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BIG COUNTRY: HOW VARIATIONS IN HIGH SCHOOL GRADUATION PLANS IMPACT RURAL STUDENTS

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J.A. and KATHRYN
ALBERTSON FAMILY
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• ACKNOWLEDGEMENTS •

The Rural Opportunities Consortium of Idaho (ROCI) was launched by the J.A. and Kathryn Albertson Family Foundation of Boise, Idaho during the summer of 2013. Since then, Bellwether Education Partners and a task force of experts led by Dr. Paul T. Hill have been working to foster a better understanding of the issues that affect rural education, inform policy discussions, and bring attention to the unique needs and circumstances of rural school children. The task force has published a series of papers on issues such as migration, technology, human capital, and economic development. A second series of papers, published in summer 2015, will focus on post-secondary transitions and challenges. Papers are posted online at www.rociidaho.com/research-publications.

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ABOUT ROCI • RURAL OPPORTUNITIES CONSORTIUM OF IDAHO



ROCI brings together some of the nation's best thinkers to conduct research on the challenges of rural education and identify innovations, programs, and models to address them. This effort informs a national body of work on rural education and explores implications for increasing the educational attainment and economic competitiveness of Idahoans and Americans.

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The J.A. and Kathryn Albertson Family Foundation is a Boise-based, private family foundation committed to the vision of limitless learning for all Idahoans. Since 1997, the J.A. and Kathryn Albertson Family Foundation has invested almost \$700 million in Idaho. The J.A. and Kathryn Albertson Family Foundation honors the legacy of Joe and Kathryn Albertson, founders of Albertsons grocery store, however it is not affiliated with Albertsons LLC. Grant-making is by invitation only. For more information, visit jkaf.org.

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Bellwether Education Partners is a nonprofit dedicated to helping education organizations—in the public, private, and nonprofit sectors—become more effective in their work and achieve dramatic results, especially for high-need students. To do this, Bellwether provides a unique combination of exceptional thinking, talent, and hands-on strategic support.

• INTRODUCTION •

One of the few areas of agreement in the contentious debate about American schools is that postsecondary education of any type yields economic benefits to individuals—affording higher potential lifetime earnings and reducing the likelihood of unemployment. Given the U.S. economy’s evolution toward a greater reliance on high-skilled workers, some kind of education and training beyond a high school diploma is not only desirable or beneficial, it is imperative for economic opportunity. Americans understand this, and more of us than ever are pursuing a college education.

Yet, as with other educational issues, postsecondary education is not a level playing field. Disparities in postsecondary educational attainment persist among races, ethnicities, income levels, and geographic regions. One such disparity exists between rural and non-rural parts of the nation, with a marked gap between rural residents’ level of education and that of non-rural residents. While all of these gaps have implications for economic well-being and the durability of our social contract, the rural gap is our focus here. A quarter of American students attend rural schools, and rural education has traditionally been an afterthought in both the national education conversation and federal policymaking.

In addition to its effect on the individuals residing in rural communities, this gap has enormous implications for the economic health of rural communities themselves. The shift in the U.S. economy away from lower-skilled work is in some ways more acute in rural communities, where manufacturing has become increasingly capital-intensive—moving away from the employment of low-skilled labor—and where agricultural production has seen a comparable evolution through technology (Gibbs 2005). The impact of this phenomenon is twofold: it reduces the number of jobs available in existing rural industries

to individuals without advanced education beyond high school, and it disadvantages rural communities in attracting investment from the growing proportion of industries requiring a higher-skilled workforce. Since the Great Recession, unemployment rates have fallen in rural areas from a high of about 10 percent in 2009 to about six percent in mid-2014, which is very similar to the trend in urban areas. However, in contrast to urban areas, which have seen growth in employment of around 5 percent in that same period, rural areas' employment growth has been a relatively flat 1.1 percent. This means that the driving force behind the drop in unemployment is less about job growth and more about workers in rural areas dropping out of the workforce altogether (USDA 2014). The result is a rural employment level that remains below pre-recession levels.

Many factors contribute to lower educational attainment among rural adults. One is “brain drain”—the trend of more highly educated individuals, particularly young people, migrating away from rural communities. However, migration patterns only tell part of the story: studies show that while younger adults tend to migrate away from rural communities, many of them return in their 30s and 40s. The other puzzle piece explaining the continued gap in postsecondary educational attainment for rural communities is a lower proportion of rural high school graduates pursuing postsecondary education beyond high school.

This outcome is something of a paradox because, on the whole, rural high schools have higher graduation rates than urban high schools—surpassed as a group only by suburban high schools. And rural schools outperform non-rural schools in other measures of student achievement as well. Just as in any community, there are likely several factors influencing rural students' decisions to pursue postsecondary education, such as family income, the need to support their own families, lack of local postsecondary options, and challenges associated with potential first-generation college students.

Do rural high schools graduate a higher proportion of students under less rigorous curricular plans than non-rural high schools, and therefore contribute to the postsecondary attainment gap—or do the causes lie elsewhere?

In-school factors matter, too. Research shows that the rigor of students' high school curriculum is the most important predictor of success in postsecondary education, superseding even demographic characteristics like income and race. In this paper we examine whether rural high school graduation rates are something of an illusion. Do rural high schools graduate a higher proportion of students under less rigorous

curricular plans than non-rural high schools, and therefore contribute to the postsecondary attainment gap—or do the causes lie elsewhere?

To explore this question, first we must establish the national and rural context—the facts about rural public schools, the impact of postsecondary preparation, educational attainment, graduation rates, and postsecondary enrollment. Then we'll explore high school graduation requirements and course-taking patterns across the country to show the variation among states and the possible variation in rigor among high school graduates within states. Finally, we'll discuss the implication of these data for policy considerations in states and rural communities and for further research. Data analyzed includes primarily secondary course enrollments as reported by states to the U.S. Department of Education's Office for Civil Rights; high school graduation data reported to the U.S. Department of Education; information regarding state high school graduation requirements culled from various sources; and survey data on course-taking patterns among students from different communities, as well as student performance against college and career ready benchmarks on the ACT.

• THE RURAL CONTEXT •

Geographically, the United States is more rural than not, with rural communities comprising 72 percent of land area—yet rural America is home to only 15 percent of the U.S. population. Although the country's rural population is showing slight net decline, this is a recent phenomenon emerging with the 2010 Census. Prior to 2010, overall, rural communities experienced net positive growth, though at a slower rate than the overall U.S. population since the 1980s (Cromartie 2013). The picture painted by these statistics is of a relatively stable population sparsely distributed across a huge area of the country, and the structure of the rural public school system reflects that picture.

Nearly 60 percent of school districts, or three in five, are located in census-defined rural areas. Of the nation's nearly 99,000 public schools, about one-third serve rural communities. And students in those rural schools make up nearly one-fourth of public school students in the country.

