Parent Resources and High School Quality in the Context of the Rural Gap in Postsecondary Educational Attainment

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Education reform has swept the United States during the last two decades and was codified as national policy with the No Child Left Behind law of 2002.[1] The reform movement has taken for its primary goal the improvement of elementary and middle school education. Improved student performance at these levels, it was believed, would bring about greater high school student performance as a matter of course. Recently, however, closer attention is being paid to the continued lackluster performance of America's high schools and the implications this holds for graduates' inadequate preparation for work and postsecondary education. The National Education Summit on High Schools, held in February 2005 in Washington, DC, issued a strongly worded critique, "Our high school students' lack of preparedness has serious implications for our economy and prosperity" (Achieve, Inc. and National Governors Association, 2005, p. 1). They also set forth an "action agenda" to improve the nation's high schools that stresses making coursework more demanding.

Most educators agree that school quality is critical to helping prepare students for their futures, but the components of school quality have long been debated among educators and researchers (Coleman, 1990; Chubb and Moe, 1990). A contribution to better understanding the concept is timely, therefore. Moreover, the rural dimension of

[1] I would like to thank David Sloan for his suggestions on how to improve this paper. Any deficiencies that remain are, of course, the responsibility of the author alone.

school quality and postsecondary educational outcomes also deserves empirical investigation. Too frequently, national policymakers overlook the geographic dimension.

Issues

1. **What is high school quality?** What characteristics reliably point to high school quality? Is school quality a one-dimensional characteristic as the public discourse often implies, or is it more complicated than that? A strong academic culture and a rigorous curriculum that prepare students for success in college is clearly an important component of high school quality; but research also points to evidence that these characteristics become more effective when buttressed by a supportive school climate and student engagement in extracurricular programs and activities (Feldman and Matjasko, 2005; Broh, 2002; Coleman, 1990, pp. 250-306).
2. **How does high school quality affect postsecondary educational outcomes?** An assumption commonly made is that improved high schools will achieve uniformly positive results. But, in this study, it will be shown that this isn't always true.
3. **What about parent resources?** Can the effect of high school quality be properly measured without also considering the evidence for family background and parent resources influencing student outcomes? For policymakers, intervening in high schools may be a more pragmatic objective than raising the economic welfare and educational capital of families. Nevertheless, there is overwhelming evidence that family resources influence student success (Coleman, 1990; Schneider and Coleman, 1993; Sirin, 2005). One cannot fashion effective policy to address high

school quality without also taking into account the pervasive influence of the family on student achievement and attainment.

The Present Study

I address these issues using a national cohort sample of 4,697 seniors nested in 356 high schools, in 1992. The sample was taken from the National Education Longitudinal Study (NELS) Database, which is available from the National Center for Education Statistics. The 2000 follow-up survey of the senior cohort revealed their postsecondary educational attainments, if any (see Figure 1). This information shows that the graduates of rural high schools were less likely to earn the Bachelor's or higher postsecondary degrees and were more likely to earn no degree or a sub-baccalaureate credential.

The goal of the present study is to explain the effects of parent resources and secondary school quality in bringing about these patterns in the context of the rural gap in higher educational attainment (see also, Gibbs, 2003). Using a nationally representative data set that tracks individual student careers in high school and beyond (which NELS provides) lays a strong empirical foundation for the investigation of this topic.

To make the analysis more robust, the outcomes shown in Figure 1 were collapsed into three categories: no postsecondary degree earned, sub-baccalaureate degree (i.e., AA or lesser credential), and BA or higher degree. Parent resources refer to a composite variable constructed from family income (logged), parents' highest education level, and parents' expectation of how far the student will go in his or her educational career. High school quality was captured by two statistically distinct composite variables: academic quality and the social integration of the school. Each

composite variable was constructed from a number of more specific high school characteristics (see Table 1).

