going for top colleges. They were pushing their kids hard. The rest---75 percent (I'm guessing at the numbers)---said "No, that's too hard, they don't have to do that."...If they [the students] felt it was too tough, they would back off. I had to hold

people in classes, hold the parents back. [I would say] ‘Let the kid get C’s. It’s OK. Then they’ll get C+’s and then B’s.’ [But they would demand,] ‘No! I want my kid out of that class!’

Teachers often supported students switching to easier classes.

....frankly we couldn’t get the staff to agree [to holding struggling or lazy students in more demanding classes] either. They would say, ‘He’s not learning....Get him out....Let the kid drop into an easier class.’ (guidance counselor’s description of the situation prior to the high school switching to All-Regents, 1997)

This guidance counselor’s wish to push students into more challenging courses is unusual. Most counselors see themselves as helping students set “realistic” goals and avoiding courses where the student will be “in over his head.” At most schools parents who want their child in the more demanding course are accommodated, but, behind their back, they are referred to as “pushy.” Most parents, however, are not aware that assignments to classes will be changed if they demand it. Minority parents and parents with limited education are less likely to question these class assignments and this contributes to their children being disproportionately assigned to classes that set minimal learning goals.

I. Public Opinion about Standards and Minimum Competency Exams

State level political and educational leaders have been concerned about this problem for decades. The traditional policy instruments—budgetary support for schools and school construction, teacher certification rules, etc.—did not address learning standards, so other instruments were sought. Many states increased the number of courses required to graduate. This, however, did not assure that the courses taken are challenging or that students work hard in these courses. Another approach has been to require that schools give students achievement exams and publish the results. The hope is that publicly identifying low performing schools will spur the local superintendent and school board into taking remedial action. Some states and cities have developed interventions such as reconstitution for poorly performing schools. Other jurisdictions have rewarded schools for year to year gains in achievement exam scores.

Probably the most common response to the problem of low expectations and low achievement has been to define standards for learning, exam students against these standards and require that students pass exams assessing the achievement of these standards before graduating. Table 1 presents data from 1980 and 1992 on the proportion of high school students who are required to pass minimum competency examinations (MCEs) to

graduate from high school. School principals were the source of the information on graduation requirements. In most cases MCEs have been developed and mandated by the state boards of education. In other cases local school districts establish the requirement. In 1980 49 percent of the nations high school students faced a MCE requirement. In 1992 56 percent faced MCE requirements. The increase appears to have been concentrated in states and school districts with large minority populations. In 1992 seventy-nine percent of the Hispanic and African-American students faced such requirements.

Table 1: High Schools Requiring Passage of a Minimum Competency Exam to Graduate: Proportion of Seniors Who Attend

<i>Socio-Economic Status</i>		<i>Low</i>	<i>Medium</i>	<i>High</i>	
	1980	.560	.503	.487	
	1992	.647	.557	.442	
Reading & Math Scores		Low	Medium	High	
	1980	.547	.515	.466	
	1992	.643	.565	.457	
Ethnicity		White/Asian	Black	Hispanic	Total
	1980	.466	.567	.568	.49
	1992	.479	.790	.790	.56

Source: Tabulations of HSB and NELS-88 principal survey responses weighted by the number of seniors sampled at the high school. The HSB survey over sampled schools with large minority populations. The total figures in column 5 are averages of the ethnicity specific rates in columns 1-3 using national proportions of high school students from each ethnic group as weights.

Surveys of public opinion about MCEs suggest that the policy is supported not only by voters and teachers but apparently by students as well (see Table 2). In 1997, representative samples of adults, teachers and students were asked the following question: **“Suppose your school required students to learn more and exams them before they were allowed to graduate. Do you think that most kids would pay more attention to their school work and study harder or not?”** YES answers were given by 71 percent of adults, 75 percent of teachers, 74 percent of white high school students, 82 percent of Hispanic students and 80 percent of African-American students (Johnson and Farkas 1997). Similar proportions agreed that in addition, **“most kids would actually learn more.”** This survey also asked **“Do you think:**

Schools should expect inner-city kids to learn as much and achieve at the same standards as kids from middle-class backgrounds?

or

Should schools make things easier for inner-city kids because they come from poor backgrounds?

As one can see in Table 2, the first option was selected by 60 percent of the adults, 73 percent of the teachers, 86 percent of the white students, 78 percent of the Hispanic students and 84 percent of the African-American students.

The students' responses to these questions suggest that students do not perceive themselves as working very hard and that, if more was required of them, they would try harder. Also noteworthy is the opposition of minority students to making "things easier for inner city kids because they come from poor backgrounds." Many survey respondents, however, thought that tougher graduation exams would also have some negative consequences. A little more than half of students agreed with the statement that "*more kids will drop out*" and "*more kids will dislike education and resist learning.*" Are they correct? What effects have minimum competency exams had on high school drop out rates, college entrance rates and college drop out rates? What effects have they had on the quality of the jobs obtained by high school graduates? Are these effects different for students from less advantaged or minority backgrounds? New York State was one of the first states to make graduation contingent on passing a series of minimum competency exams. How are New York State's policies evolving and what impacts are they likely to have? These are the questions to be addressed in this paper.

Table 2: Student Opinion about the Effects of Minimum Competency Exams

“Suppose your school required students to learn more and tested them before they were allowed to graduate.”

Percent Responding Yes

	African-American HighSch Students	Hispanic High School Students	White High School Students	Adults	Teachers
Do you think that most kids would pay more attention to their school work and study harder or not?	80%	82%	74%	71%	75%
Do you think that most kids would actually learn more, or not?	79%	75%	72%	72%	75%
Do you think that more kids will drop out, or not?	55%	53%	54%	45%	49%
Do you think that more kids will dislike education and resist learning, or not?	55%	56%	51%	38%	27%
Do you think: Schools should expect inner-city kids to learn as much and achieve at the same standards as kids from middle-class backgrounds? OR	84%	78%	86%	60%	73%
Should schools make things easier for inner-city kids because they come from poor backgrounds?	13%	19%	10%	32%	22%

Source: Surveys of representative samples of students, adults and teachers. Table 8 of Jean Johnson and Steve Farkas, Getting By: What American Teenagers Think about their Schools, New York: Public Agenda, 1997, 1-54.

II. The Effects of Raising the Bar Above Minimum Competency on Dropout Rates

A number of studies have examined the effect of minimum competency exams (MCE) graduation requirements on enrollment rates and high school graduation rates. Dean Lillard (1997) and Lillard and DeCicca (1997a, 1997b) found that graduation rates declined by increasing the number of courses necessary to graduate but not by MCE's. Their analyses of longitudinal data from NELS88 found that different specifications produced different estimates of their impact on drop out rates. Models that controlled for state fixed effects and examined the effect of introducing a state MCE tended to find no effect.

In order to study this issue in greater depth, state level data on enrollment rates and high school graduation rates were analyzed. The dependent variables were the enrollment rate of 17 year olds (taken from the 1990 Census and from NCES, Education in States and Nations, 1991) and the high school graduation rate (the ratio of the number of high school diplomas and GEDs awarded in the state to the number of 17 year olds).ⁱⁱ Data on each state's high school graduation requirements—minimum competency exams and the number of Carnegie units required to graduate--were taken from the 1992 and 1996 issues of the Digest of Educational Statistics. The information from the two different sources is not completely consistent so separate regressions were run using indicators of state graduation requirements taken from each source. The control variables characterizing the demographic background of the state's high school age youth were as follows:

- a parents' education index equal to the average of the percent of parents with a high school diploma and the percent of parents with a university degree,
- incidence of poverty for children under 18.
- percent population foreign born.
- percent of public school students African American.
- percent of public school students Hispanic.
- A dummy variable for New York State (testing whether the voluntary Regents Exams have any impacts on drop out rates.)

Table 3: Determinants of School Enrollment and High School Graduation Rates

	Percent of 17 year olds Enrolled in High School --1990 Census		Percent of 17 year olds Enrolled in High School --1991 States & Nations		Secondary School Graduates per 100 Persons 17 years old	
State Minimum Competency Test ⁵	-.76 (1.10)	1.05 (1.41)	-.17 (.37)	.87* (1.81)	-1.19 (.64)	-.08 (.04)
New York State	1.78 (.98)	1.80 (.98)	.33 (.27)	.05 (.04)	-.83 (.17)	-.88 (.18)
Number of Carnegie Units Required to Graduate	-.27** (2.59)	-.34*** (3.22)	-.15** (2.26)	-.19*** (2.88)	-.20 (.73)	-.24 (.82)
No Carnegie Unit Grad Requirement	-4.79** (2.84)	-5.96*** (2.80)	-3.05** (2.22)	-3.73*** (2.73)	-1.46 (.26)	-1.97 (.34)
Parents Education Index ¹	.29** (3.22)	.34*** (3.19)	.11 (1.55)	.13* (1.97)	.81*** (2.76)	.87*** (3.04)
Percent in Poverty (People 18 years or less) ²	.043 (.55)	.063 (.84)	-.02 (.40)	-.014 (.30)	-.04 (.19)	-.01 (.07)
Percent Foreign Born ³	-.15* (1.74)	-.22** (2.69)	-.19*** (3.27)	-.22*** (4.18)	-.11 (.44)	-.17 (.77)
% of Public School Students Black ⁴	-.037** (1.40)	-.071** (2.45)	-.040** (2.33)	-.061*** (3.33)	-.215*** (3.04)	-.231*** (2.93)
% of Public School Students Hispanic ⁴	-.036 (.97)	-.046 (1.26)	-.006 (.26)	-.014 (.59)	-.236** (2.40)	-.239** (2.39)
Adj R Squared	.4922	.5010	.5405	.5708	.6496	.6460
RMSE	1.657	1.642	1.087	1.050	4.463	4.486
Mean of Dependent Variable	88.9	88.9	84.2	84.2	75.8	75.8

* Statistically significant at 10% level ** Statistically significant at 5% level *** Statistically significant at 1 % level

¹ Average of the percent of parents obtaining a secondary high school diploma and the percent of parents obtaining a university degree. *Education in States and Nations*. National Center for Education Statistics. 1991. Pg. 139.

² *Education in States and Nations*. National Center for Education Statistics. U.S. Department of Education. 1991. Pgs. 49, 129, 119.

³ 1990 Census of Population. Social and Economic Characteristics U.S. Pgs. 174-79.

⁴ *Digest of Education Statistics*. National Center for Education Statistics.1993. pgs . 61 & 76.

⁵ Columns 1, 3 and 5 regressions use a competency exam variable based on a 1985 study by the Education Commission of the States in the 1992 *Digest of Educational Statistics*, pg. 148. Columns 2, 4 and 6 regressions use a competency exam variable based on the 1996 *Digest of Educational Statistics*, pg 149.