Demographically, rural schools differ from their urban and suburban counterparts. As a group, rural schools serve a higher proportion of white students and a lower proportion of non-white students than schools in other geographic regions. National Center for Education Statistics data from 2011-12 show that nationally, rural schools served a population comprising 72 percent white students, compared with 58 percent in cities and 50 percent in suburban areas. Overall, rural schools also serve communities with a lower proportion of children living below the federal poverty line (19 percent in 2010) compared with cities (21 percent), but a greater proportion compared with suburban schools (15 percent). However, the concentration of poverty in rural communities varies by region, and schools in the rural South serve a higher proportion (22 percent) of children living below the poverty line than any other region (NCES 2013).

Rural schools face many of the same struggles as non-rural schools, but they also have some unique challenges and characteristics that have a bearing on policy. Rural schools are often located in geographically large districts, with more dispersed populations and may have fewer resources than more urban communities. This reality of the rural landscape can sometimes produce diseconomies of scale, driving up per-student operating costs and resulting in a lack of cultural programs and other opportunities that schools in more urban environments can easily access. However, rural schools also have advantages in terms of social capital in that they are often a hub for community activities, and with relatively stable rural populations, schools and school personnel often enjoy longstanding positive relationships within the communities they serve. This social network also serves to support students in a different way than is often the case in more urban settings.

• THE CASE FOR COLLEGE •

A report by the Georgetown University Center for Education and the Workforce projects that by 2020, 65 percent of jobs in the United States will require some level of postsecondary training. That percentage increased from 28 percent in 1973 to 56 percent in 1992 and continues to rise (Carnevale 2013). Further, the percentage of jobs requiring at least an associate's degree is projected to grow, whereas the percentage of jobs requiring some college but no degree shows a flat trend over time. As such, it becomes increasingly important not just to enroll in college-level coursework but to complete a degree in order to assure employment stability and economic success. Recognition of these trends is reflected in the national and state-level emphasis on college and career-readiness in high school graduation standards, and in increasing rates of postsecondary participation and completion.

Numerous studies have explored the issue of economic return on college, and the data is clear. Even with the rising cost of college, it still makes good economic sense to continue education after high school. Going to college is highly correlated with upward economic mobility. And individuals with at least some college can expect higher lifetime earnings and experience lower rates of unemployment than those with only a high school diploma.

A 2011 study of data from the U.S. Census Bureau's American Community Survey (ACS) finds that American workers earn \$1.7 million over a lifetime at the median (A. R. Carnevale 2011). However, within that number, median earnings with only a high school diploma compared to a bachelor's degree differ by almost \$1 million, or 74 percent less pay over a lifetime. Compared with a high school diploma alone, earning an associate degree

increases median lifetime earnings estimates by \$423,000, or 32 percent, and engaging in some postsecondary education without earning a degree increases estimated lifetime earnings by nearly 19 percent. These earnings equate to an average annual salary of about \$33,000 per year with a high school diploma, \$43,000 per year with an associate degree, or \$57,000 per year with a bachelor's degree. These findings vary by field, level of education, and across other domains such as race and gender. Regardless, numerous studies show that, nearly across the board, even some college work is better than no college work, and earning a postsecondary degree yields tangible and sizeable economic benefits.

Beyond the benefits to individuals, the increased pursuit of postsecondary education also strikes a blow at intergenerational cycles of poverty. Between generations (comparing parents and adult children) many adult children, regardless of whether or not they attended college, exceed their parents' family income. But research has shown that those with a college degree are much more likely to exceed their parents' income than those without. This trend held true regardless of the parents' income, but the effect is most dramatic for families in which the parents were in lower income brackets. Further, adult children with a college degree are much more likely to move up the economic ladder compared to peers without a college degree. In other words, people are much more likely to move out of the income bracket of their birth if they go to college (Haskins 2008).

These data are as important in the rural context as elsewhere. Reflecting a long-

In order for rural communities to survive, the local workforce must meet the changing demands of the current industry base—and in order to thrive, rural communities must be able to compete for the development of new high-skill jobs to replace the loss of low-skill work.

time trend in the national economy as a whole, the share of low-skill jobs in rural communities continues to decline. Research from the U.S. Department of Agriculture (USDA) finds that not only is this trend reflective of the broad national shift from goods-based to service-based industry over time, but, to an even greater extent, the loss of low-skill jobs in rural communities is attributable to shifts within the traditional industry bases fueling rural job markets, such as manufacturing and agriculture.

Through the impact of technology and globalization, those sectors increasingly demand high-skilled workers for managerial and professional functions as low-skill jobs are

outsourced or made obsolete. What's more, low-skill employment in rural communities is declining more rapidly than elsewhere (Gibbs 2005).

This means that in order for rural communities to survive, the local workforce must meet the changing demands of the current industry base—and in order to thrive, rural communities must be able to compete for the development of new high-skill jobs to replace the loss of low-skill work. In either case, growing the number of rural residents with postsecondary education is a necessary condition.

• CURRENT STATE OF EDUCATIONAL ATTAINMENT •

U.S. census data indicate that about 56 percent of adults age 25 or older have at least some college education, with 42 percent holding at least an associate degree (U.S. Census Bureau 2013). The most recent data from the National Center for Education Statistics indicate that 28 percent of adults age 25 or older hold at least a bachelor's degree. The share of U.S. adults with at least some college education has grown over time, and degree attainment is on the rise as well. The percentage of people age 25 to 29 with a bachelor's degree increased 11 percentage points from 23 percent to 34 percent, between 1990 and 2013 (NCES 2014). Internationally, the Organisation for Economic Co-Operation and Development (OECD) reports that, as of 2012, the United States ranks fifth in the percentage of adults age 25 to 64 with a university-level education, behind Canada, Israel, Japan, and Russia. However, the rate of increase in the proportion of adults with a university-level education lags behind 11 other OECD nations (OECD 2014).