After constructing the composite variables of parent resources, high school academics, and high school integration, the next step was to learn how these measures were distributed across rural and nonrural high schools in the sample (see Figure 2). Parent resources and school academics are substantially lower in the context of rural schools. On the other hand, rural high schools are somewhat better integrated organizations than nonrural high schools. These findings are consistent with earlier research (Khattri, Riley, and Kane, 1997; Roscigno and Crowley, 2001) and lend confidence to the validity of the measures employed in this study. It was then left to determine how these factors influence postsecondary educational outcomes.[2]

Findings

Rural location affects postsecondary educational attainment primarily because rural parents have fewer resources than their nonrural counterparts. Parent resources exert a powerful influence on the probability of earning a BA or higher degree; and the two high school quality indicators also contribute positively, if less robustly, to this outcome (Figure 3). If high school quality is held constant, the difference in the probability of the baccalaureate or higher degree increases more than 50 percentage points when students with the lowest parent resources are compared to students with the highest parent resources. High school quality, whether defined in terms of either

[2] The analysis used multinomial hierarchical modeling (Luke, 2004). The hierarchical nature of the modeling reflects the fact that the 4,697 high school seniors are nested in 356 high schools. Therefore, the analysis must take into account student (and also parent) characteristics simultaneously with school contextual characteristics. Hierarchical modeling produces more robust statistical results than simpler methods when the sample is nested in this manner. The control variables (see Table 1) were included in the analysis as checks on sample bias. The present report summarizes the findings of the analysis. The full results can be obtained by writing the author.

academics or integration, contributes an additional 15 percentage points to the probability of the outcome for a student with average parent resources. Thus, academics and integration have effects of equivalent size. Schools that rate high on both quality indicators contribute an additional 30 percent to the probability of earning a BA or higher degree. It is noteworthy that these three factors when combined with the control variables explained 90 percent of the variation in the outcome across the high schools in the sample, so this part of the analysis is very robust.

The findings that concern the probability of earning a sub-baccalaureate credential are much less robust. School integration does not play a significant part in predicting such credentials, and a strong academic program in the high school actually makes this outcome less likely, rather than more likely. One conclusion that may be drawn from these results is that students who attend a strong academic-oriented high school are more likely to strive for a BA degree, or else they may prefer no postsecondary degree to earning a sub-baccalaureate credential. The question can be raised whether high schools that are focused on preparing their students for success in four-year postsecondary programs create unrealistic expectations in some of their students: an all or nothing mentality?

As Figure 3 shows, the effect of greater parent resources leads to a nearly zero likelihood of earning a sub-baccalaureate credential if the student attended a high school where academics were stressed. The pattern is different if the student attended a high school of low academic quality. In this case, the probability of earning a sub-baccalaureate credential as parent resources increase from low to average is stable at about 23 percent. But, when parent resources are above average, there is a decline in the

probability of earning such credentials. These results suggest that sub-baccalaureate credentials are the outcome that most often awaits those students who have attended high schools offering poor academic quality *and* whose parents have the fewest resources to support their child's postsecondary educational aspirations.

It bears repeating that Figure 3 suggests that the academic quality of the high school inoculates students against getting a credential that is less than a BA, and this pattern is reinforced if the student's parents have high resources. Overall, the findings displayed in Figure 3 are far less robust than those presented in Figure 2. Compared to the baccalaureate or higher outcome, where the variables combine to explain nearly all of the variation, the best that can be done with these same variables is to explain about 10 percent of the variation in the sub-baccalaureate outcome. One factor, not considered in this study, may help to explain this. The student's choice to attend a 2-year or proprietary institution to obtain an AA or lesser credential is likely to be strongly influenced by the proximity of the institution to the student's place of residence. In other words, students will not commute or relocate long distances to attend a 2-year institution for a sub-baccalaureate degree. This could be explained by the fact that many students pursuing these credentials are already participating in the work force fulltime (Marcotte *et al*., 2005).

Summary of the Results

- Graduates of rural high schools are significantly less likely than nonrural graduates to earn a BA or higher degree. Although this finding is derived from the analysis of the 1992 cohort of high school seniors, it conforms to the findings of more recent research (Gibbs, 2003).