The results of the regression analysis are presented in Table 3. Four of the six coefficients on the State Minimum Competency Exam variable are negative, but none come even close to statistical significance at the 10 percent level. The only significant coefficient on the MCE variable is positive. One has to conclude that there is no evidence in these data that MCE's of the type that existed at the beginning of the 1990s lower graduation rates. New York State's voluntary Regents exams also appear to have no significant effects on dropout rates or graduation rates. However, the number of Carnegie units required to graduate does have significant negative effects on enrollment rates. For graduation rates, the Carnegie unit requirement variable is negative and similar in magnitude to the enrollment rate regressions, but far from statistical significance.

Many states have increased their graduation requirements by 3 or 4 Carnegie units over the last few decades. The regressions imply that these increases in Carnegie unit graduation requirements should have, *ceteris paribus*, decreased enrollment rates of 17 year olds by about one percentage point. Data on trends in dropout rates are presented in Table 4. Despite the policy shifts making high school graduation more difficult, high school completion rates of 19/20 year old African-Americans rose from 67.2 percent in 1972-73 to 70.6 percent in 1981-82 and then to 75.2 percent in 1990-92. During the 1970s high school completion rates of white 19-20 year olds fell slightly from 85.3 percent in 1972-73 to 84.7 percent in 1981-82. They then rose during the 1980s to 87.7 percent in 1990-92. Hispanic completion rates also increased. Event and status drop out rates also declined during the period when MCEs were being introduced and graduation requirements were being increased. Clearly, if tougher graduation standards do tend to increase dropout rates, their effects were counterbalanced and indeed overwhelmed by other forces that reduced dropout rates, such as growing incomes and the rising payoff to high school completion and college attendance.

Table 4: Trends in Dropout Rates by Ethnicity

	Event Dropout Rate Grades 10-12			Status Dropout Rate-16-24 yr olds			Completed High School -19/20 yr olds		
	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
1972-73 Avg	5.4	9.8	10.6	11.9	21.8	33.8	85.3	67.2	55.0
1981-82 Avg	4.8	8.7	9.9	11.4	18.5	32.4	84.7	70.6	57.8
1990-92 Avg	3.4	5.3	7.9	8.5	14.0	32.3	87.7	75.2	58.1
1995-96	4.3	6.6	10.7	7.95	12.55	29.7			

Source: National Center for Education Statistics. Dropout Rates in the United States 1992, Tables A32, A38 & A50 and Dropout Rates 1996, Table A23. The event dropout rate is the percent of 10-12th grade students in October of one year who are not enrolled in high school or graduated the following October. The status dropout rate is the percent of 16-24 year olds that have not graduated from high school and are not attending high school currently. Changes in CPS interviewing and editing procedures may make data on event dropout rates in the late 1990s inconsistent with previous data.

III. How Important Is It To Improve the Competencies that Minimum Competency Examinations Assess?

Lerner (1990) reports that exam scores were raised by the introduction of MCE's in many southern states. Opponents of MCEs sometimes dismiss findings such as Lerner's by arguing that the tests she used to track student performance over time and the MCE's themselves assess low level literacy skills that are not all that important in the economy. The MCE graduation requirement, some argue, will distort teaching. Teachers will focus on developing "low level" literacy skills rather than the "high order problem solving skills," writing skills, computer skills, occupation specific skills or affective competencies that are presumed "more important." They argue that exams similar to the MCE's used by many states have weak relationships with wages and labor market success. Where is the sense, they argue, in threatening to deny a credential--the high school diploma--that employers reward very handsomely in order to induce teachers to teach and students to learn basic reading and math literacy skills that employers do not reward by paying higher wages.

It is quite true that in the years immediately after high school graduation, exams measuring these basic competencies have very small effects on wage rates and earnings. Effects are small for recent high school graduates because few employers use tests assessing basic literacy skills to

help them screen job applicants and most do not ask for information on high school grades. Over time, however, they learn about the competencies of their new employees by observing job performance. Those judged most competent are more likely to get further training, promotions and good recommendations when they move on. Poor performers are encouraged to leave. Since academic achievement in high school is correlated with job performance (Bishop 1990), the sorting process results in a rising correlation between exam scores and labor market success as the worker ages (Farber and Gibbons 1996). Altonji and Pierret's (1997) analysis of the NLSY found that, in a model in which schooling and the Armed Forces Qualification Test (AFQT) competed for influence, a one standard deviation (SD) increase in the AFQT raised the wage rates of those out of school only one year by only 2.8 percent. For those out of school for 12 years, a one SD increase in AFQT raised the wage rates by **16 percent**. By contrast, the percentage impact of a year of schooling decreased with time out of school from 9.2 percent for those out just one year to 3 percent for those out for 12 years.

When literacy and academic achievement are measured contemporaneously (rather than decades earlier when the individual was in high school), their effects on earnings and unemployment of adults are even larger. When adults are examined, simple tests assessing literacy have at least as strong a relationship with unemployment and earnings as years of schooling. Table 5 present evidence for this assertion from the National Adult Literacy Survey. Adults in the top prose literacy group earn three times as much as those in the bottom literacy group and have one-fifth the chance of being unemployed. College graduates, by contrast, earn 2.35 times as much as high school dropouts and have two-fifths the chance of being unemployed.

Table 5: Impact of Literacy and Schooling on the Earnings and Unemployment of Males

<u>Prose Literacy</u>	<u>Earnings</u>	<u>Unemployment Rate--1992</u>	<u>Schooling</u>	<u>Earnings</u>	<u>Unemployment Rate--1992</u>
Level 1	\$48,965	2.3 %	BA or more	\$38,115	4.8 %
Level 2	\$39,941	4.1 %	Assoc. Degree	\$31,855	5.5 %
Level 3	\$29,610	6.4 %	13-15 yrs	\$27,279	7.4 %
Level 4	\$22,046	11.5 %	12 yrs	\$22,494	8.2 %
Level 5	\$15,755	14.9 %	9-11 yrs	\$16,194	12.4 %

Source: National Adult Literacy Survey of 1992, National Center for Education Statistics, Literacy in the Labor Force.

IV. The Effect of Minimum Competency Examination Graduation Requirements on College Attendance and Wages

Proponents of MCEs argue that they force teachers to set higher standards for all students, not just for middle class white students or for students in honors or college prep classes. All students (and students from lower income backgrounds in particular) will have to take tougher courses and study harder. The students who are at risk of failing the minimum competency exam will get more attention and tutoring from school staff. They will learn more and that will result in (1) more of them entering, staying in and completing college and, (2) holding completed schooling constant, their getting better jobs.

MCE's are hypothesized to improve job opportunities in two ways. First, by improving student achievement they raise worker productivity (Bishop 1990). Even when this does not immediately raise workers' earnings, the effect of academic achievement on wages grows with time and eventually becomes very large.

The second way MCEs improve job opportunities is by sending a signal to employers that "ALL the graduates of this high school meet or exceed your hiring standards." The fact that they have passed the MCE is the proof. In most communities, competencies developed in the local high school are poorly signaled to employers. The lack of signals of achievement in high school tends to make employers with the best jobs reluctant to risk hiring recent high school graduates. Indeed they often carry in their head very negative stereotypes regarding recent high school graduates. A black personnel director interviewed for a CBS special on the educational reform proudly stated, "We don't hire high school graduates any more, we need **skilled workers**" (CBS, September 6, 1990). They prefer, instead, to hire workers with many years of work experience because the applicant's work record serves as a signal of competence and reliability that helps them identify the most qualified.

Establishing a minimum competency exam, therefore, is one way a high a school district or state education system can try to overcome this signaling problem and help it's graduates get good jobs. The existence of the minimum competency exam (MCE) graduation requirement is well known to local employers. With the MCE requirement, the school's diploma now signals more than just seat time; it signals meeting or exceeding certain minimum standards in reading, writing and mathematics. This should make local employers more willing to hire the school's recent graduates. Because of the negative stereotypes that so many employers have regarding minority youth, the MCE graduation requirement should be particularly helpful to minority youth.

The foregoing logic generates a number of testable predictions regarding the graduates of high schools with a MCE graduation requirement. Holding constant socio-economic status (SES), test scores, grades, types of courses taken, working during senior year, current and past college attendance and a complete set of other individual and school characteristics, graduates of MCE high schools will:

1. Be more likely to go to college. This will be particularly true for black and Hispanic students, for those from low income backgrounds and for those with low test scores.
2. Be less likely to drop out of college.
3. Be more likely to complete a bachelors degree within five years.
4. Be offered higher paying jobs. This will be particularly true for Hispanic and African-American students and for those from low income backgrounds.
5. The tendency of employers to reward graduates of schools with MCEs will be visible in data on wage rates in the first year after high school graduation.

These hypotheses were tested in the two nationally representative longitudinal data sets— High School and Beyond (HSB) seniors of 1980 and the National Educational Longitudinal Study students graduating in 1992—that contain information on MCEs mandated by state law or local school boards. The analysis sample are the students in the two longitudinal studies who graduated from high school between January and September of their scheduled year of graduation. The HSB seniors were interviewed two, four and six years after graduating from high school about continued schooling, employment, earnings, and changes in family status, so we are able to assess both short and intermediate run effects of school characteristics. NELS 1992 graduates were interviewed two years after graduation.

The regression models predicting college attendance and wages included controls for reading and math test scores in 12th grade, grade point average, courses taken in high school, extra-curricular activities, work for pay during senior year, TV and homework hours, religion, reading for pleasure, attitudes, an indicator for being handicapped, family demographics, marital and parental status at the end of 12th grade, dummies for region and rural, suburban and urban residence and six variables describing the quality of the school. The variables describing the quality of the school were a dummy variable for Catholic school and for other private schools, average teacher salary, proportion of teachers with a Masters degree or more, average daily pupil attendance rate and principal reports of school problems.ⁱⁱⁱ When wage rates or earnings are the dependent variable, months attending college full-time and months attending college part-time (both current and past) are included as control variables. Otherwise the models predicting wages and the models predicting college attendance were the same. The results of the analysis for graduates categorized by gender and by reading and

mathematics test scores are presented in Table 5. Results for graduates categorized by socio-economic status and ethnicity are presented in Table 6.