Although these overall proportions are encouraging, there are disparities in levels of educational attainment along race, gender, and geographic lines—and, of particular interest here, between rural and non-rural communities. According to the United States Department of Agriculture (USDA), rural communities lag behind non-rural communities in the percentage of adults age 25 and over with at least some college by about 11 percentage points, and that gap has remained fairly steady over time (**Figure 1**). Breaking that data down further

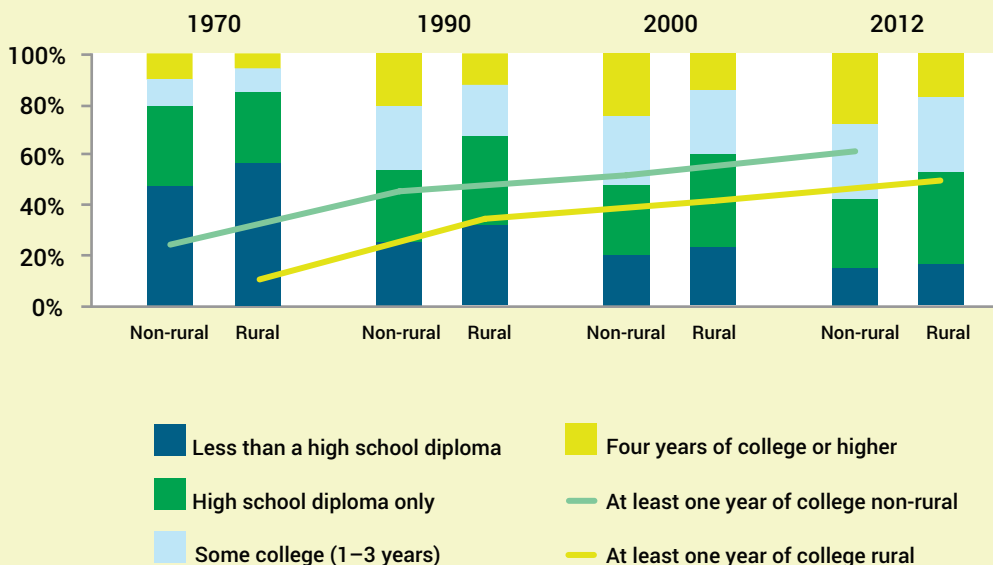
into those with some college (defined as one to three years) versus those with at least four years of college or more shows that the gap in rural educational attainment is driven almost entirely by the second category. There are three possible explanations for this trend:

- The rural population is enrolling in four-year programs at a lower rate;
- Rural students are failing to complete four-year degrees at a higher rate than their non-rural peers; or
- A higher percentage of rural high school graduates who successfully complete four-year degrees do not choose to live in rural communities as adults.

In practice, a combination of these factors explains rural educational attainment patterns. The third factor, the previously mentioned “brain drain,” is supported by data suggesting that rural communities experience an out-migration of the population in early adulthood—when young adults would be pursuing education and early employment opportunities—and the trend doesn’t begin to reverse until the mid- to late 30s through early retirement (Cromartie and Nelson 2009). Further documenting this trend, the National Longitudinal

RURAL/NON-RURAL EDUCATIONAL ATTAINMENT 1970 TO 2012

• Figure 1 •



Youth Survey data from 1991 shows that college graduates made up 16 percent of the population surveyed that opted to stay in rural communities versus 43 percent of the population that chose to leave (Gibbs 1998). It makes sense that those with the most to gain from expanded employment options available elsewhere would be the most likely to leave rural communities. Undoubtedly, then, the reality of low educational attainment in rural areas results in part from fewer opportunities afforded to highly educated adults in those communities.

Although 1992 graduates from rural high schools indicated that they planned to attend postsecondary education at high rates (about 93 percent), significantly fewer (53 percent) actually enrolled within two years.

The first two factors explaining lower rates of educational attainment among rural adults—lower rates of enrollment in postsecondary programs among rural high school graduates and lower rates of postsecondary attainment—are also supported by data. Analysis of the National Educational Longitudinal Survey data (NELS:88) reveals that although 1992 graduates from rural high schools indicated

that they planned to attend postsecondary education at high rates (about 93 percent), significantly fewer (53 percent) actually enrolled within two years. This compares to 97 percent of urban graduates reporting plans to attend postsecondary education and 82 percent actually enrolling within two years (Adelman 2002).

More recent data suggest that this trend persists. Analysis of a later administration of the ELS (the Education Longitudinal Study of 2002, or ELS:2002) finds that the gap between rural and non-rural graduates in the percentage enrolled in postsecondary education within two years of high school graduation is about five percentage points. The study further found the proportion of rural students enrolled in two-year institutions to be nine percentage points higher than non-rural students. Non-rural students also attended more selective colleges and universities at a higher rate than their rural peers (Koricich 2012).

For the past two years, the research arm of the National Student Clearinghouse has produced an annual *High School Benchmarks* report, analyzing postsecondary engagement patterns among participating high schools. The National Student Clearinghouse is a nonprofit organization created by the higher education community to provide data-related student services in compliance with federal privacy regulations. Its membership of 3,600 higher education institutions enrolls about 98 percent of the nation's college students, and the

Clearinghouse provides educational reporting, data exchange, verification, and research services to the higher education community. In addition, the Clearinghouse provides data services to member high schools (public and private) through its StudentTracker program.¹ StudentTracker allows high schools to follow students through their postsecondary careers. Currently, although the sample is broad, including about 25 percent of high school graduates annually with data from all 50 states, it is not statistically representative and skews to urban and lower-income schools. The results of the research are therefore not conclusive, but they are suggestive of a trend toward lower postsecondary enrollment, particularly among lower-income rural high school graduates.

The 2014 report presents data on postsecondary enrollment according to 12 categories of high schools participating in StudentTracker. The 12 categories are based on percentage of minority enrollment, student family income, and urban, suburban, or rural location. For the class of 2013 (**Figure 2A**), the data show that graduates from rural schools with high concentrations of low-income students and low concentrations of minority students remained at the lowest level of enrollment, but were tied in enrollment percentage (47 percent) with low-income, low-minority suburban schools. Interestingly, among high-income rural schools, rural graduates enrolled in four-year institutions at lower rates than did graduates of high-income urban or suburban schools, regardless of the ethnic makeup of the schools. Among high-income schools, rural schools serving high minority populations continued to show the lowest percentage enrollment, but rural schools serving low-minority populations were more comparable with urban and suburban peers.

For the class of 2012 (**Figure 2B**), the data show very similar trends, though rural graduates from high-income schools lagged behind urban and suburban peers in every category.

Rural graduates enroll in four-year institutions at a lower rate than their urban or suburban peers across income and ethnic breakdowns.

Overall, the data show rural students in low-minority schools generally faring worse than comparable urban and suburban peers in postsecondary enrollment, in either two-year or four-year institutions. Further,

rural graduates enroll in four-year institutions at a lower rate than their urban or suburban peers across income and ethnic breakdowns (National Student Clearinghouse 2014). The *High School Benchmarks 2014* report also provides data for the class of 2012 at one year following high school graduation; though overall postsecondary enrollment is increased, the relationships among the various categories persist (National Student Clearinghouse 2014).