- The slightly greater tendency for rural high school graduates to earn a sub-baccalaureate credential was statistically insignificant.
- High school quality has at least two important and distinct dimensions: academics and social integration.
- Both dimensions of high school quality contribute to the BA outcome and do so in equal measure.
- Rural students differ from nonrural students in that their parents have fewer resources with which to sustain the path to postsecondary educational attainment.
- Rural high schools generally are characterized by inferior academic quality when compared with nonrural high schools; however, rural high schools benefit from superior social integration. A policy implication of these findings is that the improvement of rural high schools must focus on enhancing academic programs and opportunities.
- Parent resources powerfully influence whether or not a student earns a BA or higher degree, and this factor alone is sufficient to explain the rural deficit in this postsecondary outcome.
- This study did not obtain robust predictions of sub-baccalaureate credentials. Nevertheless, it did find that this outcome is sensitive to enhanced parent resources and strong high school academics, each of which is a negative influence.

Implications for Policy

With regard to the attainment of sub-baccalaureate credentials, the present study has raised more questions than it is prepared to answer. It is unfortunate, but not

surprising, to see in the findings presented above that sub-baccalaureate programs are the crumbs from the table that await students who were not well supported by either their parents or their high schools. However, this conclusion is mitigated somewhat by Marcotte *et al.* (2005), who find that 2-year degrees offer measurable economic returns when compared with the returns to the high school diploma or its equivalent. So we must not write off the value of such credentials. But, neither, of course, do 2-year degrees bring the same economic returns as baccalaureate or post-baccalaureate degrees.

The rural shortfall in baccalaureate attainment is a continuing concern (Gibbs 2003). The current consensus among policymakers to improve high school quality may, if properly directed, help to bring about a solution for this problem. Since rural high schools already tend to be better integrated than nonrural schools, the bulk of the intervention to improve rural high schools should be directed toward academic programs and activities. Increasing course offerings in advanced mathematics should be explored, but it is not the only useful initiative. Increasing enrollments in college preparation and Advanced Placement courses and training students to take college entrance examinations will also have a positive effect as will the expansion of opportunities for students to become more knowledgeable about the college entrance requirements, courses of study, and financial aid. The evidence of the present study is that curriculum and program changes such as these will help to offset the negative effect of rural parents' low resources on baccalaureate attainment.

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Table 1. Variables Used in the Study

- The dependent variable: postsecondary educational attainment
  - No degree (43 percent)
  - AA or lesser credential (15 percent)
  - BA or higher degree (42 percent)

- Parent resources—a composite variable derived from the following:
  - Family income
  - Parents' highest education level
  - Parents' expectation for student's education

- High school quality—represented by two composite variables
  - Academics and postsecondary educational focus—a composite variable derived from the following:
    - Average # advanced math credits earned by seniors (index of 3 variables)
    - Percent taking college preparation courses
    - Percent taking AP courses
    - Participation in PSE preparation activities (index of 14 variables)
  - Social integration of the school—a composite variable derived from the following:
    - Participation in sports (index of 3 variables)
    - Average # extracurricular activities (index of 11 variables)
    - School climate (index of 16 variables)

- Control variables
  - Gender (female)
  - Disadvantaged minority (Black, Hispanic, Native American)
  - Birth year
  - Private school
  - School location—rural & urban contrasted with suburban

Figure 1. Postsecondary Educational Attainment by the Location of the Student's High School (N = 4697).

