The Impacts of School–Business Partnerships on the Early Labor-Market Success of Students

John H. Bishop
Ferran Mañé

One of the most successful strategies pursued by the school-to-work (STW) movement has been improving communication between schools and employers. At the beginning of the 1980s, most employers hired young workers without paying much attention to student achievement in high school. Even though they were obligated by law to share transcripts with employers when students signed release forms, many high schools were not responding to such requests. For example, in Columbus, Ohio in 1982, Nationwide Insurance sent more than 1,200 requests for transcripts signed by job applicants to high schools and received only ninety-three responses. In other cases, transcripts took so long to arrive that hiring decisions had already been made.

Employers offering the best jobs developed very negative stereotypes of young high-school graduates. Interviewed for a 1990 CBS News special report on educational reform, the personnel director at a large, high-wage company proudly stated, “We don’t hire high-school graduates any more; we need skilled workers.” Recent graduates who were both skilled and disciplined were unable to signal these facts to employers. As a result, recent high-school graduates were effectively frozen out of primary labor-market jobs. They took jobs at low wages in the secondary labor market and hoped that they would be able to establish a record of performance in those jobs that would enable them to get a primary labor-market job sometime later. This meant a long period of churning in the low-wage labor market for everybody.

As a result, young workers with strong basic skills did not earn appreciably more than workers with weak basic skills (Bishop, 1992). Over time, however, those who did a good job were more likely to get further training, promotions, and good recommendations when they moved on, while poor performers were encouraged to leave. Because academic achievement in high school is correlated with job performance (Bishop; Hartigan & Wigdor, 1989), the sorting
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process resulted in basic skills assessed during high school having a much larger effect on the labor-market success of thirty-year-olds than of nineteen-year-olds, even when contemporaneous measures of completed schooling were held constant (Altonji & Pierret, in press; Farber & Gibbons, 1996).

The long delays before the benefits of academic achievement in high school started accruing sent students the wrong signal. Teenagers knew that college-educated adults had good jobs and lived in large attractive houses, which explains why more than four out of five said they wanted to go to college. They did not know whether the successful adults in their communities took rigorous courses and studied hard in high school. They observed almost no relationship between the academic achievements of their older friends and the quality of their jobs. So it was reasonable for youngsters to conclude that employers reward credentials, not learning. If that was the conclusion they drew, the best strategy for the bulk of students was to study just hard enough to get the diploma and be admitted to college, but no harder. A 1987 survey of a nationally representative sample of tenth graders found that 62% agreed with the statement, "I don't like to do any more school work than I have to" (Longitudinal Study of American Youth, question AA37N).

Recognizing these problems, the Labor Secretary's Commission on Workforce Quality and Labor Market Efficiency recommended that "the business community should . . . show through their hiring and promotion decisions that academic achievements will be rewarded" (1989, p. 9). They also recommended that "high school students who excel in science and mathematics should be rewarded with business internships or grants for further study" (p. 11). The school-to-work (STW) movement has made improved communication between schools and employers one of its key goals. The STW movement has brought many employers into schools and involved them with students as mentors and as sponsors of internships, apprenticeships, job shadowing, and cooperative-education experiences. By 1997, participation rates for ninth and tenth graders had reached 12% for job shadowing, 5% for mentoring, 7.3% for cooperative education, and 5% for internships and apprenticeships. Some 12% of students said they had visited a worksite or worked during school hours as part of a STW program (Bishop, Mañe, & Ruiz-Quintanilla, 2000).

This chapter examines the effects of improved signaling of student achievement in high school on the labor market success of recent high-school graduates. The chapter is organized into three sections. In the first section, we reproduce the argument that Bishop put forward in 1985 that better signaling of student achievement to employers would improve the quality of the jobs that recent high-school graduates could obtain and strengthen incentives to learn. In the second section, we analyze longitudinal data on eighth graders in 1988 and attempt to measure the effect of school–employer partnerships on their subsequent success in the labor market, testing the hypotheses put forward in 1985. The final section of the chapter discusses the research and policy implications of the findings.