Table 5: Effects of Requiring Passage of a Minimum Competency Exam to Graduate from High School

	<i>Reading & Math Test Scores</i>			<i>Gender</i>	
	Low	Middle	High	Male	Female
<u>Log Avg Wage Rate</u>					
Class of 1980 in 1981	.025 (1.45)	.020* (1.74)	.005 (.40)	.017 (1.45)	.016 (1.63)
Class of 1980 in 1984	.041* (1.85)	-.025 (-1.57)	-.010 (-.56)	-.012 (.75)	.007 (.52)
Class of 1980 in 1986	.021 (1.02)	.029* (1.85)	.010 (.53)	.017 (1.05)	.034** (2.45)
Class of 1992 in 1992-94	-.049 (1.46)	.052*** (2.63)	.063*** (2.65)	.041** (2.18)	.032* (1.69)
<u>Earnings (1992 \$)</u>					
Class of 1980 in 1981	460* (1.60)	-207 (.99)	-151 (.72)	-12 (.05)	161 (.96)
Class of 1980 in 1982	-41 (.11)	-89 (.32)	-80 (.30)	-148 (.53)	193 (.82)
Class of 1980 in 1983	-240 (.63)	40 (.13)	-163 (.54)	-302 (1.01)	227 (.95)
Class of 1980 in 1984	77 (.17)	380 (1.59)	291 (.77)	473 (1.40)	320 (1.16)
Class of 1980 in 1985	474 (1.01)	1077*** (2.89)	368 (.79)	979** (2.52)	758** (2.33)
Class of 1992 in 1993	60 (.16)	424** (2.21)	158 (.93)	269 (1.28)	208 (1.40)
<u>College Attendance</u>					
Class of 1980 in 1981/82	.043*** (3.19)	.011 (.83)	-.009 (-.59)	.017 (1.43)	-.000 (-.07)
Class of 1980 in 1982/83	.038*** (2.51)	.043*** (2.99)	-.006 (-.33)	.018 (1.39)	.024** (1.88)
Class of 1980 in 1983/84	.041*** (2.95)	.045*** (3.15)	.007 (.38)	.026** (1.93)	.026** (2.06)
Class of 1980 in 1984	.011 (.857)	.022* (1.62)	.018 (.94)	.021 (1.59)	.008 (0.65)
Class of 1980 in 1985	-.001 (.069)	.003 (.21)	.02 (1.16)	-.013 (.92)	.002 (.16)
Class of 1980 in 1986	.015 (.91)	-.017 (-1.09)	-.01 (.85)	-.011 (.97)	-.002 (-.16)
Class of 1992 in 1992-94	.011 (.52)	.017 (1.04)	-.004 (.24)	-.009 (.57)	.029** (1.99)
Full time					
Class of 1992 in 1992-94	-.001 (.06)	.008 (.90)	.005 (.58)	.016** (2.09)	.002 (.26)
Part time					

Source: Analysis of follow up data for High School and Beyond-Senior Cohort and NELS-88. Sample is all students who graduated from high school during calendar 1980 or 1992. All models contain a full set of background variables including test scores and grades. In addition, models predicting earnings and wage rates contain controls for the number of months spent attending college full-time and months spent attending part-time.

Table 6: Effects of Requiring Passage of a Minimum Competency Exam to Graduate from High School

	<i>Socio-Economic Status</i>			<i>Race/Ethnicity</i>		
	Low	Middle	High	White	African-American	Hispanic
<u>Log Wage Rate</u>						
Class of 1980 in 1981	.036** (2.08)	.017* (1.69)	-.012 (.78)	-.005 (.56)	.042** (2.20)	.037** (2.17)
Class of 1980 in 1983	-.017 (.73)	-.006 (.42)	.005 (.25)	-.015 (1.10)	-.014 (.54)	.045* (1.85)
Class of 1980 in 1985	.019 (.83)	.025* (1.79)	.011 (.52)	.008 (.61)	.031 (1.28)	.046** (1.98)
Class of 1992 in 1992-94	.039 (1.27)	.037** (2.11)	.049 (1.61)	.047*** (3.09)	-.007 (.22)	-.007 (.22)
<u>Earnings (in current \$)</u>						
Class of 1980 in 1981	194 (1.09)	113 (.93)	-286* (1.74)	-161 (1.45)	93 (.54)	500** (2.37)
Class of 1980 in 1982	-86 (.34)	69 (.40)	-113 (.51)	-227 (1.46)	111 (.44)	402 (1.42)
Class of 1980 in 1983	-220 (.83)	64 (.33)	-149 (.39)	-208 (1.16)	5 (.02)	477 (1.56)
Class of 1980 in 1984	0 (.00)	264 (1.21)	103 (.32)	117 (.56)	470 (1.39)	330 (.91)
Class of 1980 in 1985	377 (1.02)	620** (2.27)	286 (.72)	484* (1.88)	808** (2.05)	703* (1.67)
Class of 1992 in 1993	694** (2.22)	171 (.94)	107 (.54)	318** (2.31)	59 (.18)	59 (.18)
<u>College Attendance</u>						
Class of 1980 in 1981/82	.027* (1.72)	.008 (.70)	-.008 (.49)	.000 (.01)	.011 (.59)	.031* (1.77)
Class of 1980 in 1982/83	.022 (1.26)	.018 (1.37)	.032* (1.66)	.018 (1.41)	.032 (1.56)	.039** (2.04)
Class of 1980 in 1983/84	.024 (1.42)	.027** (2.12)	.030 (1.52)	.032** (2.49)	.038* (1.89)	.011 (.62)
Class of 1980 in 1984	.004 (.28)	.013 (1.02)	.029 (1.32)	.022* (1.66)	-.002 (.09)	.002 (.09)
Class of 1980 in 1985	-.009 (.53)	.013 (.98)	.004 (.16)	.009 (.64)	-.014 (.070)	.022 (1.10)
Class of 1980 in 1986	-.012 (.59)	-.011 (.77)	.005 (.24)	-.009 (.64)	-.007 (.32)	.007 (.34)
Class of 1992 in 1992-94 Full-time	.032 (1.49)	.011 (.72)	-.003 (.18)	.011 (.93)	.018 (.69)	.018 (.69)
Class of 1992 in 1992-94 Part-time	.012 (1.11)	.013 (1.60)	.001 (.07)	.010* (1.71)	.010 (.73)	.010 (.73)

Source: Analysis of follow up data for High School and Beyond-Senior Cohort and NELS-88. Sample is all students who graduated from high school during calendar 1980 or 1992. All models contain a full set of background variables including test scores and grades. In addition, models predicting earnings and wage rates contain controls for the number of months spent attending college full-time and months spent attending part-time. The 1992 Hispanics and African-American graduates were merged because of insufficient number of observations for separate analysis.

College Attendance: The analysis of HSB data found that MCEs had significant positive effects on the probability of being in college in a majority of subgroups during the four-year period immediately following high school graduation. Effects were largest for students in the middle and bottom of the test score distribution and tended to be greater in the 2nd and 3rd years out than in the 1st, 4th and subsequent years out. Socio-economic status also interacts with MCEs in the way hypothesized. MCEs have an immediate and significant impact on the college enrollment of low SES students. Middle and high SES students are affected but not till the 2nd and 3rd year out of high school. For 1992 graduates the same pattern appears to be developing. Combining full and part time enrollment, the point estimates imply that MCEs raise enrollment rates of students from low SES backgrounds by 4.4 percentage points, middle SES students by 2.4 percentage points and high SES students not at all. Women graduating from MCE high schools are significantly more likely to go to college full time and men are significantly more likely to go part time. When results are broken down by ethnicity, MCEs are found to effect all groups but effects are somewhat larger (though not significantly so) for minority students. Effects were significant in the first year following graduation only for Hispanics and significant for almost all sub-groups in the 2nd and 3rd year following graduation.

Wage Rates: For graduates in 1980, MCEs had significant effects on wage rates of graduates who were in the low and middle test score groups., as hypothesized. They had no effect on wages of high test score students. Students from low and moderate SES backgrounds, had significantly higher wage rates when they attended MCE high schools. High SES students did not. Finally MCEs appeared to have increased the wage rates of minority youth but not white youth. Black youth from MCE high schools were paid a significant 4.2 percent more in the first year after graduating but the effect diminished in later years. Hispanic youth graduating from MCE high schools in 1980 were paid consistently (between 3.7 and 4.6 percent) more at one year, 3 years and 5 years following graduation.

The wage rate benefit of graduating from an MCE high school in 1992 is considerably larger than for 1980 graduates. MCE graduates in 1992 were paid 4.1 percent extra if they were male and 3.2 percent extra if they were female. This compares to average effects of 1.6-1.7 percent for 1990 graduates. Who benefits also changed. MCEs appear to have raised wage rates of medium and high test score students by an astonishing 5.2 to 6.3 percent, but possibly lowered wage rates of low test score students by 4.9 percent. The MCE coefficient for the low test score group is not significantly less than zero, but it is significantly smaller than the coefficient in the middle test score group. SES background no longer interacts with MCEs.

1992 graduates who attend high schools with MCEs are paid more without regard to their SES background. White students who did not benefit in the early 1980s are now benefiting. The minority students who in 1980 were the sole beneficiaries of attending a MCE high school no longer benefited in 1992.

Annual Earnings: The earnings regressions capture the effects of variables on both time spent working and wage rates. Except for Hispanics, 1980 graduates of MCE high schools did not earn more than graduates of non-MCE high schools in the years immediately following graduation. Earnings effects grew over time, however, so that by 1985 annual earnings were \$484 higher for whites, \$808 higher for blacks and \$703 higher for Hispanics. For 1992 graduates, a number of the subgroups appear to be receiving statistically significant earnings benefits in the first calendar year after graduating from a MCE high school. Low SES students who graduate from a MCE high school earn \$694 extra, a more than ten percent increase in earnings. Students from the middle of the test score distribution earn \$424 extra (a 7.5 percent increase) when they graduate from a MCE high school.

The reader should be reminded that all of these findings are from regressions that control for the quality of the high school and the individual's academic achievement—test scores, grade point average, participation in extra-curricular activities and an indicator for taking remedial courses in either math or English. Apparently, the existence of the MCE raises achievement in ways not captured by individual test scores and this has long run effects on the student's ability to complete college and get higher paying jobs.

Now let us summarize the last three sections of the paper. The MCEs that were in existence in the 1980s and early 1990s did not lower high school completion rates as some have feared. Instead they have increased college attendance and college retention rates. Students who graduated from MCE high schools immediately obtained significantly higher paying jobs and kept their pay advantage for the next five years. In addition, large earnings benefits appeared five years after high school graduation. The immediate wage rate benefits of graduating from a MCE high school were larger for the people graduating in 1992 than in 1980 though who is benefiting had a less egalitarian bias in 1992 than in the early 1980s.

MCEs are changing. New states and cities such as Chicago, Ohio and Massachusetts have introduced them. Other states such as New Jersey and New York are improving their exams (by adding essays and open response questions) and raising the standard that must be achieved to graduate. While MCEs of the past have not increased dropout rates, that does not guarantee that MCEs that set much higher minimum standards will not have that effect.

The most dramatic increase in graduation standards is in New York State. The next section of the paper provides background on New York State's Regents examination system and plans to reform it by requiring ALL students to take and pass Regents exams in five core subjects. The succeeding section reports on the high schools that jumped the gun on this reform. The schools studied eliminated bottom track classes in the early 1990s and required instead that all students to take demanding "Regents" courses in five core subjects. The primary change has been a massive redirection of energy and attention to struggling students.