• Figure 2 •

PERCENT OF STUDENTS ENROLLED IN THE FIRST FALL FOLLOWING HIGH SCHOOL GRADUATION, CLASS OF 2013

Low Income Schools	Urban		Suburban		Rural	
	High Minority	Low Minority	High Minority	Low Minority	High Minority	Low Minority
Two-year	22%	27%	24%	21%	25%	17%
Four-year	29%	31%	27%	26%	27%	30%
Total	51%	58%	50%	51%	52%	47%

A

High Income Schools	Urban		Suburban		Rural	
	High Minority	Low Minority	High Minority	Low Minority	High Minority	Low Minority
Two-year	27%	23%	28%	21%	27%	21%
Four-year	35%	49%	35%	52%	33%	45%
Total	62%	72%	63%	73%	60%	65%

PERCENT OF STUDENTS ENROLLED IN THE FIRST FALL FOLLOWING HIGH SCHOOL GRADUATION, CLASS OF 2012

Low Income Schools	Urban		Suburban		Rural	
	High Minority	Low Minority	High Minority	Low Minority	High Minority	Low Minority
Two-year	22%	26%	19%	22%	24%	18%
Four-year	30%	30%	34%	27%	29%	31%
Total	52%	57%	54%	49%	53%	48%

B

High Income Schools	Urban		Suburban		Rural	
	High Minority	Low Minority	High Minority	Low Minority	High Minority	Low Minority
Two-year	28%	22%	29%	21%	30%	20%
Four-year	33%	48%	34%	51%	31%	45%
Total	61%	70%	63%	73%	62%	65%

Source: National Student Clearinghouse, High School Benchmarks 2014

Going further back, an analysis of the ACS data published in 2007 found that, in rural communities, fewer students in both the 18 to 24 and the 25 to 29 age groups were enrolled in postsecondary programs at the undergraduate or graduate level (Provasnik 2007). That data showed 27 percent enrollment among rural students age 18 to 24 compared with percentages ranging from about 32 percent to nearly 37 percent in towns, suburbs, and urban areas. Among adults age 25 to 29, nearly eight percent of rural residents reported enrollment in undergraduate programs. This level of enrollment compares to about 10 percent to 11 percent in all other geographic designations for undergraduate programs. Because of changes in the way the ACS is conducted, that analysis cannot be replicated with more updated data. Similar to the National Student Clearinghouse findings, however, while the data are not conclusive, they do suggest differences in the rate at which rural high school graduates enroll in and complete postsecondary education.

With a national push to increase postsecondary education across the country, and supported in part by the federal Statewide Longitudinal Data Systems grant funds first made available to states in 2007 (NCES n.d.), most states are engaged in the development and implementation of data systems that link student-level K-12 education data to postsecondary indicators such as enrollment and workforce-related data. According to the Data Quality Campaign, which tracks state progress in developing these systems, as of 2013, 44 states had linked K-12 and postsecondary enrollment data, and 29 of those 44 states also linked postsecondary completion data (DQC n.d.). However, public access to these data at the district or school level varies by state.

We examined postsecondary enrollment by school district in four states in which data are publicly accessible: Virginia, Nevada, Florida, and Idaho (**Figure 3**). Though each state reports these postsecondary indicators differently, in each year for which data were available in each of these states except Idaho, rural graduates showed lower rates of enrollment than non-rural high school graduates. It is noteworthy that among these states, Idaho is the only one with a unitary set of state high school graduation requirements. In each of the other states, students can select between two diploma program options, one of which is generally less rigorous as measured by the course requirements for core academic subject areas.

No national conclusions can be drawn from these data. However, with a range of data sources coalescing around the notion that the lag in postsecondary enrollment established with historical data in the early 1990s persists, the question for those interested in the well-being of rural students and rural communities, and for education policymakers in particular, becomes whether there are school-related policies or factors contributing to this lower participation.

STATE-LEVEL POSTSECONDARY ENROLLMENT BY DISTRICT TYPE

• Figure 3 •

VIRGINIA		2007-08	2008-09	2009-10	2010-11
Non-rural	Enrollment Rate	64%	62%	62%	63%
	4-year public	34%	32%	32%	33%
	2-year	21%	21%	21%	21%
	4-year private	9%	10%	10%	9%
Rural	Enrollment Rate	57%	57%	56%	56%
	4-year public	20%	19%	19%	19%
	2-year	28%	27%	28%	28%
	4-year private	10%	10%	10%	10%

NEVADA		2008-09	2010-11
Non-rural	Enrollment Rate	64%	66%
	4-year public	51%	53%
	Completion of 1 year's worth of progress within 2 years	38%	35%
Rural	Enrollment Rate	51%	55%
	4-year public	36%	40%
	Completion of 1 year's worth of progress within 2 years	24%	25%

FLORIDA		2010	2011	2012
Non-rural	State University	19%	19%	20%
	Community College	33%	34%	33%
	Technical Center	1%	1%	1%
Rural	State University	15%	16%	15%
	Community College	32%	32%	31%
	Technical Center	2%	1%	2%

IDAHO		2010	2011	2012
Non-rural	Total Enrolled	51%	57%	51%
	4-Year	35%	37%	35%
	2-Year	17%	17%	17%
Rural	Total Enrolled	54%	61%	54%
	4-Year	37%	37%	37%
	2-Year	18%	18%	18%

• BARRIERS TO POSTSECONDARY EDUCATION FOR RURAL STUDENTS •

There are characteristics more unique to rural life and rural schooling that present barriers as well as opportunities for rural students. Lower levels of educational attainment among rural adults means that parents of rural students are less likely to have received postsecondary education themselves.

As with poor students in all locales, economic disadvantage is a significant barrier for rural students' pursuit of postsecondary education and may explain much of the lag in enrollment and completion by rural students compared to non-rural students (Byun, Meece, and Irvin 2011). However, there are other characteristics more unique to rural life and rural schooling that present barriers as well as opportunities for rural students. Lower levels of educational attainment among rural adults means that parents

of rural students are less likely to have received postsecondary education themselves. This intuitive point is supported by the data from the 2002 ELS (Koricich 2012). As such, many rural high school graduates are would-be first-generation college students, a group that experiences a tougher road to college marked by lower likelihood of enrollment and lower rates of completion (Drotos 2011). Further, survey data show that parents in rural communities are less likely to expect their children to attain a bachelor's degree (Provasnik 2007) (Byun, Meece, and Irvin 2011). Add to these challenges geographic isolation and strong community ties that affect students' desire and ability to leave communities to pursue education beyond high school. Survey data suggest that both

As such, many rural high school graduates are would-be first-generation college students, a group that experiences a tougher road to college marked by lower likelihood of enrollment and lower rates of completion.

rural students and teachers perceived getting married, needing to support one's family, and a desire to stay close to home as barriers to postsecondary education. On the flip side, however, rural schools frequently have strong links to communities, marked by longstanding relationships among school staff and the communities they serve—factors that correlate with high student achievement (NRCRES n.d.).

In addition to barriers related to financial hardship and culture, we seek to determine whether there is something inherent in the curricular experience of rural students that is driving some of the disparity in postsecondary achievement.