PREDICTIONS AND HYPOTHESIS OF SCHOOL–BUSINESS PARTNERSHIP: EARLY LABOR-MARKET LEAVERS

In a 1985 report, Bishop argued that signaling improved opportunities of recent school leavers can signal to employers that all the school leavers have higher standards in both credentials and quality. Bishop and local employers who hire their services for all students (not just long-term relationships of trust with the report also suggested that hiring higher standards in both academic achievement and developing academic achievement on wages growth.)

A second way that SBPs and Minimum Competency requirements can affix quality of the information that employers use to select partners for the school's successful partnerships of recent high-school graduates whose academic achievement and job opportunities often result in a more trusted referral sources for local employers. We would expect the school's successful partnerships often result in a more trusted referral sources for local employers. We would expect the school's successful partnerships often result in a more trusted referral sources for local employers. Would "better" be defined? Probably and social skills would probably make good indicators of these character traits. Reliability as well as test scores, so in single indicator of whom the referral.
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PREDICTIONS AND HYPOTHESES: THE IMPACTS OF SCHOOL–BUSINESS PARTNERSHIPS AND MINIMUM COMPETENCY EXAMINATIONS ON EARLY LABOR-MARKET SUCCESS OF SCHOOL LEAVERS

In a 1985 report, Bishop argued that “schools can help their graduates avoid unemployment and get better jobs by improving the quality and facilitating the flow of employment-related information available to students and their potential employer.” He advocated “close linkages between vocational teachers and local employers who hire their graduates” and “job placement and referral services for all students (not just the vocational students) that are based on long-term relationships of trust with local employers” (pp. 98–100).

The report also suggested that high schools could help students by establishing higher standards in both occupational and academic programs and making sure that employers believed the high standards were real and therefore that the negative stereotypes were false.

These considerations have led us to hypothesize that school–business partnerships (SBPs) and Minimum Competency Exams (MCEs) would improve job opportunities of recent school leavers in three ways. First, by improving student achievement and developing character, they raise worker productivity. Even when this does not immediately increase workers’ earnings, the effect of academic achievement on wages grows with time and eventually becomes very large.

A second way that SBPs and MCEs improve job opportunities is by sending a signal to employers that all the graduates of a high school meet or exceed their hiring standards. Bringing local employers into the school for presenta-tions or meetings gives school personnel the opportunity to show business partners the school’s successful programs and introduce them to outstanding students who might be interested in working at the company in the future.

A third way that SBPs can affect job opportunities is by improving the quality of the information that employers have on the achievements and char-acter of recent high-school graduates. If employers become more able to assess the academic achievement of job applicants, this trait will get more weight in their selection decisions. If character traits such as dependability and honesty get better signaled, these traits will take on more importance. School–business partnerships often result in a school (or specific teachers there) becoming trusted referral sources for local employers (Rosenbaum, 2000). When this occurs, we would expect the school’s “better” students to be the greatest ben-eficiary of the relationship (Rosenbaum, DeLuca Miller, & Roy, 1999). How would “better” be defined? Probably not by test scores alone. Effort, reliability, and social skills would probably matter even more, but our data set lacks good indicators of these character traits. Grade-point averages reflect effort and reliability as well as test scores, so in our data set, the GPA is probably the best single indicator of whom the referral process would most benefit.
Even if schools recommend and refer only their best noncollege-bound students to high-wage employers, these top students will probably not be the only ones to benefit. Their success at the community's more visible high-wage employers will cast doubt on the negative stereotype that has been hurting all recent graduates. A further benefit is that finding work for some students in the primary labor market reduces competition for the secondary labor market—retail sales and fast food—jobs that are customarily filled by youth. This would make it easier for less-qualified students to find work. Thus, the "best" students might get better jobs while the rest of the students might find it easier to get jobs.