V. The New York State Regents Examinations

New York State has been administering curriculum-based Regents Examinations to high school students ever since June 1878. As Sherman Tinkelman, Assistant Commissioner for Examinations and Scholarships described in a 1966 report:

The Regents examinations are closely related to the curriculum in New York State. They are, as you can see, inseparably intertwined. One supports and reinforces the other.... These instruments presuppose and define standards.... They are a strong supervisory and instructional tool--and deliberately so. They are effective in stimulating good teaching and good learning practices (Tinkelman, 1966 p. 12).

Sponsorship by the state Board of Regents is crucial to the role these examinations have played in setting and maintaining high standards and promoting reform. On occasions, examinations have been deliberately revised to induce changes in curriculum and teaching.

For years our foreign language specialists went up and down the State beating the drums for curriculum reform in modern language teaching, for change in emphasis from formal grammar to conversation skills and reading skills. There was not very great impact until we introduced, after notice and with numerous sample exercises, oral comprehension and reading comprehension into our Regents examinations. Promptly thereafter, most schools adopted the new curricular objectives (Tinkelman, 1966 p. 12).

The examinations are taken throughout one's high school career. A typical student taking a full schedule of college preparatory Regents courses would take Regents exams in mathematics and earth science at the end of 9th grade; mathematics, biology and global studies exams at the end of 10th grade; mathematics, chemistry, English, American history and foreign language exams at the end of 11th grade and physics exams at the end of 12th grade. Students who want to take AP classes in junior and senior year often start taking Regents courses and exams in 8th grade.

In 1996, the ratio of the number of students taking the Mathematics Course 1 exam to average enrollment in a high school grade was 89 percent and, of these, 28 percent scored below the 65% passing grade. Participation percentages were in the 60s for the global studies, American

history, biology and English exams. Failure rates were 25 percent in global studies, 19 percent in American history, 25 percent in biology and 20 percent in English. Those not taking Regents exams were typically in “local” courses that are considerably less challenging than Regents courses. A system of Regents competency exams (RCTs) in reading, writing, math, science global studies and U.S. history and government set a minimum standard for those not taking Regents courses.

For students the stakes attached to Regent exams are not high.^{iv} Exam grades count for less than an eighth of the final grade in the course and influence only the type of diploma received. College admissions decisions depend primarily on grades and SAT scores, not Regents exam scores. Employers ignore exam results when making hiring decisions. Students are aware that they can avoid Regents courses and still go to college. Indeed some perceive an advantage to avoiding them:

My counselor wanted me to take Regents history and I did for a while. But it was pretty hard and the teacher moved fast. I switched to the other history and I'm getting better grades. So my average will be better for college. Unless you are going to a college in the state, it doesn't really matter whether you get a Regent's diploma. (Ward, 1994)

Indeed, the modest payoff to taking Regents exams may be one of the reasons why so many students have not been taking Regents courses. In 1996/97 only 42 percent of graduating seniors got a Regents Diploma signifying they took a series of Regents (or above) level academic courses and passed the associated exams.

The Statewide Shift to All-Regents

This is about to change. The Board of Regents has announced that students graduating in the year 2000 must take a new six hour Regents English examination and pass it at the 55% level. The class of 2001 has the additional requirement of passing an examination in algebra and geometry. The class of 2002 must also pass Regents examinations in global studies and American history as well. When laboratory science exams come on stream, the phase in of all five new required Regents exams will be completed with the graduating class of 2003. The new requirements will effectively abolish the bottom track. Everyone, including those pursuing vocational programs at area vocational technical schools, will be required to achieve the standard in the five core subjects that used to be what was expected of those going to four year colleges.

In a number of subjects the Regents examinations are being revised. The revised exams are if anything more demanding than the exams they replace. See www.nysed.gov/rscs/test123.html for copies of new or old regents exams, scoring rubrics and a complete description of the testing

program. Once schools have adjusted to the revised exams and the requirement that all students take them, the Regents intend to raise the scores necessary to pass from the 55% level to 60% and then to 65%. New York State is embarked on establishing the first **high stakes** curriculum-based external exit examination system in United States history.

VI. All Regents High Schools: How did they do it?

What kinds of changes in school policies and resource allocation will be necessary to move to an All-Regents curriculum in the 5 core subjects? This question was addressed by interviewing teachers, administrators and school board members at ten high schools that had already moved to an All-Regents curriculum and have significantly increased the number of students taking and passing Regents exams. The method of drawing the sample and conducting the interview is described in Monk and Hussein (1997) and will not be repeated here. The site visitors wrote a short report about each district. In eight of the school districts, interviews were recorded. About 60 hours of tape was generated. The comments that follow are based on listening to the recorded interviews, a review of the reports and conversations with the interviewers.

Generating support

The districts that increased their participation in Regents exams to high levels did not accomplish the goal quickly and easily. The key to success was not getting a tax rate increase through the school board or introducing some new teaching system. In most cases the formal and structural changes were modest. It was the school's culture—both the teacher culture and the student peer culture—that had to and did change.

The initiative generally came from a new district superintendent who then recruited or promoted people into key jobs who would support his vision for the elimination of the bottom/local track. Staff and community support for eliminating local/basic classes in core subjects was carefully cultivated. In many cases the goal of shifting to an All-Regents curriculum was not announced until many years after important initial steps had been taken and some early successes had been achieved. The new superintendent had to deal with that fact that teachers and the community felt that the school was already doing a great job. They took pride in the accomplishments of the honors students. How could they be convinced to end the low expectations basic/local track into which struggling and lazy students were fleeing? The Regents exams and the report card outlining district level results provided the benchmark that the superintendent was able to use to shame and inspire teachers to set high standards for all students. As one superintendent put it:

“External validation of what you’re doing and forcing teachers, administrators and the community to look at yourself as reflected in the eyes of people outside of you and matching a standard that exists outside your school district was critical!”

The long history and prestige of Regents exams helped in selling the reform to parents.

“All-Regents was ...helpful for us. It was very concrete. It was something the parents could relate to. When parents thought of a Regents program in their own experience, they thought about students who were college bound. (School board president of an All-Regents school district)

Outside recognition was sought and excellence awards were frequently received.

“The whole community is walking around with their chests out. Which really helps out. There is a pride that this is what _____ is today.”(School board president of an All-Regents school district). ***[All Regents] put us up on a new standard. It made a change in the high school and [brought] the recognition of this high school as a place where positive things are happening.*** (President of the teachers union local in an All-Regents school district)

The outside recognition increased teacher and community support for the initiative. Praise for past accomplishments spurred teachers to raise standards even higher and work harder still. The focus on the external standard meant that the professional pride of the teachers became invested in getting marginal students “through the Regents.” The visibility of each success made the extra work seem worthwhile.

Eliminating the local/basic track and the general increase in standards persuaded more students to take honors, Advanced Placement and International Baccalaureate classes.

“Every level of kid in that classroom is getting a new challenge. Because we are an All-Regents high school, we are offering more AP classes. Kids are ready for that next challenge.”

A Focus on Struggling Students.

All of the districts substantially increased the time and resources devoted to teaching and tutoring struggling students. Since they had initiated the raising of the bar, school administrators felt a moral obligation to do everything in their power to help students succeed.

“You need to . . . provide the remedial and tutorial support that every individual kid needs. It’s a terrible thing to put in a tough program that kids are going to fail. Every one of these kids can do it - they take a

different amount of time to do it."(School board president in an All-Regents School District)

The guidance counselor met with incoming freshman and developed a plan whose goal was obtaining a Regents diploma. The milestones were tracked and if a student started having difficulties the counselor arranged tutoring . The extra time was obtained in a variety of ways:

- More homework was assigned—especially for students formerly in local courses.
- Struggling students were assigned to Stretch Regents courses that take 1.5 or 2 years to cover material conventionally covered in one year in a standard Regents course.
- Struggling students were assigned to classes with more than 5 periods a week. A number of the schools that settled on this option had tried 2 year Stretch Regents courses and felt that extra time in a one year period worked better.
- Increased summer school attendance especially for struggling primary and middle school students.
- Study halls were reduced (because most students “do not use study halls productively”) and regular tutoring sessions were substituted.
- Extra periods at the beginning or end of the school day were added and used for giving struggling students extra help.
- Students in the National Honors Society and the International Baccalaureate program provided peer tutoring.

Teachers were Inspired to Work Harder

“[Teachers] worked above and beyond the contract. Nobody asks them to do it....I’ve never worked in a place like this before!”(Principal of an All-Regents high school)

“The [teachers] were willing to give their every effort and time above and beyond the school day. They would stay for hours on end late in the...evening.... She [the principal] presented it so well. She’s just a motivator!” (School secretary at the same All-Regents high school)

In many schools the increase in teacher time devoted to tutoring was also accomplished by relieving them of hall duties and supervision of study hall and lunch room. In one school the position of department chair was eliminated and the released time formerly given to department chairs was reallocated to teaching and tutoring. In some schools teaching assignments were no longer allocated by seniority. The best teachers were reassigned to classes with lots of struggling students. In some schools teaching assistants who were fully

qualified teachers were hired to provide tutoring. Night time review sessions were offered in the months preceding the Regents exams. Teacher contracts were not renegotiated, but local union leaders sometimes chose not to make an issue of things that in the past might have led to a grievance.

In one district many teachers could not adapt to the new way of doing things and left. Young teachers who believed the All-Regents goal was both desirable and feasible were hired as replacements.

VII. Implications for State Policy

Requiring that all students reach the Regents standard in 5 core subjects will significantly increase student achievement, college attendance and completion and the quality of jobs that students get after high school. The biggest beneficiaries of the policy will be the students, often from disadvantaged backgrounds, who have been encouraged or allowed to avoid rigorous courses in the past. In the All-Regents high schools there was a major reallocation of teacher time and resources towards struggling students. It was their achievement that increased the most. Administrators reported that college enrollment rates went up after they shifted to All Regents.

It is not clear, however, that the parents of struggling students will see it that way. When the principal of an All-Regents high school was asked who opposed the elimination of the easier local courses, she said:

“Parents of children...who...felt [their kids] couldn’t do it....[One parent approached her in the school parking lot] “She started yelling at me. She told me she hated the all Regents high school. Her kids were not as successful. If you sit in a consumer math class you get a 90. If you sit in a sequential math class, you have to struggle to get a 65....She was very angry about it....Parents are a big obstacle.... Your kids don’t want to do this. They’re going to complain about it. Which means you are going to work harder as a parent.”

Once students start failing Regents exams and having to repeat courses in order to graduate, there will be a crescendo of complaints. Claims will be made that schools have not done enough to help students succeed on the new exams. What can the Regents and the state legislature do to help local schools meet their obligation to help students meet the new higher standards? How can the number of dropouts and graduation delays be minimized?