• RURAL HIGH SCHOOLS’ GRADUATION RATES AND OTHER MEASURES OF PERFORMANCE •

We know that rural high schools generally show higher graduation rates than urban high schools, with rates on par with the highest-performing geographic delineation: suburban schools. Figure 4 shows the average freshman graduation rate from school year 2005–06 to 2008–09 (the most recent year for which district-level data is available) by the NCES urban-centric locale² designation. The average freshman graduation rate measures the percentage of students who graduate with a standard or advanced diploma (not a GED or other diploma alternative) within four years of entering ninth grade for the first time. According to the data, rural students graduated at rates at least equal to their suburban peers and better than their urban peers by five to 12 percentage points (**Figure 4**).

AVERAGE FRESHMAN GRADUATION RATES BY DISTRICT TYPE, SCHOOL YEARS 2005-06 TO 2008-09

• Figure 4 •

	2005–06	2006–07	2007–08	2008–09
Rural	79%	78%	80%	80%
Town	78%	78%	79%	79%
Suburban	78%	79%	80%	80%
Urban	67%	68%	75%	71%
Overall	75%	76%	77%	78%

Source: National Center for Education Statistics

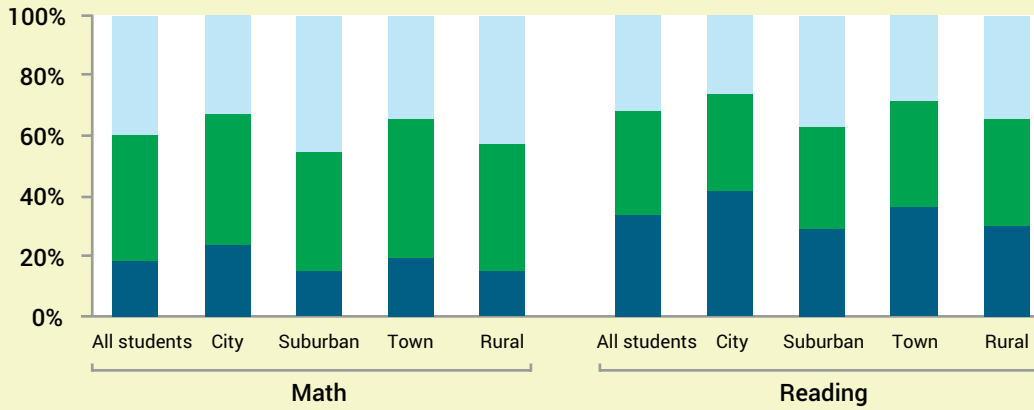
Rural students have historically outperformed non-rural students in other measures of achievement as well, including performance on the National Assessment of Educational Progress (NAEP) in reading, math, and science in fourth and eighth grades, and in high school dropout rates (Provasnik 2007).

Those trends have persisted, with rural students outperforming peers in urban areas and performing on par with their suburban peers in both reading and math in more recent measures. In both the 2009 and 2011 NAEP, rural eighth graders performed better in both math and reading than peers in urban areas and scored within two points of suburban peers in both subjects. Additionally, rural fourth and eighth graders achieved proficiency in reading and math at a higher rate than peers from urban locales (**Figure 5**).

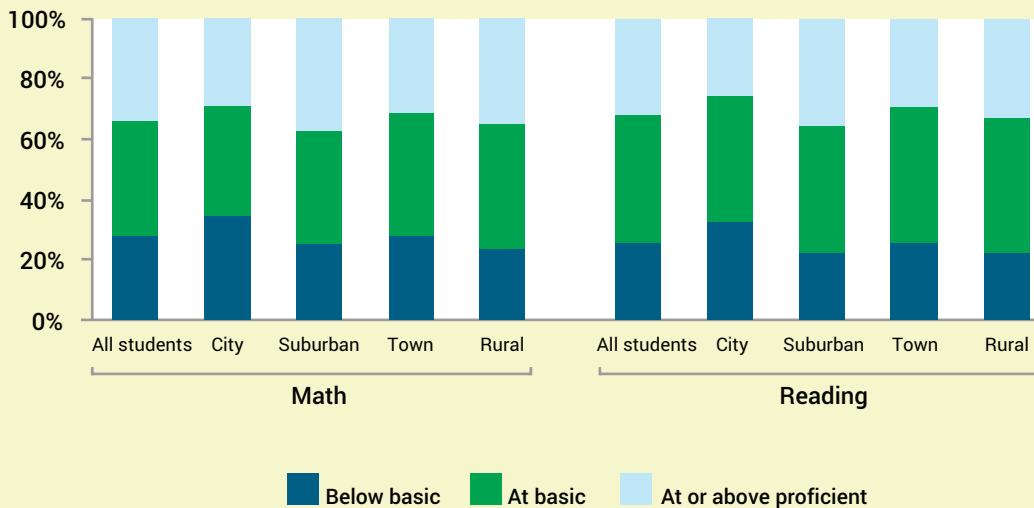
Despite these high rates of high school graduation and other achievement measures, lower postsecondary enrollment persists, creating a kind of rural paradox. One hypothesis is that a difference in the high school curricular experience of rural students contributes to their being less prepared or less qualified for postsecondary work, which has implications both for initial enrollment and for completion.

• Figure 5 •

NAEP SCORES BY GEOGRAPHIC LOCALE, GRADE 4, 2011



NAEP SCORES BY GEOGRAPHIC LOCALE, GRADE 8, 2011



Note: The achievement levels define what students should know and be able to do: Basic indicates partial mastery of fundamental skills, Proficient indicates demonstrated competency over challenging subject matter, and Advanced indicates superior performance. For more information on achievement levels, see <http://nces.ed.gov/nationsreportcard/mathematics/achieve.asp>. For more details on urban-centric locale categories, see <http://nces.ed.gov/surveys/ruraled/page2.asp>. Detail may not sum to totals because of rounding.

Source: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Mathematics Assessment, NAEP Data Explorer.

• HIGH SCHOOL RIGOR •

Graduation rates measure the degree to which students complete high school, as defined by state and local standards, and offer little indication of the quality or rigor of academic learning the high school diploma may represent. Some states, for instance Virginia, Indiana, and Nevada, recognize multiple diplomas with explicitly different standards for rigor while two states, Colorado and Massachusetts, allow districts to set diploma requirements. Research finds that the rigor of a student's high school curriculum is significantly predictive of both

Research finds that the rigor of a student's high school curriculum is significantly predictive of both postsecondary enrollment and success. The more rigorous the high school curriculum, the more likely a student is to access postsecondary education and earn a degree.

postsecondary enrollment and success. The more rigorous the high school curriculum, the more likely a student is to access postsecondary education and earn a degree. Further, the impact of high school curricular choices on degree attainment was found to be greater than the impact of socioeconomic status (Adelman 1999). Yet past analysis of NELS data on course selection suggests that rural students are less likely to take rigorous courses (Byun, Meece, and Irvin 2011).