The foregoing logic generates a number of testable predictions. Holding constant socioeconomic status and test scores, GPA, attitudes in eighth grade, whether a student gets a diploma or a Graduate Equivalency Diploma (GED), current and past college attendance, and a complete set of other individual and school characteristics, we predict the following:

- **Hypothesis 1.** Students with average GPAs will, ceteris paribus, do better in the labor market when they attend high schools that are part of a school-business partnership.
- **Hypothesis 2.** Rewards for academic achievement will be significantly greater at schools that have established SBPs.
- **Hypothesis 3.** Students living in MCE states will be paid more. In most MCE states, transcripts indicate whether the student has passed the MCE but not how the student scored on the MCE test. Consequently, state MCEs may not improve the signaling of academic achievement. We do not know whether the districts with local MCEs are putting MCE scores on the high-school transcript or advertising them in some other way, so it is not clear how local MCEs will influence the tendency of employers to offer the best jobs to the best students.

**EMPIRICAL ANALYSIS**

**Data and Specification**

We report on an analysis of restricted data on public-school students from the National Education Longitudinal Study (NELS: 88), a longitudinal data set that followed a nationally representative sample of students through the year 1994. The entire high school was tested and included in the analysis sample.

We created a school-business partnership (SBP) index by asking the local business community question. The mean value for the standard deviation is 1.01.

We expected SBPs to have a positive impact on the local business community question. The effect of SBPs on student outcomes is significant. The restricted data identifies and this information was used to analyze the impact of SBPs on student outcomes.

The restricted data identiﬁed and this information was used to analyze the impact of SBPs on student outcomes. Preliminary support for these hypotheses comes from Rosenbaum, DeLuca, Miller, and Roy's (1999) recent study of who gets job-referral assistance from their high schools and the impact of such assistance on students. They found that students with high test scores were more likely to obtain their first job through a school referral or recommendation. They also found that those who got their first job through a high-school contact or referral earned only slightly more in their first job, but nine years later were being paid 17% more than students who got their first job without the help of their high school.

**Table 12.1**

<table>
<thead>
<tr>
<th>Percentage of Schools Having</th>
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<tbody>
<tr>
<td>Do you have any of the following with your local business community?</td>
<td></td>
</tr>
<tr>
<td>1. Do employers ask the school</td>
<td></td>
</tr>
<tr>
<td>2. Do employers ask the school</td>
<td></td>
</tr>
<tr>
<td>3. School has been adopted by</td>
<td></td>
</tr>
<tr>
<td>4. A local business sponsors a</td>
<td></td>
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</table>
The Impacts of School–Business Partnerships

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or advertising them in some other
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that followed a nationally representative sample of eighth graders in 1988
through the year 1994. The eighth graders who subsequently dropped out of
high school were tested and interviewed in 1992 and 1994, and so are included
in the analysis sample.

We created a school–business partnership index by summing “Yes” answers
to four questions in the 1992 principals’ questionnaire about relationships with
the local business community. Table 12.1 presents the exact wording of each
question. The mean value for the index across the sample schools is 2.42, and
the standard deviation is 1.01.

We expected SBPs to have larger impacts on students with good grades.
Consequently, the effects of the partnerships were captured by two variables:
the SBP index and an interaction between the SBP index and the student’s
eighth-grade GPA. The interaction variable was defined as $(SBP) \times (GPA - 2.91)$. When we deviate GPA from its mean of 2.91 before constructing the
interaction variable, the coefficient for the SBP index becomes an estimate of
the impact of SBPs on students who have B to B– averages in eighth grade.

The restricted data identified the state in which each high school is located,
and this information was used to construct an indicator variable, StateMCE,
that was equal to one for students in states that required them to pass a MCE
to graduate in 1992 (Alabama, Florida, Georgia, Hawaii, Louisiana, Maryland,
Mississippi, Nevada, New Mexico, New Jersey, New York, North Carolina,
South Carolina, Tennessee, and Texas) and zero elsewhere. In states that did
not have a state MCE, information on local MCEs came from questionnaires
completed by the high school principal in 1990 and 1992. In the states with a
statewide MCE, local MCE was set equal to zero. The interactions between
eighth-grade GPA and the MCE variables were constructed in the same way
as for the SBP index.