The most important change is to increase the amount of time that struggling students spend on the task of learning. This is not just this author's judgement. It is also the central recommendation of a representative group of teachers, school administrators and parent representatives that was convened by New York State's Commissioner of Education to recommend to the Board of Regents means of minimizing the number of students failing to meet the new higher learning standards. This group, inelegantly named the "Safety Net Study Group," recommended a radical increase in the amount of instruction that struggling and disadvantaged students receive. I will quote extensively from their final recommendations:

"The success of this upgrading of standards will depend on a systemic program of prevention and intervention strategies that each district and, in turn, each school must provide. These strategies include, but are not limited to:

- Providing extra learning opportunities through extended time for students in need of this service.
- Providing clear direction to students and their parents of what is expected of the student, what is the student's current academic status and what the student still needs to do to earn a Regents diploma.
- Providing a transitional program from elementary to middle school and from middle school to high school.
- Providing a clearly defined promotional [policy so that all students and their parents understand the criteria from grade to grade.

Recommendation 1—Grade Specific Curriculum: Each school district and, in turn, each school should be required to have grade specific curriculum consistent with State standards....If a district does not meet the learning standards, then State intervention procedures will be implemented. [Schools Under Registration Review is the state's intervention program].

Recommendation 2—Extra Help/Extra Time: Each school district should have, at every grade level, an assessment system to provide information on student performance and to prepare all students to meet the standards....Enrichment and remediation programs should be provided as additions to and to reinforce core courses of study as opposed to "pullout" programs. [Pullout programs take struggling students out of their regular class to give them small group instruction by a resource teacher]. The state should revise the commissioner's Regulations on remediation,...to require that students receive the extra help/extra time they may need to meet the standards. These students enrichment and remedial activities will be provided within the school year, including after school instruction, evening instruction, Saturday instruction, etc.

Recommendation 3—Mandatory Summer School: When a student fails to meet academic expectations, based on grade-level assessments, then that students would be required to attend summer school....Since the State is

responsible for summer school, it would need both to revise the current summer school requirements and procedures to accommodate this expansion and to review and revise the current assessments provided during the summer sessionsIn addition the State would provide the necessary financial assistance to support the extra cost of mandatory summer school.

Recommendation 4—Professional Development:....Each district should provide professional development to all staff, kindergarten through grade 12, to enable them to assist students to meet the new graduation requirements....

Recommendation 5—Student Promotional Guidelines: Each school district should have a plan that explains the movement of students from grade to grade (especially when they move between different school buildings) and identifies the ways that schools engage parents, students and other community members to help students understand and achieve higher standards....^v (Safety Net Study Group, June 22, 1998)”

Schools with large numbers of struggling students should probably just lengthen the school day and school year for all students, not just a targeted minority who are behind the rest. The Edison Schools have been successful with this approach. A non-Edison public school in Massachusetts has successfully copied the idea. Why not either contract with Edison to take over some urban public schools in New York or implement the idea in a few pilot schools?

The All-Regents schools I studied obtained large increases in teacher contact time with students by reorganizing teacher time and getting teachers to work above and beyond their contracted hours. Inspiring leadership that induces teachers to work way beyond the contract for no additional pay will not be available in most districts. Consequently, teachers will have to be paid extra for working longer hours. Costs of tutoring, longer school days, review sessions and staff development that are associated with preparing students for Regents exams should not be subject to caps in state funding formulas. A special funding formula should be developed for districts that have large numbers of disadvantaged pupils and low first grade test scores.

One of the most effective forms of professional development is serving on the committees that grade essays, multi-step mathematics problems and extended answer questions. Canadian teachers who have served on grading committees for their provincial exams describe it as “a wonderful professional development activity (Bob 1996).” Having to agree on what constituted excellent, good, poor, and failing responses to essay questions or open-ended science and math problems resulted in a sharing of perspectives and teaching tips that most found very helpful. Therefore, teachers should grade the Regents exams in centralized

regional locations under the guidance of well-trained leaders. Scoring rubrics would be developed centrally so as to maintain consistent standards across the state.

What will happen to Dropout Rates?

Anticipating the new requirements, many school districts have already started shifting to an all-Regents curriculum and the numbers of students taking Regents level courses and passing Regents exams is rising. Between 1995 and 1997 the proportion of students taking and passing Regents exams at the 65% correct level rose from 50.3 to 56.3 percent in English, from 53 to 59 percent in Sequential Mathematics I and from 41 to 44 percent in Biology.

Nevertheless, we predict extremely high failure rates—between 30 and 50 percent in some subjects--the first time Regents Exams are administered to all students. Even if the reforms proposed above were implemented immediately, they would not have been in operation long enough to prevent this from happening. Many students will have to retake examinations after taking additional academic courses or special summer makeup courses. Will this generate a large increase in dropout rates as students despair of ever passing all five exams? We think not. Our prediction is that New York students will respond the same way that European students respond to tough graduation requirements, they will study harder and stay in high school longer. The tougher graduation requirements are not fully phased in until the class of 2003. We predict that 4 years later, in 2007, that drop out rates will be at or below current levels and this will be accomplished without making the Regents Exams easier than they are right now. We base this forecast on the following:

- When they discover how difficult the standards are, we expect students to react by studying harder. Teachers will gain experience with teaching to the new standards and will get better at it. Teachers who are unable to teach to the higher standards will leave the profession and be replaced by teachers who can.
- We expect the fire storm that will result from the high failure rates in the first year to generate a large infusion of state aid directed specifically at helping struggling students and schools serving disadvantaged populations. The impending rise in graduation standards helped convince the legislature to increase school aid in the most recent budget cycle and much of it was targeted on expanding after-school programs and summer schools.
- The high stakes exam will make teacher quality much more critical than in the past. The competition for quality teachers will drive their wages up. Parent support of more school spending will increase.
- We predict the plan to increase the 55 percent passing standard on the Regents Exams to 60 and then 65 percent will be indefinitely postponed.

- The Regents Examination graduation requirement replaces a Regents Competency Exam graduation requirement that already sets a pretty high minimum, so the change in failure rates will not be as dramatic as many expect. In 1996, the ratio of the number of students failing a RCT to average enrollment per grade in the state was 21 percent in Mathematics and Global Studies and 20 percent in Science. In New York City failure ratios on the RCT were above 40 percent in these three subjects.
- The Regents exam graduation requirement does not apply to all high school students in the state. The ten percent of students who are in private schools are not covered. Special education students with an Individual Education Plan are exempted.
- Many of the students who are unable to pass all five Regents exams at the 55% level will complete high school by transferring to a private high school or a GED program. A transfer to a GED program is considered a switch to another kind of school, not dropping out of school.

Let us imagine, however, that our prediction of stable or rising high school completion rates is wrong. Would a 2 to 4 percent decline in completion rates imply that increasing graduation requirements was a mistake? No. Focusing solely on graduation rates mistakes symbol for substance. What counts is how much students learn, not what proportion of them have a specific paper credential. It is the competencies developed in high school that enable a student to survive and thrive in college, not the diploma. Many community colleges admit students without diplomas. Higher standards will result in all students learning more on average (Bishop 1997). Those who graduate will be more competent and will be able to command a better wage in the labor market. Section IV of the paper demonstrated that this effect is quite large—MCEs cause a 3 to 4 percent increase in average wage rates. The average high school dropout will also be more competent and this too will result in higher pay. College attendance rates will be higher, and those affected in this way are big gainers. There will be losers--the hypothesized 2 to 4 percent of the age cohort that would have graduated under the old standards but do not under the new higher standards regime. Altonji and Pierret's regression predicts that dropping out generates about an 18 percent reduction in earnings in the first year out of school and a 6 percent loss in the 12th year out [assuming no change in test scores]. These losses pale by comparison to the 3+ percent wage rate gains experienced by the 96 to 98 percent of young people whose years of completed schooling are not changed or are increased by the higher standards.

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APPENDIX I
Sample Regressions

_NELS-88 MALE COMPLETE SAMPLE

19:07 Saturday, July 11, 1998 22

Model: MODEL1

Dependent Variable: LOGWAGES

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob > F
Model	71	46.35061	0.65283	3.407	0.0001
Error	3359	643.54444	0.19159		
C Total	3430	689.89505			
Root MSE	0.43771	R-square	0.0672		
Dep Mean	1.68830	Adj R-sq	0.0475		
C.V.	25.92588				

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T	Variable Label
INTERCEP	1	1.512304	0.19177607	7.886	0.0001	Intercept
VOCATIO	1	0.015050	0.00689323	2.183	0.0291	
SQVOCA	1	0.000092935	0.00173698	0.054	0.9573	
ACADEMI	1	-0.000131	0.00320617	-0.041	0.9673	
SQACAD	1	-0.000318	0.00035048	-0.908	0.3641	
DIFICULT	1	0.009185	0.00994208	0.924	0.3556	
DUMYDIFI	1	0.024662	0.04406341	0.560	0.5757	
GRADE12	1	-0.003998	0.01561136	-0.256	0.7979	
TMATH	1	0.001595	0.00139726	1.142	0.2536	
TREAD	1	-0.002676	0.00118840	-2.252	0.0244	
TESTBIS2	1	0.041497	0.01978478	2.097	0.0360	Min. Competency
Exam Grad Req						
SCHOCATO	1	0.068566	0.03970959	1.727	0.0843	
PRIVATE	1	0.087156	0.03932715	2.216	0.0267	
AVA2	1	0.004951	0.16725518	0.030	0.9764	
DUMYAVA	1	0.008100	0.02768773	0.293	0.7699	
TEACMAD2	1	0.002474	0.03751178	0.066	0.9474	
DUMYMADO	1	-0.000625	0.02393683	-0.026	0.9792	
TEACWAG2	1	0.007629	0.00316194	2.413	0.0159	
DUMYTEWG	1	0.015946	0.03251527	0.490	0.6239	
HISPANIC	1	-0.044447	0.02731437	-1.627	0.1038	
INDIAN	1	0.085595	0.07732401	1.107	0.2684	
ASIAN	1	0.033167	0.03324571	0.998	0.3185	