How is rigor defined? The study referenced above examined the highest math course taken, Advanced Placement courses taken, and remedial college work in English and math. The Center for Public Education explores the issue in its *Is High School Tough Enough?* report, citing similar measures of rigor: Advanced Placement courses, advanced mathematics, dual enrollment, and early college high school programs (O'Brien and Dervarics 2012).

Math course-taking as a measure of rigor is of particular interest because of its predictive value for postsecondary success. Students who study math at least through algebra II in high school are more than twice as likely to earn a four-year degree. A study of persistence in postsecondary education based on 2002 ELS data found that taking higher math courses in high school significantly increased the probability that a student would persist between the first and second years of postsecondary education. Just taking algebra II increased the likelihood of persistence by 10 percent to 20 percent for students in both two-year and four-year programs. With each additional high school math course beyond algebra II, the probability of persistence between the first and second year increased further for all groups. The effect varies by the socioeconomic status of the student, with the effect being less pronounced for *higher*-income students. (Klepfer 2010).

In addition to courses above algebra II, that course is itself an important data point in considering students' transition to postsecondary education because it is assessed on both the SAT and the ACT, which are factors in admissions and/or placement for the vast majority of four-year colleges and universities in the United States. Further, student grades in college preparatory courses are the most important factor in college admissions decisions. Though "college preparatory" is not a defined standard curriculum, many colleges and universities specify minimum coursework recommendations, or even requirements in foundation subjects that may or may not align with state high school graduation requirements. General advice to prospective applicants is to take the most challenging coursework possible.

Another way in which high school course selection may factor into students' postsecondary experiences is through the potential need for remediation. Students opting for a less rigorous high school curriculum are less likely to be prepared for college-level work. Estimates of the rate of remediation among first-time undergraduates vary from around 20 percent overall, and 21 percent and 24 percent in public four-year and two-year institutions respectively as reported by NCES for the 2007–08 academic year, to estimates of as high as 28 percent to 40 percent overall and 50 percent for community colleges (Sparks 2013) (NCSL n.d.).

The need for remediation in college coursework increases both the cost of college and the time to degree, and negatively affects the likelihood of completing a postsecondary degree.

The need for remediation in college coursework increases both the cost of college and the time to degree, and negatively affects the likelihood of completing a postsecondary degree. For instance, of students requiring math remediation in college, 45 percent will complete a two-year or four-year degree, compared with 56 percent among students requiring no remediation (Venezia 2003).

Though enrolling in advanced high school math courses is no guarantee a student will avoid remediation, survey data reported by Achieve in 2005 found that among college students who completed high school math studies at least through algebra II, 60 percent felt well prepared for college coursework, compared to 26 percent of students who did not complete algebra II (Achieve 2005). And credits earned in mathematics have increased over time, with the percentage of students taking algebra II growing from 40 percent to 67 percent between 1982 and 2004, and the percentage of students taking advanced math above algebra II growing by 24 percentage points in the same period (Planty, Provasnik, and Daniel 2007).

To assess the relative rigor of high school programs in rural versus non-rural high schools, we examined four sets of data. First, we looked at state high school graduation requirements for rigor, as measured by math requirements imposed by each state. Second, we compared rates of enrollment in algebra II, advanced math, and Advanced Placement courses between rural and non-rural districts as reported to the U.S. Department of Education's Office for Civil Rights, using those course enrollments as a proxy for rigor in students' high school course selection. Third, we analyzed survey data from ELS: 2002 to compare actual course-taking patterns in advanced math courses among rural and non-rural survey respondents. Finally, we examined ACT data in Idaho to compare the relative rate at which rural and non-rural students scored at or above college readiness benchmarks.

• HIGH SCHOOL DIPLOMA REQUIREMENTS •

Generally, states establish the number of credits (equivalent to a year's coursework) required in various subject areas. All states with minimum graduation requirements have credit requirements for English, mathematics, science, and social studies. However, within this basic framework, graduation requirements vary significantly.

With the exception of Colorado and Massachusetts, which do not establish state requirements but allow districts to determine standards, every state stipulates minimal coursework requirements for high school graduation. Generally, states establish the number of credits (equivalent to a year's coursework) required in various subject areas. All states with minimum graduation requirements have credit requirements for English, mathematics, science, and social studies. Many also have requirements in other subject areas such as the arts, foreign

languages, health, foreign languages, and other electives.

The first broad division is between states with a single, unitary set of graduation requirements and those that offer more than one diploma program. Ten states currently offer multiple diploma options, and of those, nine offer two diploma programs. New York is the exception with eight diploma options, which have identical course credit requirements that are differentiated based on the number of New York State Regents exams a student must pass and with what score. For example, the Regents diploma requires a passing score of 65 on four Regents exams in core courses, and the Regents with Honors diploma requires an average passing score of

• Figure 6 •

HIGH SCHOOL GRADUATION REQUIREMENTS FOR CORE ACADEMIC SUBJECTS IN STATES WITH MULTIPLE DIPLOMA PROGRAMS

State	Diploma Programs	Total Credits	ELA	Math	Science	Social Studies	Foreign Language
Arkansas	Smart Core	22	4	4 Including algebra II	3	3	0
	Core	22	4	4	3	3	0
Florida	Standard	24	4	4	3	3	0
	ACCEL	18	4	4	3	3	0
Indiana	Core 40	20	4	3 Including algebra II	3	3	0
	General	20	4	2	2	2	0
Louisiana	College and Career-LA Core	24	4	4	4	4	2
	College and Career-Basic Core	24	4	4	3	3	0
	Career	23	4	4	3	3	0
Mississippi	Traditional Pathway	24	4	4	4	4	0
	Career Pathway	21	4	3	3	3	0
Nevada	Advanced	24	4	4	3	3	0
	Standard	22.5	4	3	2	2	0
New York	Six Regents Diploma Options	22	4	3	3	4	1
	Two Local Options	22	4	3	3	4	1
North Carolina	Future Ready Core	22	4	4 Including algebra II	3	4	0
	Future Ready Occupational	22	4	3	2	2	0
Virginia	Advanced	26	4	4 Including algebra II	4	4	3
	Standard	22	4	3	3	3	0
West Virginia	Professional Pathway	24	4	4	4	4	2
	Skilled Pathway	24	4	4	3	4	0

90 on five Regents exams. Because the course requirements are the same for all options, New York is excluded from the “multiple diploma” group in the following analyses.