Models were estimated predicting seven indicators of early labor-market out-
comes: earnings in calendar 1993; the total number of months worked in the

<table>
<thead>
<tr>
<th>Table 12.1 Percentage of Schools Having Different Types of Business Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have any of the following relationships with your local business community?</td>
</tr>
<tr>
<td>% Yes</td>
</tr>
<tr>
<td>1. Do employers ask the school to post a listing of job openings?</td>
</tr>
<tr>
<td>2. Do employers ask the school to recommend students for jobs?</td>
</tr>
<tr>
<td>3. School has been adopted by a local business?</td>
</tr>
<tr>
<td>4. A local business sponsors an incentive program in your school?</td>
</tr>
</tbody>
</table>
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Results

Table 12.2 presents the relationships between schools and businesses to predict the earnings of dropouts. Estimated effects through 5. Estimated effects of Local MCE results are given in each four-column group gives eighth grades. The coefficient for the column of the group. Predicted students are given in the third a standard error that corrects for underneath the estimated coefficient and fourth column of each for hypothesis that the policy had respectively. The statistical significance is indicated by the number of indicated in the table.

Figures 12.1 and 12.2 present the analysis of 1994 eighth grade in 1988, contrary to those in eighth test scores, and students. The bars in Figure 12.1 represent the SBP index. For the unemployed, the bars represent the worked, and hourly wage, the bar line. Thus, the percentage effect of annual earnings of students with where $5,330 is the mean annual predicted effect is 9.9% ($2 or below a bar indicate the status of students who lack these signs described different from zero at the 10% level. Thus we control for the probability of graduating from those with college, we are still requirements on labor-market participation.

Our first finding is that school unemployment in the two year increased employment, annual earnings, the jobs students got after leaving school.
Results

Table 12.2 presents the results of our analysis of the capability of partnerships between schools and businesses and high-school graduation test requirements to predict the earnings and employment of high-school graduates and dropouts. Estimated effects of SBPs and networks are given in columns 2 through 5. Estimated effects of State MCEs appear in columns 6 through 9. Local MCE results are given in columns 10 through 13. The first column of each four-column group gives estimated effects for eighth graders with average grades. The coefficient for the interaction with GPA is given in the second column of the group. Predicted effects of the policy on C-students and A-students are given in the third and fourth columns of the group. Huber-White standard errors that correct for the clustered sample are given in parentheses underneath the estimated coefficients. The numbers in brackets in the third and fourth column of each four-column group are the p-value for the null hypothesis that the policy had no effect on C-students and A-students, respectively. The statistical significance of each coefficient and of predicted effects is indicated by the number of asterisks to its right or by the plus sign, as indicated in the table.

Figures 12.1 and 12.2 present a visual representation of our model's predictions of the impact of SBPs and state MCEs, respectively, on early labor-market outcomes and how they vary by the student's GPA in eighth grade. The figures are based on analysis of 1994 data on NELS: 88 students who were in the eighth grade in 1988, controlled for attitudes, socioeconomic status, GPA, eighth-grade test scores, and state and high-school characteristics.

The bars in Figure 12.1 represent the predicted effect of a two-unit increase in the SBP index. For the unemployment rate and the probability of getting a good job, the bars represent changes in probability. For earnings, months worked, and hourly wage, the bars represent percentage change from the baseline. Thus, the percentage effect of a two-unit change in the SBP index on the annual earnings of students with B to B- averages is 4.05% ([2 * $108]/$5,330, where $5,330 is the mean annual earnings in the sample). For C-students, the predicted effect is 9.9% ([2 * $264]/$5,330). The asterisks and plus signs above or below a bar indicate the statistical significance of the effect being pictured. Bars that lack these signs describe predicted effects that are not significantly different from zero at the 10% level on a one-tailed test. Because the regressions control for whether students graduated from high school and for whether they attended college, we are measuring the short-run effects of graduation requirements on labor-market success net of effects that operate through the probability of graduating from high school or attending college.