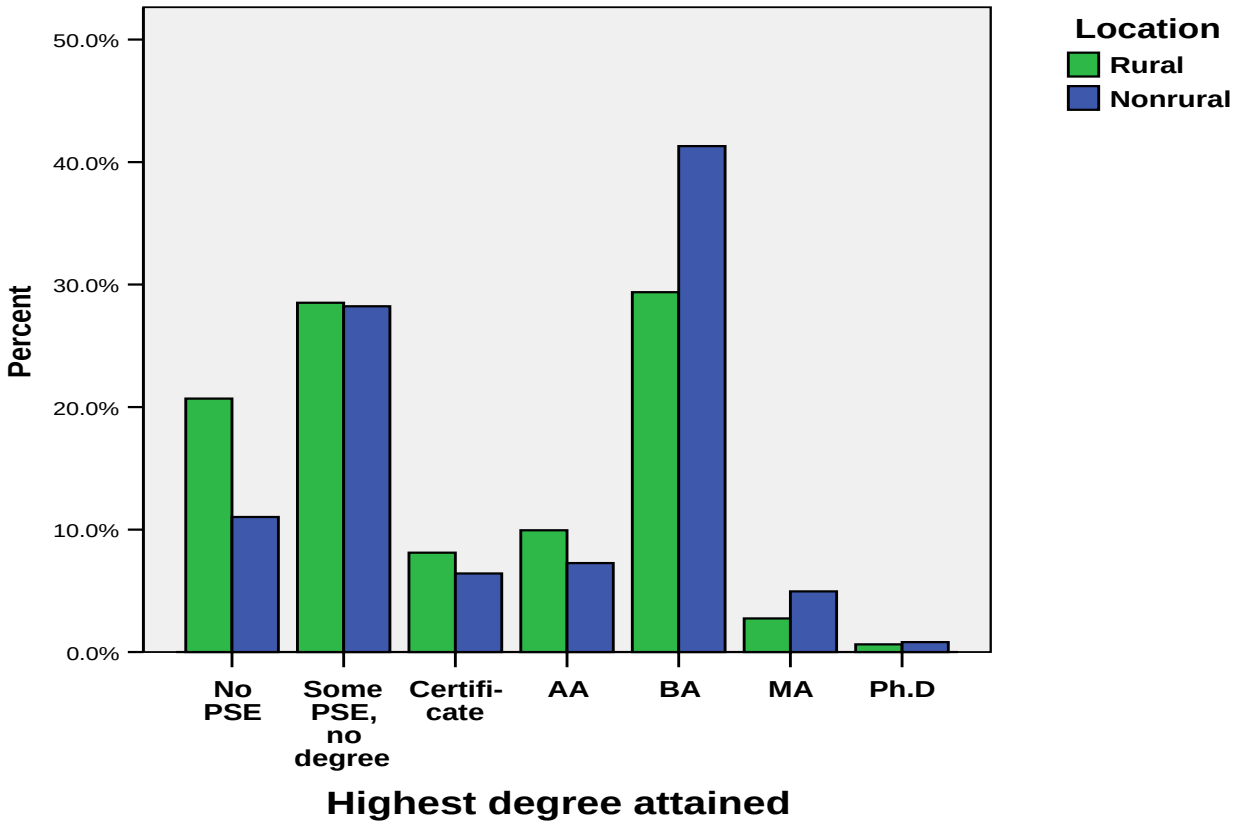

Figure 2. Parent Resources and High School Quality Dimensions by Location of the School (N = 356).