BLACK	1	-0.014733	0.03145125	-0.468	0.6395	
DEPCHILD	1	0.052219	0.05333683	0.979	0.3276	
MARSTAT	1	-0.007511	0.06968022	-0.108	0.9142	Current marital status
MALEFAM	1	-0.120223	0.04874150	-2.467	0.0137	
FEMAFAM	1	-0.018147	0.02355295	-0.770	0.4411	
DIVORFAM	1	0.008205	0.02456843	0.334	0.7384	
SIBLING	1	-0.004543	0.00380413	-1.194	0.2325	
DUMYSIBL	1	-0.071790	0.05121415	-1.402	0.1611	
RELIGIO	1	-0.000627	0.01750010	-0.036	0.9714	
HOMEWOR2	1	0.002152	0.00143054	1.505	0.1325	
DUMYHOME	1	-0.030206	0.05222774	-0.578	0.5631	
HOURSTV2	1	0.003032	0.00473424	0.640	0.5220	
LIDEVARS	1	0.030721	0.02492967	1.232	0.2179	
DUMYLIVA	1	0.058721	0.08264269	0.711	0.4774	
LIDINTRA	1	-0.014540	0.03170235	-0.459	0.6465	
DUMYLIIN	1	0.091695	0.10242588	0.895	0.3707	
LIDEACTI	1	-0.012906	0.01683102	-0.767	0.4433	
PARINTRA	1	0.010922	0.02142625	0.510	0.6103	
PARTVARS	1	0.000407	0.02185210	0.019	0.9851	
PARTACTI	1	0.021540	0.01161463	1.855	0.0637	
LIDECHUR	1	-0.006631	0.04770970	-0.139	0.8895	
PARTCHUR	1	-0.012315	0.02026287	-0.608	0.5434	
HANDICA	1	-0.029730	0.03737849	-0.795	0.4264	
READING	1	0.000965	0.00809356	0.119	0.9051	
CUTCLAS2	1	0.040659	0.01616394	2.515	0.0119	
SUSPEN2	1	0.043828	0.02916211	1.503	0.1330	
URBAN	1	-0.013662	0.02418663	-0.565	0.5722	
SUBURBAN	1	0.003941	0.01967974	0.200	0.8413	
MIDWEST	1	-0.013764	0.02498223	-0.551	0.5817	
SOUTH	1	-0.026810	0.02492725	-1.076	0.2822	
WEST	1	0.057772	0.02854600	2.024	0.0431	
SES	1	0.034702	0.01266373	2.740	0.0062	
WKSENIOR	1	0.002809	0.00079959	3.512	0.0004	
WKSQ	1	0.000105	0.00006227	1.680	0.0930	
LAW2	1	0.037805	0.02912543	1.298	0.1944	
SELFCON	1	0.016372	0.00838693	1.952	0.0510	
LOCUS	1	0.020423	0.00858536	2.379	0.0174	
CATHOLI2	1	0.005703	0.02167805	0.263	0.7925	
JEWISH	1	0.048884	0.06918527	0.707	0.4799	
RELIOTHE	1	0.002207	0.02336125	0.094	0.9248	
RELINON2	1	-0.012106	0.02728772	-0.444	0.6573	
RELDK	1	0.087424	0.04897600	1.785	0.0743	
IMPMONE3	1	0.023924	0.01363065	1.755	0.0793	
DUMYMON3	1	-0.184346	0.17388424	-1.060	0.2891	
IMPSTEA3	1	-0.007071	0.02011806	-0.351	0.7252	
DUMYSTE3	1	0.288401	0.17106851	1.686	0.0919	
DUMYLIDE	1	-0.182789	0.12918338	-1.415	0.1572	
DUMYLICH	1	0.046208	0.06348871	0.728	0.4668	
FULMONTH	1	-0.008382	0.00134137	-6.249	0.0001	
PARMONTH	1	-0.003251	0.00247160	-1.315	0.1885	

_NELS-88 MALE COMPLETE SAMPLE

19:07 Saturday, July 11, 1998 23

Dependent Variable: LOGWAGES

Test: VOCACA	Numerator: 0.8368	DF: 1	F value: 4.3678
	Denominator: 0.191588	DF: 3359	Prob>F: 0.0367

Dependent Variable: LOGWAGES

Test: MPLUSR	Numerator: 0.1287	DF: 1	F value: 0.6716
	Denominator: 0.191588	DF: 3359	Prob>F: 0.4126

Dependent Variable: LOGWAGES

Test: TPLUSGDS	Numerator: 0.0232	DF: 1	F value: 0.1209
	Denominator: 0.191588	DF: 3359	Prob>F: 0.7280

Dependent Variable: LOGWAGES

Test: TPGDSDIF	Numerator: 0.0119	DF: 1	F value: 0.0619
	Denominator: 0.191588	DF: 3359	Prob>F: 0.8035

Dependent Variable: LOGWAGES

Test: TEACHP	Numerator: 0.7370	DF: 1	F value: 3.8470
	Denominator: 0.191588	DF: 3359	Prob>F: 0.0499

Dependent Variable: LOGWAGES

Test: MRTEST	Numerator: 0.7003	DF: 1	F value: 3.6554
	Denominator: 0.191588	DF: 3359	Prob>F: 0.0560

Dependent Variable: LOGWAGES

Test: TVREAD	Numerator: 0.0556	DF: 1	F value: 0.2902
	Denominator: 0.191588	DF: 3359	Prob>F: 0.5901

Dependent Variable: LOGWAGES

Test: LWSUSP	Numerator: 0.9217	DF: 1	F value: 4.8108
	Denominator: 0.191588	DF: 3359	Prob>F: 0.0284

Dependent Variable: LOGWAGES

Test: ALLPROB	Numerator: 2.3970	DF: 1	F value: 12.5111
	Denominator: 0.191588	DF: 3359	Prob>F: 0.0004

Dependent Variable: LOGWAGES

Test: RELIGIO	Numerator: 0.0327	DF: 1	F value: 0.1706
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Denominator: 0.191588 DF: 3359 Prob>F: 0.6796

Dependent Variable: LOGWAGES

Test: SPORTLID Numerator: 0.0482 DF: 1 F value: 0.2516
 Denominator: 0.191588 DF: 3359 Prob>F: 0.6160

Dependent Variable: LOGWAGES

Test: SPORTPAR Numerator: 0.0523 DF: 1 F value: 0.2728
 Denominator: 0.191588 DF: 3359 Prob>F: 0.6015

Dependent Variable: LOGWAGES

Test: LIDPART1 Numerator: 0.2604 DF: 1 F value: 1.3591
 Denominator: 0.191588 DF: 3359 Prob>F: 0.2438

Dependent Variable: LOGWAGES

Test: LIDPART2 Numerator: 0.0231 DF: 1 F value: 0.1208
 Denominator: 0.191588 DF: 3359 Prob>F: 0.7282

Dependent Variable: EMPLTOT2

Test: LIDPART2 Numerator: 0.4580 DF: 1 F value: 4.3318
 Denominator: 0.105719 DF: 5191 Prob>F: 0.0375

Correlation Analysis

12 'VAR' Variables: DIFICULT GRADE12 TMATH TREAD RELIGIO HOMEWOR2
 HOURSTV2 READING CUTCLAS2 SUSPEN2 WKSENIOR LAW2

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
DIFICULT	7173	-0.103222	0.888491	-740.411000	-2.000000	1.000000
GRADE12	6058	1.781355	0.854842	10791	-0.003333	3.955000
TMATH	6649	50.673188	10.420077	336926	30.136719	71.921875
TREAD	6655	49.107222	10.220184	326809	29.007813	68.906250
RELIGIO	7139	0.359014	0.479745	2563.000000	0	1.000000
HOMEWOR2	7173	6.378202	5.558272	45751	0	21.000000
HOURSTV2	7173	2.650189	1.714807	19010	0	6.500000
READING	6706	2.517447	1.022379	16882	1.000000	4.000000
CUTCLAS2	6788	0.553329	0.497184	3756.000000	0	1.000000
SUSPEN2	6790	0.105302	0.306965	715.000000	0	1.000000
WKSENIOR	6877	8.405119	11.381924	57802	0	40.000000
LAW2	6790	0.089249	0.285124	606.000000	0	1.000000

_NELS-88 MALE COMPLETE SAMPLE 19:07 Saturday, July 11, 1998 13

 Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
DIFICULT	7409	0.005745	0.857868	42.568000	-2.000000	1.000000
GRADE12	6158	2.014326	0.843346	12404	-0.003333	3.996667
TMATH	6921	49.723187	9.935973	344134	29.628906	71.921875
TREAD	6925	51.057021	9.686763	353570	29.117188	68.906250
RELIGIO	7376	0.420418	0.493659	3101.000000	0	1.000000
HOMEWOR2	7409	7.379314	5.635741	54673	0	21.000000
HOURLSTV2	7409	2.684980	1.742384	19893	0	6.500000
READING	6972	2.644435	0.997167	18437	1.000000	4.000000
CUTCLAS2	7017	0.475987	0.499459	3340.000000	0	1.000000
SUSPEN2	7020	0.041595	0.199677	292.000000	0	1.000000
WKSENIOR	7216	8.291159	10.443295	59829	0	40.000000
LAW2	7019	0.021798	0.146034	153.000000	0	1.000000

_NELS-88 FEMALE COMPLETE SAMPLE 19:58 Saturday, July 11, 1998 13

_NELS-88 FEMALE COMPLETE SAMPLE 19:58 Saturday, July 11, 1998 23

Model: MODEL1
 Dependent Variable: LOGWAGES

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	74	48.41953	0.65432	3.500	0.0001
Error	3395	634.76471	0.18697		
C Total	3469	683.18424			

Root MSE	0.43240	R-square	0.0709
Dep Mean	1.55954	Adj R-sq	0.0506
C.V.	27.72618		

_NELS-88 FEMALE COMPLETE SAMPLE 19:58 Saturday, July 11, 1998 24

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T	Variable Label
INTERCEP	1	1.434121	0.19799570	7.243	0.0001	Intercept
VOCATIO	1	0.027955	0.00765035	3.654	0.0003	
SQVOCA	1	-0.005022	0.00201871	-2.487	0.0129	
ACADEMI	1	-0.001420	0.00326124	-0.435	0.6633	
SQACAD	1	0.000964	0.00036286	2.656	0.0079	
DIFICULT	1	0.021471	0.01020754	2.103	0.0355	
DUMYDIFI	1	0.062507	0.04832052	1.294	0.1959	
GRADE12	1	-0.010325	0.01575294	-0.655	0.5123	
TMATH	1	0.002976	0.00143256	2.077	0.0378	