Our first finding is that school-business partnerships significantly reduced unemployment in the two years after leaving high school and significantly increased employment, annual earnings, and hourly wage rates. The quality of the jobs students got after leaving high school also improved significantly. Hypothesis 1, therefore, received strong support.
Table 12.2
Effect of SBPs and MCEs on Employment Outcomes after High School

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>School-Business P'ships x 8th Grade GPA</th>
<th>P'ship for C- Student</th>
<th>P'ship for A Student</th>
<th>State MCE (SMCE)</th>
<th>SMCE x 8th Grade GPA</th>
<th>SMCE on C- Student</th>
<th>SMCE on A Student</th>
<th>Local MCE (LMCE)</th>
<th>LMCE x 8th Grade GPA</th>
<th>LMCE on C- Student</th>
<th>LMCE on A Student</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993 Annual Earnings</td>
<td>$5,330 (5394)</td>
<td>108* (62)</td>
<td>-130* (77)</td>
<td>264** (190)</td>
<td>-39 [67]</td>
<td>476** (190)</td>
<td>264+ (192)</td>
<td>159 [63]</td>
<td>774*** [102]</td>
<td>2 (240)</td>
<td>682*** (233)</td>
<td>-816* (104)</td>
<td>773* (104)</td>
</tr>
<tr>
<td>Total Months Worked</td>
<td>13.41 (7.45)</td>
<td>.178* (09)</td>
<td>-077 (.106)</td>
<td>.27* (.092)</td>
<td>.09 [53]</td>
<td>.137 (274)</td>
<td>-421* (240)</td>
<td>.64+ [11]</td>
<td>-34 [38]</td>
<td>.065 (285)</td>
<td>73** (.30)</td>
<td>-94** (.049)</td>
<td>76* (.074)</td>
</tr>
<tr>
<td>Total Months Unemployed.</td>
<td>1.78 (4.29)</td>
<td>-13*** (.046)</td>
<td>-039 (.057)</td>
<td>-08 (.32)</td>
<td>-17** (.013)</td>
<td>-131 (143)</td>
<td>.022 (.133)</td>
<td>.157 [.50]</td>
<td>-106 [57]</td>
<td>-018 (150)</td>
<td>.042 (162)</td>
<td>.068 [80]</td>
<td>.029 [89]</td>
</tr>
<tr>
<td>Average Earnings / Mo.</td>
<td>$528 (505)</td>
<td>3.6 (59)</td>
<td>2.1 (66)</td>
<td>1.1 (.93)</td>
<td>6.0 [47]</td>
<td>43.1*** (16.6)</td>
<td>10.9 (15.5)</td>
<td>30 [27]</td>
<td>55*** [.01]</td>
<td>6.1 (20.4)</td>
<td>26.0 (19.4)</td>
<td>25 [49]</td>
<td>35 [49]</td>
</tr>
<tr>
<td>Log. Hourly Wage Rate</td>
<td>1.292 (556)</td>
<td>.0635 (.064)</td>
<td>.088 (.008)</td>
<td>.007 [.57]</td>
<td>.013+ [.19]</td>
<td>.0027 (.19)</td>
<td>.0066 [.86]</td>
<td>-.005 [.71]</td>
<td>.010 [10]</td>
<td>.000 (225)</td>
<td>.061*** (.024)</td>
<td>-.073+ [.06]</td>
<td>.069** [.05]</td>
</tr>
<tr>
<td>Good Job</td>
<td>.570 (495)</td>
<td>.065*** (.35)</td>
<td>.065* (.41)</td>
<td>.014 [.76]</td>
<td>.173*** [.008]</td>
<td>.088 (.108)</td>
<td>-.158* (.094)</td>
<td>.278** [.53]</td>
<td>-09 [.113]</td>
<td>-.221* (.124)</td>
<td>-.252+ [.12]</td>
<td>-.263+ [.196]</td>
<td>.205</td>
</tr>
</tbody>
</table>