Of the nine states with two programs, all diploma options require four years of English language arts (ELA). Arkansas’ and Florida’s options have identical core curriculum requirements, but vary on non-core requirements (and total credits in the case of Florida). Within the core curriculum requirements, all programs but Indiana’s General diploma require at least three credits in math, and all but Indiana’s General diploma and North Carolina’s Future-Ready Occupational diploma require at least three credits in science. It is also worth noting that in both Arkansas and Indiana, the default program for all students is the more rigorous diploma option in terms of the number of credits required in the core and the level of coursework required. In both cases, selection of the alternate (less rigorous) diploma program requires an affirmative action by the student, the parent or guardian, and school officials. Figure 6 presents a summary of graduation requirements by diploma type for each state offering multiple diploma programs.

Among states with multiple diploma programs, only Virginia and New York publicly report graduation rates by diploma type at the district level. Consequently, a broad analysis comparing rates of high school graduation by diploma type between rural and non-rural districts is not possible. Further, since New York’s curricular requirements are identical among diploma types, such analysis does not necessarily reveal any systematic variance

NEW YORK HIGH SCHOOL GRADUATION BY DIPLOMA TYPE IN RURAL AND NON-RURAL DISTRICTS

• Figure 7 •

		2011–12	2012–13	
Non-rural	Overall Rate	78.8%	79.2%	
	<i>Diploma Type</i>	Regent’s Advanced	30.6%	29.8%
		Regent’s	35.8%	45.0%
		Local	12.4%	4.4%
Rural	Overall Rate	81.0%	83.0%	
	<i>Diploma Type</i>	Regent’s Advanced	33.3%	32.2%
		Regent’s	36.8%	45.0%
		Local	10.9%	5.8%

While Virginia’s rural school districts do demonstrate a slightly higher overall graduation rate in the latest two years of available data and comparable rates in prior years, in every year a larger proportion of rural graduates are earning the less rigorous Standard diploma.

with regard to the level of rigor required by rural versus non-rural high schools. In fact, the data show that rural districts, as expected, boast higher overall graduation rates. Additionally, the breakdown between advanced and regular Regents diplomas among rural and non-rural graduates is comparable (Figure 7). Figure 8 shows less stability in the breakdown between district types in the percentage of students graduating under a local diploma option, but shows a year- to-year decline in the

overall percentage of students graduating under any local option.

Data from Virginia shows a different trend (Figure 8). Comparing graduation requirements between Virginia’s Advanced and Standard diplomas reveals that the Standard diploma requires four fewer overall credits, one fewer credit in each core subject except for ELA (i.e., math, science, and social studies), and does not include a foreign language requirement. However, it is worth noting that foreign language requirements, while common admissions requirements among selective colleges and universities, are rare among state high school graduation standards, required in only nine states and the District of Columbia. Even excluding the foreign language requirement, Virginia’s Standard diploma program presents

VIRGINIA HIGH SCHOOL GRADUATION RATES BY DIPLOMA TYPE IN RURAL AND NON-RURAL DISTRICTS

• Figure 8 •

		2007–08	2008–09	2009–10	2010–11	2011–12	
Non-rural	Overall Rate	82.7%	83.7%	86.0%	86.8%	88.1%	
	<i>Diploma Type</i>	Standard	43.6%	43.9%	43.3%	42.4%	41.6%
		Advanced	56.4%	56.1%	56.7%	57.6%	58.4%
Rural	Overall Rate	81.8%	83.3%	85.7%	87.2%	88.5%	
	<i>Diploma Type</i>	Standard	51.1%	50.0%	49.7%	48.9%	48.0%
		Advanced	48.9%	43.9%	50.3%	51.1%	52.0%

a less rigorous option for students, requiring fewer core courses and not stipulating algebra II as a requirement for graduation. Analysis of graduation rates under the two diploma types among rural and non-rural districts (weighted for the cohort size in each year) reveals that while Virginia's rural school districts do demonstrate a slightly higher overall graduation rate in the latest two years of available data and comparable rates in prior years, in every year a larger proportion of rural graduates are earning the less rigorous Standard diploma (**Figure 8**). This is the case even though, as a percentage of total enrollment, rural Virginia districts serve a population with proportionately fewer minority, economically disadvantaged, English language learner, or special education students—all demographics that traditionally exhibit lower rates of graduation overall.

Although these data cannot establish causality between less rigorous high school graduation requirements and postsecondary participation, the higher rates of graduation under the less rigorous diploma option coupled with lower postsecondary enrollment among Virginia's rural graduates do suggest at least a correlation between the rate of graduation under a less rigorous diploma plan and likelihood of postsecondary enrollment.

But Virginia is one state. Among states with a single diploma program, a different proxy for rigor is required. States vary in terms of specificity with regard to the particular courses required to satisfy course requirements: some stipulate simply the number of credits, while others specify that those credits must include specific courses. In terms of core academic subjects, states have similar requirements for English language arts and social studies, with most requiring four ELA credits and three social studies credits. Much more variation is apparent for math and science; therefore, because of the research base linking advanced math and postsecondary success, math is the focus of this analysis.

Figure 9 provides a summary of math requirements in the 39 states and the District of Columbia that have a single diploma program. The majority (23) require a minimum of three years of math (12 require four math credits and four require only two math credits). Of those requiring three years of math, five states stipulate that algebra II must be one of those courses; three states require algebra I, geometry, and an unspecified advanced math course; and the remaining 15 states stipulate only a three credit minimum.

These graduation requirements factor into the question at hand because in several states it is possible to graduate from high school without taking algebra II (or other advanced coursework).

• Figure 9 •

STATE MATHEMATICS REQUIREMENTS FOR HIGH SCHOOL GRADUATION IN STATES WITH A SINGLE HIGH SCHOOL DIPLOMA PROGRAM

Four Years of Math	Algebra II Required
Alabama	✓
Arizona	✓
Connecticut	✓
Delaware	✓
District of Columbia	✓
Georgia	✓
Michigan	✓
New Mexico	✓
Ohio	✓
Rhode Island	
South Carolina	
Tennessee	✓

Three Years of Math	Algebra II Required
Hawaii	
Idaho	
Illinois	
Iowa	
Kansas	
Kentucky	✓
Maryland	
Minnesota	✓
Missouri	
Nebraska	Not explicit, advanced math required
New Hampshire	
New Jersey	
North Dakota	
Oklahoma	Not explicit, advanced math required
Oregon	Not explicit, advanced math required
Pennsylvania	
South Dakota	✓
Texas	
Utah	✓
Vermont	
Washington	✓
Wisconsin	
Wyoming	

Two Years of Math	Algebra II Required
Alaska	
California	
Maine	
Montana	

• ANALYSIS OF MATHEMATICS COURSE ENROLLMENTS AND COURSE-TAKING •

Acknowledging that course selection is not solely a function of state graduation requirements, it stands to reason that if states or districts do not require certain courses for graduation, fewer students will take them. And research finds that increased graduation requirements do correlate with higher rates of advanced course-taking (Clune 1992).