TREAD	1	-0.002609	0.00128354	-2.033	0.0422
TESTBIS2	1	0.032412	0.01916750	1.691	0.0909
SCHOCATO	1	0.085092	0.03866955	2.201	0.0278
PRIVATE	1	0.059429	0.04268680	1.392	0.1639
AVA2	1	-0.077512	0.16830653	-0.461	0.6452
DUMYAVA	1	-0.013062	0.02647925	-0.493	0.6218
TEACMAD2	1	-0.001769	0.03714861	-0.048	0.9620
DUMYMADO	1	0.020340	0.02285094	0.890	0.3735
TEACWAG2	1	0.006923	0.00304836	2.271	0.0232
DUMYTEWG	1	-0.033592	0.03385392	-0.992	0.3211
HISPANIC	1	0.044164	0.02719319	1.624	0.1044
INDIAN	1	-0.043060	0.07602813	-0.566	0.5712
ASIAN	1	0.024633	0.03310821	0.744	0.4569
BLACK	1	-0.045217	0.03060743	-1.477	0.1397
DEPCHILD	1	-0.008759	0.03639546	-0.241	0.8098
MARSTAT	1	-0.016224	0.04237974	-0.383	0.7019
MALEFAM	1	0.068478	0.05918857	1.157	0.2474
FEMAFAM	1	0.011707	0.02169804	0.540	0.5895
DIVORFAM	1	-0.024994	0.02534560	-0.986	0.3241
SIBLING	1	0.003839	0.00386062	0.994	0.3201
DUMYSIBL	1	-0.022061	0.06445403	-0.342	0.7322
RELIGIO	1	0.007563	0.01719543	0.440	0.6601
HOMEWOR2	1	-0.001196	0.00139570	-0.857	0.3915
DUMYHOME	1	0.102218	0.05837837	1.751	0.0800
HOURSTV2	1	-0.005186	0.00494363	-1.049	0.2942
LIDEVARS	1	-0.049733	0.03362053	-1.479	0.1392
DUMYLIVA	1	0.044132	0.09356238	0.472	0.6372
LIDINTRA	1	0.129589	0.04528795	2.861	0.0042
DUMYLIIN	1	-0.190141	0.13409521	-1.418	0.1563
PARTCHER	1	-0.005094	0.02780452	-0.183	0.8546
DUMYCHEP	1	-0.020009	0.07161377	-0.279	0.7799
LIDECHER	1	-0.009031	0.04216839	-0.214	0.8304
LIDEACTI	1	-0.007883	0.01391240	-0.567	0.5710
PARINTRA	1	-0.066409	0.02612956	-2.542	0.0111
PARTVARS	1	0.009816	0.02482972	0.395	0.6926
PARTACTI	1	-0.008655	0.01141127	-0.758	0.4482
LIDECHUR	1	0.040173	0.04396732	0.914	0.3609
PARTCHUR	1	0.000116	0.01944210	0.006	0.9952
HANDICA	1	-0.002507	0.05372172	-0.047	0.9628
READING	1	0.001368	0.00800625	0.171	0.8643
CUTCLAS2	1	0.020619	0.01608260	1.282	0.1999
SUSPEN2	1	-0.046437	0.04447024	-1.044	0.2965
URBAN	1	0.050403	0.02339354	2.155	0.0313
SUBURBAN	1	0.059571	0.01924260	3.096	0.0020
MIDWEST	1	-0.013972	0.02479550	-0.563	0.5731
SOUTH	1	-0.037643	0.02484862	-1.515	0.1299
WEST	1	0.045828	0.02875375	1.594	0.1111
SES	1	0.022041	0.01248989	1.765	0.0777
WKSENIOR	1	0.003154	0.00081015	3.893	0.0001
WKSQ	1	0.000077157	0.00007026	1.098	0.2722

LAW2	1	0.096860	0.05673943	1.707	0.0879
SELFCON	1	0.013489	0.00822082	1.641	0.1009
LOCUS	1	0.007996	0.00906169	0.882	0.3776
CATHOLI2	1	-0.011227	0.02086609	-0.538	0.5906
JEWISH	1	-0.002160	0.06955493	-0.031	0.9752
RELIOTHE	1	0.001976	0.02245395	0.088	0.9299
RELINON2	1	-0.062160	0.03174410	-1.958	0.0503
RELDK	1	-0.028588	0.06015881	-0.475	0.6347
IMPMONE3	1	0.027743	0.01336599	2.076	0.0380
DUMYMON3	1	-0.567891	0.26036540	-2.181	0.0292
IMPSTEA3	1	0.002133	0.02403785	0.089	0.9293
DUMYSTE3	1	0.440849	0.25935883	1.700	0.0893
DUMYLIDE	1	0.233546	0.14154891	1.650	0.0990
DUMYLICH	1	-0.063153	0.06351940	-0.994	0.3202
FULMONTH	1	-0.006173	0.00130074	-4.745	0.0001
PARMONTH	1	0.000247	0.00220479	0.112	0.9109

_NELS-88 FEMALE COMPLETE SAMPLE

19:58 Saturday, July 11, 1998 25

Dependent Variable: LOGWAGES

Test: VOCACA Numerator: 2.6014 DF: 1 F value: 13.9132

Denominator: 0.18697 DF: 3395 Prob>F: 0.0002

Dependent Variable: LOGWAGES

Test: MPLUSR Numerator: 0.0127 DF: 1 F value: 0.0681

Denominator: 0.18697 DF: 3395 Prob>F: 0.7941

Dependent Variable: LOGWAGES

Test: TPLUSGDS Numerator: 0.0790 DF: 1 F value: 0.4225

Denominator: 0.18697 DF: 3395 Prob>F: 0.5158

Dependent Variable: LOGWAGES

Test: TPGSDIF Numerator: 0.0886 DF: 1 F value: 0.4741

Denominator: 0.18697 DF: 3395 Prob>F: 0.4912

Dependent Variable: LOGWAGES

Test: TEACHP Numerator: 0.5549 DF: 1 F value: 2.9681

Denominator: 0.18697 DF: 3395 Prob>F: 0.0850

Dependent Variable: LOGWAGES

Test: MRTEST Numerator: 1.0756 DF: 1 F value: 5.7525

Denominator: 0.18697 DF: 3395 Prob>F: 0.0165

Dependent Variable: LOGWAGES

Test: TVREAD Numerator: 0.0829 DF: 1 F value: 0.4436
Denominator: 0.18697 DF: 3395 Prob>F: 0.5054

Dependent Variable: LOGWAGES

Test: LWSUSP Numerator: 0.0342 DF: 1 F value: 0.1829
Denominator: 0.18697 DF: 3395 Prob>F: 0.6689

Dependent Variable: LOGWAGES

Test: ALLPROB Numerator: 0.2438 DF: 1 F value: 1.3038
Denominator: 0.18697 DF: 3395 Prob>F: 0.2536

Dependent Variable: LOGWAGES

Test: RELIGIO Numerator: 0.2244 DF: 1 F value: 1.2003
Denominator: 0.18697 DF: 3395 Prob>F: 0.2733

Dependent Variable: LOGWAGES

Test: SPORTLID Numerator: 0.6315 DF: 1 F value: 3.3773
Denominator: 0.18697 DF: 3395 Prob>F: 0.0662

Dependent Variable: LOGWAGES

Test: SPORTPAR Numerator: 0.9644 DF: 1 F value: 5.1583
Denominator: 0.18697 DF: 3395 Prob>F: 0.0232

Dependent Variable: LOGWAGES

Test: LIDPART1 Numerator: 1.2364 DF: 1 F value: 6.6127
Denominator: 0.18697 DF: 3395 Prob>F: 0.0102

Dependent Variable: LOGWAGES

Test: LIDPART2 Numerator: 1.2187 DF: 1 F value: 6.5183
Denominator: 0.18697 DF: 3395 Prob>F: 0.0107

Regression—Specification of the Tests of Restrictions

```
proc reg;
model logwages= vocatio sqvoca academi sqacad difficult dumydifi grade12 tmath tread
testbis2 schocato private
ava2 dumyava teacmad2 dumymado teacwag2 dumytewg hispanic indian asian black
depchild marstat malefam femafam divorfam sibling dumysibl religio
homewor2 dumyhome hourstv2 lidevars dumyliva linyintra dumyliin lideacti parintra
partvars partacti lidechur partchur handica reading cutclas2 suspen2 urban suburban
midwest south west ses
wksenior wksq law2 selfcon locus catholi2 jewish reliothe relinon2 reldk
impmone3 dumymon3 impstea3 dumyste3 dumylide dumylich fulmonth parmonth;
vocaca: test vocatio=academi;
mplusr: test tmath+tread;
tplusgds: test 10*(tmath+tread)+0.84*grade12;
tpgdsdif: test 10*(tmath+tread)+0.84*grade12+0.889*difficult;
teachp: test 0.214*teacmad2+2.78*teacwag2;
mrtest: test tmath=tread;
tvread: test 1.74*hourstv2 +reading;-
lwsusp: test 0.285*law2 +0.306*suspen2 ;
allprob: test 0.285*law2 +0.306*suspen2 +0.498*cutclas2;
religio: test religio+partchur+lidechur;
sportlid: test lidevars+linyintra; sportpar: test partvars+parintra;
lidpart1: test lidevars+parintra; lidpart2: test linyintra+partvars; run;
```


Definition of the Minimum Competency Test variable in NELS-88

```
if f2c42=. Then gradtes1=.;  
else if f2c42=8 then gradtes1=.;  
else if f2c42=1 then gradtes1=1;/*has to pass a test:senior*/  
else gradtes1=0;
```

```
if f1c65=. Then gradtes2=.;  
else if f1c65=8 then gradtes2=.;  
else if f1c65=1 then gradtes2=1;/*has to past a test:sophomore*/ else gradtes2=0;  
if gradtes1 ne . then gradtest=gradtes1;  
else if gradtes1=. And gradtes2 ne . then gradtest=gradtes2;  
else gradtest=.;
```

```
testbis2= mean(gradtes1,gradtes2);
```

High School and Beyond logwage1986—Females

_HSB FEMALES WAGES 82-85
1998 98

12:33 Thursday, July 23,

Model: MODEL1
Dependent Variable: LWA86

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	91	83.00572	0.91215	7.596	0.0001
Error	3400	408.30833	0.12009		
C Total	3491	491.31405			
Root MSE		0.34654	R-square	0.1689	
Dep Mean		1.76385	Adj R-sq	0.1467	
C.V.		19.64686			

_HSB FEMALES WAGES 82-85
1998 99

12:33 Thursday, July 23,

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T
INTERCEP	1	1.216483	0.15127815	8.041	0.0001
VOCATIO	1	0.009130	0.00426584	2.140	0.0324
SQVOCA	1	-0.001357	0.00116566	-1.164	0.2446
ACADEMI	1	0.003554	0.00238491	1.490	0.1363
SQACAD	1	-0.000145	0.00045881	-0.315	0.7526
DIFICULT	1	0.021491	0.00592582	3.627	0.0003
GRADES	1	0.034690	0.01208208	2.871	0.0041
TESTMATH	1	0.002775	0.00092276	3.007	0.0027
TVOCREAD	1	0.000525	0.00099523	0.528	0.5975
TESTREQ2	1	0.033967	0.01384202	2.454	0.0142
SCHOCATO	1	0.135272	0.02711045	4.990	0.0001
PRIVATE	1	0.009247	0.04410892	0.210	0.8340
AVA2	1	0.024567	0.13004427	0.189	0.8502
DUMYAVA	1	-0.042667	0.02938109	-1.452	0.1465
TEACMAD2	1	0.069925	0.02893929	2.416	0.0157
DUMYMADO	1	0.020801	0.04022360	0.517	0.6051
TEACWAG2	1	0.015414	0.00561899	2.743	0.0061
DUMYTEWG	1	0.024634	0.03051399	0.807	0.4196
PROBSTU2	1	0.003315	0.00921783	0.360	0.7191
HISPANIC	1	0.002088	0.01818939	0.115	0.9086
INDIAN	1	-0.003585	0.04934779	-0.073	0.9421