Note: Analysis of NELS: 88 data on public high-school students in 1990 interviewed in 1994. The StateMCE variable is a 1 for AL, FL, GA, HI, LA, MO, MS, NV, MN, NJ, NY, NC, SC, TN, and TX. Models control for when the respondent got a high-school diploma, whether the respondent was in college full time during spring 1994, whether she was a part-time student in spring 1994, the number of months spent attending college full-time, and months spent attending part time. Models contain a full set of background variables measured in the eighth grade: family socioeconomic status; books in the home; single parent; parents divorced; number of siblings; test scores; GPA in eighth grade; TV hours; homework hours; read-for-fun index; smoking; dummies for gender, ethnicity, religion, handicapped status, in advanced courses, in remedial courses, and central city and rural school location; locus-of-control index; self-esteem index; and hours working for pay. The characteristics of
<table>
<thead>
<tr>
<th></th>
<th>Spr. 1994 Earn./Mo.</th>
<th>Log. Hourly Wage Rate</th>
<th>Good Job [1-0]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[5517 (642)]</td>
<td>1.292 (.356)</td>
<td>.570 (.495)</td>
</tr>
<tr>
<td></td>
<td>.39 (7.6)</td>
<td>.0035 (.0064)</td>
<td>.096*** (.035)</td>
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<td></td>
<td>4.5 (8.7)</td>
<td>.0088 (.008)</td>
<td>.068* (.041)</td>
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<tr>
<td></td>
<td>-1.5 [.92]</td>
<td>-.007 (-.57)</td>
<td>.014 (.76)</td>
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<td></td>
<td>9.0 [39]</td>
<td>.013+ (.19)</td>
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<td>18.6 (19.9)</td>
<td>.0066 (.018)</td>
<td>.158* (.094)</td>
</tr>
<tr>
<td></td>
<td>-3.2 [.93]</td>
<td>-.005 (-.86)</td>
<td>.27** (.043)</td>
</tr>
<tr>
<td></td>
<td>40.1+ [.16]</td>
<td>.010 (.71)</td>
<td>-.09 (.53)</td>
</tr>
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<td></td>
<td>-6.3 (25.6)</td>
<td>.000 (.025)</td>
<td>-.13 (.113)</td>
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<td></td>
<td>.1761</td>
<td>.0874</td>
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<td></td>
<td>9377</td>
<td>9696</td>
<td>4459</td>
</tr>
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Note: Analysis of NELS: 88 data on public high-school students in 1990 interviewed in 1994. The StateMCE variable is a 1 for AL, FL, GA, HI, LA, MD, MS, NV, MN, NJ, NY, NC, SC, TN, and TX. Models control for when the respondent got a high-school diploma, whether the respondent was in college full time during spring 1994, whether she was a part-time student in spring 1994, the number of months spent attending college full-time, and months spent attending part time. Models contain a full set of background variables measured in the eighth grade: family socioeconomic status; books in the home; single parent; parents divorced; number of siblings; test scores; GPA in eighth grade; TV hours; homework hours; read-for-fun index; smoking; dummies for gender, ethnicity, religion, handicapped status, in advanced courses, in remedial courses, and central city and rural school location; locus-of-control index; self-esteem index; and hours working for pay. The characteristics of the school the student attended during tenth grade (or had attended prior to dropping out) in the model were private control (three types): teacher salary; percentage student body white; percentage free-lunch eligible; mean eighth-grade test score; mean family socioeconomic status; and enrollment per grade, plus its square. Characteristics of the state controlled were unemployment rate; weekly wages in retailing and manufacturing; and dummies for four census regions, named in the text. Models were not weighted. Numbers in parentheses below the coefficient are Huber-White standard errors that correct for clustering by school. Rows 1 to 6 of the table present linear regression results. Row 7 has the results of a logistic regression. The numbers in brackets in columns 4, 5, 8, 9, 12, and 13 are the p values for a hypothesis test that the SBPs' and MCEs' effects on A students and C students are significantly different from zero.