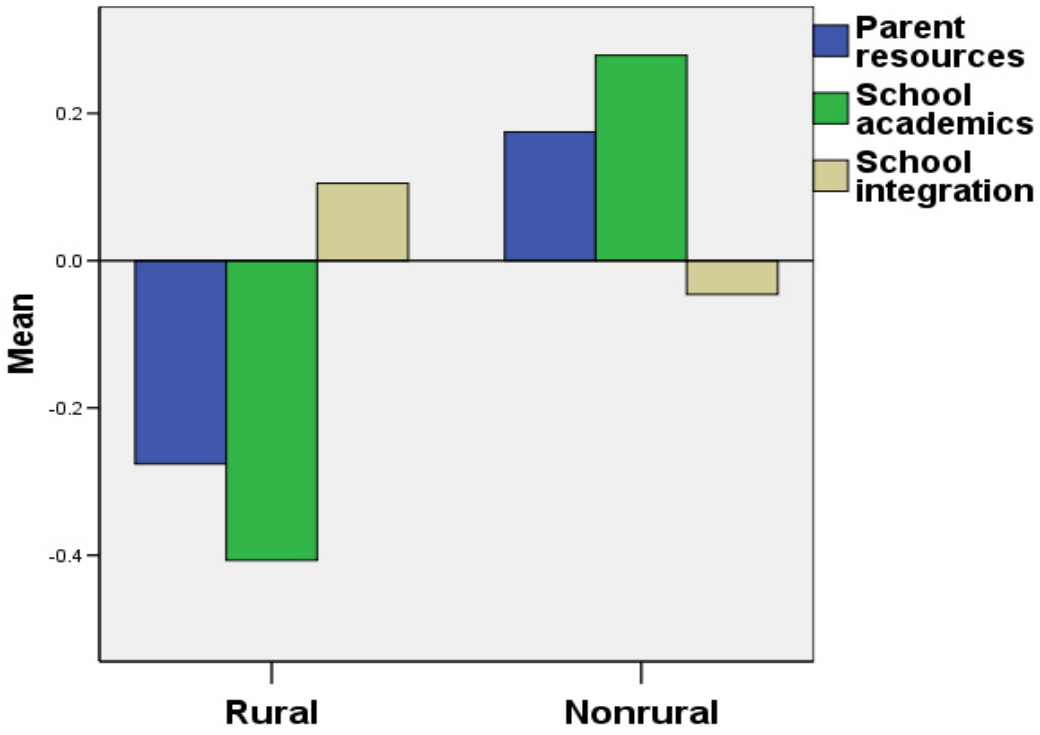

Figure 3. The Effects of Parent Resources and High School Quality Dimensions on the Probability of Baccalaureate or Higher Degree Attainment.

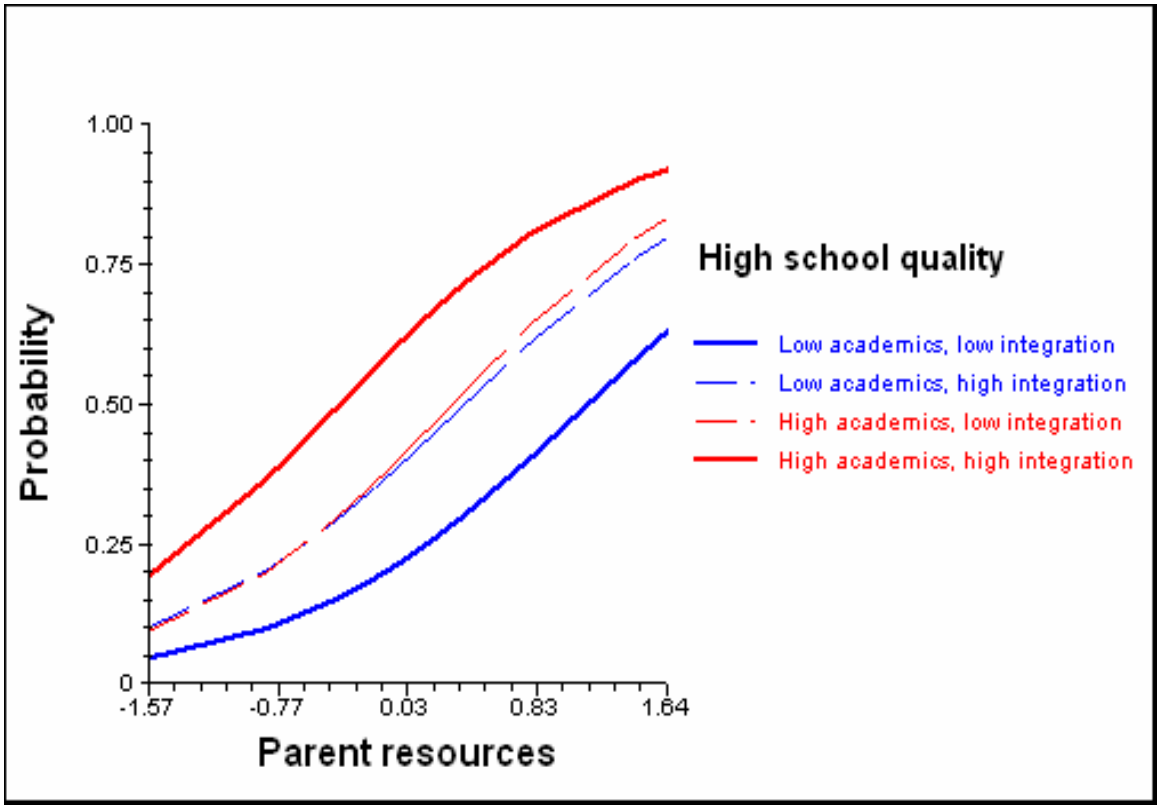

Figure 4. The Effects of Parent Resources and High School Academics on the Probability of Sub-Baccalaureate Attainment.