ASIAN	1	0.054843	0.03798002	1.444	0.1488
BLACK	1	-0.024656	0.01968325	-1.253	0.2104
DEPCHILD	1	-0.072430	0.02984542	-2.427	0.0153
MARSTAT	1	-0.002605	0.03135618	-0.083	0.9338
MALEFAM	1	-0.017651	0.03982566	-0.443	0.6577
FEMAFAM2	1	-0.005099	0.01669452	-0.305	0.7601
DIVORFAM	1	0.004997	0.02162354	0.231	0.8173
SIBLING2	1	-0.005296	0.00293475	-1.805	0.0712
DUMYSIBL	1	-0.121716	0.05091056	-2.391	0.0169
RELIGIO2	1	-0.006494	0.01135863	-0.572	0.5675
HOMEWOR2	1	0.000057793	0.00166931	0.035	0.9724
HOURSTV2	1	-0.011924	0.00321645	-3.707	0.0002
DUMYPACH	1	0.016456	0.08673633	0.190	0.8495
LIDERACT	1	0.018797	0.01061373	1.771	0.0766
PARTACTI	1	0.008795	0.00573543	1.533	0.1253
LIDERSP1	1	0.026428	0.02645413	0.999	0.3179
LIDERSP2	1	0.078002	0.02896116	2.693	0.0071
LIDERCHE	1	-0.007144	0.02640054	-0.271	0.7867
PARTSPOR	1	-0.011693	0.01794858	-0.651	0.5148
PARTSPO2	1	0.007272	0.01490442	0.488	0.6257
PARTCHER	1	0.013177	0.01626212	0.810	0.4178
LIDERCHU	1	-0.036589	0.01971946	-1.855	0.0636
PARTCHUR	1	0.001928	0.01427010	0.135	0.8925
HANDICA2	1	0.013821	0.02408371	0.574	0.5661
READING	1	-0.017299	0.00561769	-3.079	0.0021
CUT2	1	0.004862	0.01345088	0.361	0.7178
SUSPEN2	1	0.021218	0.02338156	0.907	0.3642
POORSTU2	1	0.005582	0.00989503	0.564	0.5727
DUMYPOST	1	-0.108849	0.07050453	-1.544	0.1227
URBAN	1	0.076461	0.01896416	4.032	0.0001
SUBURBAN	1	0.081947	0.01584919	5.170	0.0001
CENTRAL	1	-0.080029	0.02001468	-3.999	0.0001
SOUTH	1	-0.084636	0.01940782	-4.361	0.0001
WEST	1	-0.002019	0.02224427	-0.091	0.9277
DUMYDIFI	1	0.018637	0.05433037	0.343	0.7316
DUMYACAD	1	-0.080319	0.27424340	-0.293	0.7696
DUMYVOCA	1	0.130268	0.11972714	1.088	0.2767
WKSENIO2	1	0.002195	0.00062696	3.502	0.0005
WKSQ	1	-0.000026848	0.00004459	-0.602	0.5471
LAW	1	0.004133	0.06841753	0.060	0.9518
SELFCON2	1	0.015794	0.00621902	2.540	0.0111
DUMYSELF	1	0.348759	0.35316892	0.988	0.3235
LOCUS2	1	0.023932	0.00735721	3.253	0.0012
DUMYLOCU	1	-0.361576	0.35171141	-1.028	0.3040
RELICATO	1	0.011421	0.01517427	0.753	0.4517
JEWISH	1	0.023003	0.05370956	0.428	0.6685
RELIOTHE	1	-0.023376	0.03141341	-0.744	0.4568
RELINON2	1	-0.026826	0.03294345	-0.814	0.4155
RELDK2	1	0.064875	0.05624567	1.153	0.2488
IMPONE3	1	0.028398	0.01028549	2.761	0.0058

DUMYIMP3	1	0.102970	0.10234692	1.006	0.3144
IMPSTEA3	1	0.009613	0.01458295	0.659	0.5098
DUMYRELI	1	0.017556	0.05947130	0.295	0.7679
DUMYPAS1	1	-0.088221	0.09765142	-0.903	0.3664
DUMYLIDE	1	0.224249	0.36488325	0.615	0.5389
DUMYLIS2	1	-0.088237	0.07730067	-1.141	0.2538
FULMO	1	-0.000377	0.00141857	-0.266	0.7906
PARMO	1	0.004183	0.00241690	1.731	0.0836
FULFE82	1	0.011474	0.02061433	0.557	0.5778
FULOC82	1	-0.004596	0.03459039	-0.133	0.8943
PARTFE82	1	-0.000500	0.02930117	-0.017	0.9864
PARTOC82	1	0.011950	0.04176987	0.286	0.7748
FULFE83	1	0.059496	0.03769142	1.578	0.1145
FULOC83	1	-0.021567	0.03744600	-0.576	0.5647
PARTFE83	1	0.041064	0.04469761	0.919	0.3583
PARTOC83	1	-0.038626	0.03724188	-1.037	0.2997
FULFE84	1	-0.020031	0.03514310	-0.570	0.5687
FULOC84	1	-0.048052	0.01878095	-2.559	0.0106
PARTFE84	1	0.007386	0.03831905	0.193	0.8472
PARTOC84	1	0.006416	0.02220466	0.289	0.7726
COLLEG85	1	-0.052373	0.01513335	-3.461	0.0005

_HSB FEMALES WAGES 82-85

12:33 Thursday, July 23, 1998 100

Dependent Variable: LWA86

Test: VOCACA Numerator: 0.1772 DF: 1 F value: 1.4752
Denominator: 0.120091 DF: 3400 Prob>F: 0.2246

Dependent Variable: LWA86

Test: MPLUSR Numerator: 1.1195 DF: 1 F value: 9.3224
Denominator: 0.120091 DF: 3400 Prob>F: 0.0023

Dependent Variable: LWA86

Test: TPLUSGDS Numerator: 1.3812 DF: 1 F value: 11.5012
Denominator: 0.120091 DF: 3400 Prob>F: 0.0007

Dependent Variable: LWA86

Test: TPGDSDIF Numerator: 1.6891 DF: 1 F value: 14.0656
Denominator: 0.120091 DF: 3400 Prob>F: 0.0002

Dependent Variable: LWA86

Test: SCHPROP Numerator: 0.0238 DF: 1 F value: 0.1985
Denominator: 0.120091 DF: 3400 Prob>F: 0.6560

Dependent Variable: LWA86

Test: TEACHQ Numerator: 1.9286 DF: 1 F value: 16.0597
Denominator: 0.120091 DF: 3400 Prob>F: 0.0001

Dependent Variable: LWA86

Test: MRTEST Numerator: 0.2416 DF: 1 F value: 2.0118
Denominator: 0.120091 DF: 3400 Prob>F: 0.1562

Dependent Variable: LWA86

Test: TVREAD Numerator: 2.7553 DF: 1 F value: 22.9432
Denominator: 0.120091 DF: 3400 Prob>F: 0.0001

Dependent Variable: LWA86

Test: LWSUSP Numerator: 0.0044 DF: 1 F value: 0.0365
Denominator: 0.120091 DF: 3400 Prob>F: 0.8485

Dependent Variable: LWA86

Test: STPBCUT Numerator: 0.0003 DF: 1 F value: 0.0021
Denominator: 0.120091 DF: 3400 Prob>F: 0.9635

Dependent Variable: LWA86

Test: ALLPROB Numerator: 0.0045 DF: 1 F value: 0.0375
Denominator: 0.120091 DF: 3400 Prob>F: 0.8464

Dependent Variable: LWA86

Test: RELIGIO Numerator: 0.3179 DF: 1 F value: 2.6472
Denominator: 0.120091 DF: 3400 Prob>F: 0.1038

Dependent Variable: LWA86

Test: SPORTLID Numerator: 1.0510 DF: 1 F value: 8.7521
Denominator: 0.120091 DF: 3400 Prob>F: 0.0031

Dependent Variable: LWA86

Test: SPORTPAR Numerator: 0.0060 DF: 1 F value: 0.0499
Denominator: 0.120091 DF: 3400 Prob>F: 0.8232

Dependent Variable: LWA86

Test: LIDPART1 Numerator: 0.0444 DF: 1 F value: 0.3698
Denominator: 0.120091 DF: 3400 Prob>F: 0.5432

Dependent Variable: LWA86

Test: LIDPART2 Numerator: 1.0425 DF: 1 F value: 8.6812
Denominator: 0.120091 DF: 3400 Prob>F: 0.0032

Dependent Variable: LWA86

Test: ACTIVSUM Numerator: 1.0089 DF: 1 F value: 8.4012

Denominator: 0.120091 DF: 3400 Prob>F: 0.0038

ENDNOTES

-
- i. Surveys of college admission officers suggest they are increasing the weight they attach to taking rigorous courses in high school and doing well in these courses. Grades in high school have always been the number one consideration. Standardized test scores have now become the second most important consideration displacing class rank. Class rank is becoming less important because an increasing number of high schools are refusing to calculate class rank. (National Association of College Admission Counselors, 1993, as reported in the October 23, 1993 Ithaca Journal).
- ii The population of 17 year olds was used as the base rather than 18 year olds because the number of 18 year olds may be inflated by in-migration of college students and military personnel.
- iii These controls for school characteristics and region may not be sufficient to avoid omitted variable bias. States and school districts with such exams may be different along unmeasured dimensions that have direct effects on wage levels. A positive selection bias is unlikely, however, because most states appear to have adopted MCEs as a response to a perception that the state's schools were failing to teach basic skills. By 1992 MCEs had been adopted by every southern state except Arkansas and Louisiana. With the exception of Arizona, none of the Mountain, Plains or Midwestern states had established a MCE prior to 1992 (NCES 1993, p. 149).
- iv The stakes for teachers and school administrators are higher because information on numbers of students taking and passing each exam are published in local newspapers and on the internet. While student stakes are low compared to European and Asian curriculum-based examination systems, they appear to be sufficient to substantially improve achievement of New York students. When the socio-economic characteristics of students are controlled, New York State students out perform comparable students in other states by about one grade level equivalent (Bishop, Moriarty and Mane 1997).
- v This recommendation was intended to induce school districts to consider ending social promotion at transitions between elementary and middle school and between middle and high school. It leaves the decision in the hands of local school boards, teachers and administrators. State mandates on grade promotion specifying specific competencies that must be achieved are not feasible or desirable. The committee felt that the best way of responding to the needs of struggling students was to provide extra instruction during the school year and during the summer. The threat of retention in grade is, currently, often used to induce students to attend summer school or after-school programs. Since students naturally want to move up to the next grade with their friends, the possibility of being retained (particularly at transitions between buildings) is a powerful incentive to study. But, it should be actually employed only as a last resort. Grade retention rates are quite high in 9th grade in New York State. It might make more sense to make graduation from middle school more contingent on student achievement in order to induce middle school students to work harder and their teachers to set higher standards.