+ Statistically significant at 10% level on a one-tailed test.
* Statistically significant at 5% level on a one-tailed test.
** Statistically significant at 5% level on a two-tailed test.
*** Statistically significant at 1% level on a two-tailed test.
Figure 12.1
Effect of a Two-Unit Increase in the SBP Index on Labor-Market Outcomes after High School of Students with Different Grades

![Graph showing the effect of two-unit increase in SBP Index on labor-market outcomes after high school for students with different grades.](image)

Figure 12.2
Effect of Having a State MCE on Labor-Market Outcomes after High School of Students with Different Grades

![Graph showing the effect of having a state MCE on labor-market outcomes after high school for students with different grades.](image)

Our second hypothesis, that SBPs would tend to benefit high-GPA students more than low-GPA students, received mixed support. As predicted, the effects of SBPs on unemployment, wage rates, and job quality were significantly larger for high-GPA students. On the other hand, SBPs had larger effects on the months employed and annual earnings of low-GPA students than of high-GPA students. Apparently, SBPs benefit ways. For high-GPA students, the positive effects of SBPs on earnings were partly because labor participation increased, partly because the labor force participation rates increased the queue model of youth employment. SBPs appear to help the labor-market job search. The exit of labor market may be creating opportunities for high-GPA students who had not SBPs.

Our third hypothesis, that SBPs would effect the labor market, received support. The model predicting annual earnings in any given month of students with different grades. MCEs increased the annual earnings of A students and the earnings of A students employed by students with C earnings was only 2.9%, not large.

The effects of local MCEs were rewards for the traits that are for the interaction between GPA and CPEs had significant positive effects on the annual earnings of A students and significantly lower on C-students.

Do School-Business Partner

Do negative effects on other labor-market effects of SBPs? For the school induce some to drop out, partnerships induced students to jobs and students to jobs reduce the number of youth.

To answer these questions, we estimate the interaction between GPA and CPEs had significant positive effects on the annual earnings of A students and significantly lower on C-students.
The Impacts of School-Business Partnerships

Do School-Business Partnerships Have Negative Side Effects?

Do negative effects on other important student outcomes offset the positive labor-market effects of SBPs? For example, does employer involvement with the school induce some to drop out of high school or to delay graduation? Have partnerships induced students to study harder as intended, or have they distracted the school and students from academic goals? Does the improved access to jobs reduce the number of young people who attend college?

To answer these questions, we estimated models predicting student responses to questions about how hard they were working and direct measures of how much they learned between eighth and twelfth grade. In addition, logit models were estimated that predicted dropping out of high school, getting a GED rather than a regular diploma, taking more time to complete high school, not graduating from high school before 1994, and college attendance.
The estimations found no significant effects of SBPs on most of the outcomes studied. The indexes for working hard and for challenging courses were no different in schools with SBPs. Test-score gains were not significantly different. Dropout rates, overall high-school completion rates (regular diploma plus GED), and college-attendance rates were no different. However, there were two significant differences. First, students in schools with partnerships were less likely to graduate late. Because delays in graduating from high school significantly reduce earnings, this is a very positive outcome. Students from partnership schools were also significantly less likely to get a GED and more likely to get a conventional diploma instead. This too is a very positive outcome because people with regular high-school diplomas earn considerably more than those with GED credentials.

**IMPLICATIONS FOR SCHOOL-TO-WORK RESEARCH AND POLICY**

**STW Program Effectiveness Cannot Be Measured by Comparing STW Participants to Nonparticipating Students at a School**

There are two serious problems with such an evaluation methodology: selection bias and leakage of program impacts into the control group (contamination of the control group is an alternate descriptor of the problem). Comparing students at schools that do and do not have STW programs is a better approach. Selection problems can bias school-level analyses, but at least the control-group-contamination problem is avoided.

**Effects of School-to-Work Programs Are Not Limited to Those Participating in STW Activities**

The school-to-work movement's emphasis on collaborating with local employers is intended to improve employer perceptions of the quality of all of the school's graduates, not just the STW students. Our analysis of NELS: 88 data suggests that this goal may have been achieved. Students from schools with business partnerships and networks experienced less unemployment, were more consistently employed, earned more, and got higher-level jobs. The STW movement's practice of building collaborative networks with local employers may be the most important mechanism by which STW programs help students.

**School-Business Partnerships Are a Cost-Effective Strategy for Helping Students**

Building such networks takes time and the commitment of school staff. But these direct costs are small when compared to the benefits that students receive.

Our analysis suggests that with a $216 increase in annual earnings benefit lasts two-unit increase in colla -... particular attractive aspect of the policy assignment, wages, and job quality particularly attractive aspect of the policy assignment, wages, and job quality for low-GPA students. For example, for low-GPA students.

Another attractive feature of positive labor-market effects tested the hypothesis that rollment and completion rates were the same. The of a delay in graduating if who get the GED credentials delaying their grad

**NOTES**

1. These controls for school characteristics may avoid omitted-... or MCE exams may have di... on labor-market outcomes.

2. By contrast, MCEs including the number of students years of completing eighth grade and the number of students who finished eighth grade poorly in eighth grade who attended. The positive effect of eighth-grade GPA is significant (Bishop, & Moriarty, 2001).

**REFERENCES**


of SBPs on most of the outcomes or challenging courses were no different. However, there were two schools with partnerships were less challenging from high school significant outcomes. Students from participating to get a GED and more likely too is a very positive outcome as earn considerably more than... WORK

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an evaluation methodology: sento the control group (contaminated descriptor of the problem). Not have STW programs is a school-level analyses, but at least avoided.

Not Limited to

on collaborating with local employment of the quality of all of the. Our analysis of NELS: 88 dataed. Students from schools with need less unemployment, were I got higher-level jobs. The STW networks with local employers STW programs help students.

-Effective Strategy

commitment of school staff. But the benefits that students receive. Our analysis suggests that a two-unit increase in the SBP index was associated with a $216 increase in annual earnings. If a school has 400 ninth graders, and the earnings benefit lasts for just five years, the total earnings benefit of the two-unit increase in collaboration would be $432,000 for each one-year student cohort—much more than ten times what schools of that size would be likely to be spending annually to build and maintain the collaborative network. One particularly attractive aspect of the policy is that no student group appears to be hurt by the policy and all groups are helped in some way. For unemployment, wages, and job quality, benefits are larger for high-GPA students than low-GPA students. For employment and earnings, however, benefits are larger for low-GPA students.

Another attractive feature of SBPs is that one does not have to trade off positive labor-market effects for negative effects on some other front. We tested the hypothesis that SBPs might lower test-score gains, high-school enrollment and completion rates, and college attendance. This hypothesis was rejected in every case. Test-score gains, dropout rates, and college attendance rates were the same. The only significant relationship was with the probability of a delay in graduating from high school and with the proportion of graduates who get the GED credential. Schools with business networks had fewer students delaying their graduation and fewer getting the GED.

NOTES

1. These controls for school characteristics and region may not, however, have been sufficient to avoid omitted-variable bias entirely. States and school districts with SBPs or MCE exams may have differed along unmeasured dimensions having direct effects on labor-market outcomes.

2. By contrast, MCEs increase earnings and college attendance rates, but they also reduce the number of students who get the regular high-school diploma within six years of completing eighth grade. As one might suspect, it is the students who are doing poorly in eighth grade who are most likely to have their graduation delayed or prevented. The positive effects of MCEs go disproportionately to the students whose eighth-grade GPA indicates they are either smarter or trying harder (Bishop, Maine, Bishop, & Moriarty, 2001).

REFERENCES


Despite enormous changes over the past seven years, entry problems. Although a labor market will not last and it will not give unskilled skills that employers do not want.

The youth labor market complain that high-school and mathematically weak students will become more severe. Increasing while the demand in jobs requiring the higher the double edged刃 are raised substantially, and least skilled, accompanied skills” (Howe et al., 1988, p. 30).

Market disruptions for some suggests that we can no longer squander new high-skilled aimless job turnover.

This chapter summarizes data reported in full in my (2001). Based on analysis of