To examine course selection patterns among rural and non-rural districts, first we examined district-level data on student enrollment in algebra II, advanced math (above algebra II, but not calculus), and calculus collected by the U.S. Department of Education's Office for Civil Rights (OCR). High school math enrollment data suggests that where the number of credits required is the same, whether a state specifies algebra II as a required course does not have much impact on the rate at which students enroll in the course. On average, among states that require three years of math to graduate, in 2011 specifically requiring algebra II did not correlate with higher student enrollment in advanced mathematics courses.

• Figure 10 •

PERCENT OF HIGH SCHOOL STUDENTS ENROLLED IN UPPER LEVEL MATH COURSES NOT REQUIRED FOR GRADUATION BY DISTRICT AND DIPLOMA TYPE, 2011

		Advanced Mathematics	Algebra II	Calculus
Non-rural				
Single Diploma	3 Years of Math Required	15.4%	19.6%	3.8%
	2 Years of Math Required	13.8%	17.0%	7.3%
Multiple Diplomas		21.8%	19.3%	2.5%
Rural				
Single Diploma	3 Years of Math Required	11.7%	14.9%	3.1%
	2 Years of Math Required	9.0%	12.7%	2.6%
Multiple Diplomas		15.4%	17.8%	2.8%

Source: Original data analysis based on data from U.S. Department of Education Office of Civil Rights

Note that data for New York is included in the “3 Years of Math Required” category under “Single Diploma” because although New York offers multiple diplomas, they are distinguished according to assessments-related requirements and all have the same course-taking requirements. As such, for purposes of this analysis, they are comparable to the requirements in states with a single diploma program.

However, breaking these data down by rural and non-rural districts shows something different. Figure 10 provides the percentage of students enrolled in algebra II, advanced math, and calculus as a function of total secondary enrollment in 2011 in states with fewer than four credits of math required, and where algebra II is not an explicit graduation requirement. These data show rural students lagging in the rate of enrollment in all categories, with the biggest gap being in states that require two years of math to graduate and in states with multiple diploma options in which at least one option does not require algebra II. This result suggests that where states impose less prescriptive and less rigorous course requirements in math, students are opting to enroll in fewer advanced courses. Whether that pattern persists across years—or results from less access to advanced coursework, lower postsecondary aspirations or expectations, less knowledge about postsecondary requirements, or simply personal choice—cannot be determined from these data. But regardless of the possible cause, the data suggest reduced rigor in high school course-taking among rural students.

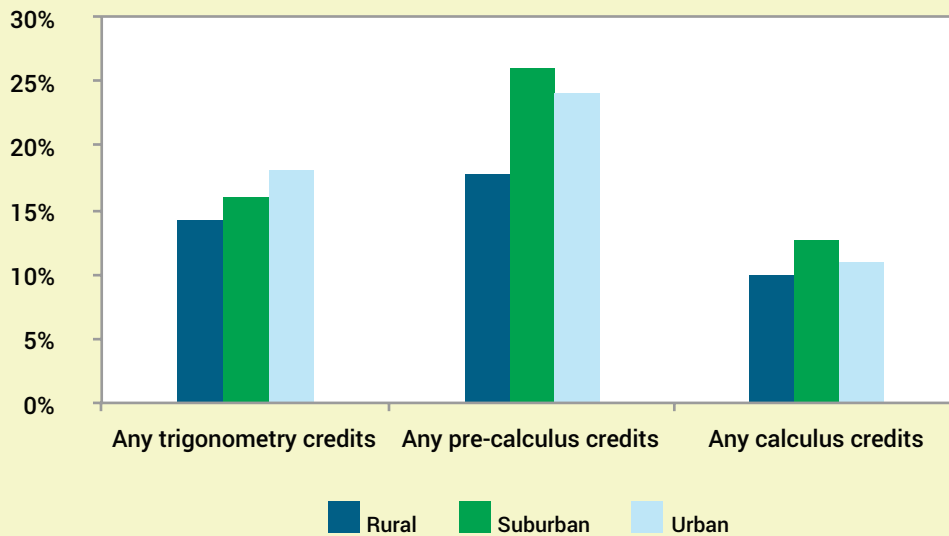
Analysis of survey data from the Education Longitudinal Survey of 2002 (ELS:2002) supports the conclusion suggested by the OCR enrollment data. ELS: 2002 periodically surveys a cohort of individuals who were in grade 10 in 2002, along with their parents, teachers, and

school administrators, on aspects of their secondary and postsecondary years. The most recent follow-up was conducted in 2012, and the dataset includes high school transcript data (NCES n.d.). Of students surveyed for ELS: 2002, a lower percentage of rural students than their urban or suburban peers earned credits in trigonometry and pre-calculus, and a lower percentage of rural students than suburban peers earned credits in calculus.³ The percentage of rural students surveyed who were earning credits in trigonometry lagged behind suburban and urban peers by almost two to four percentage points. The difference between the percentage of rural students earning pre-calculus credits compared to their suburban peers ranged from over six to over eight percentage points (**Figure 11**).

These findings suggest rural students do experience a less rigorous high school academic program. And if these data are evidence of a trend, it is a dire one for rural students' postsecondary prospects, leaving them less likely to fare well on college admissions exams and less likely to enroll, avoid remediation, and ultimately achieve a postsecondary degree.

PERCENT OF HIGH SCHOOL STUDENTS ENROLLED IN UPPER LEVEL MATH COURSES NOT REQUIRED FOR GRADUATION BY DISTRICT AND DIPLOMA TYPE, 2011

• Figure 11 •



• ADVANCED PLACEMENT AND ACT COLLEGE-READINESS BENCHMARKS •

Two other indicators of rigor in high school curricula that tie more directly to postsecondary preparedness are participation in college-credit-bearing coursework during high school through Advanced Placement (AP) and dual credit, and achievement of college-readiness benchmarks on the ACT. Dual credit and AP are designed to provide high school students with opportunities to engage in college-level work to earn postsecondary credit—either by taking actual college courses offered by or in cooperation with institutions of higher education, or by examination. Although comprehensive data is not available on dual credit participation, analysis of the OCR data on participation in AP courses reveals a pattern between rural and non-rural schools similar to participation in advanced math courses. Figure 12 shows that in 2011, the gap between rural and non-rural districts in the percentage of students enrolling in AP courses is 5.6 percent. Data on AP tests (both test-taking rates and student performance) are more mixed, but could also be heavily influenced by varying state and local policies regarding AP test-taking (requirements or incentives) and AP test-fee subsidies.

• Figure 12 •

SELECTED VARIABLES ON ADVANCED PLACEMENT COURSE-TAKING AMONG RURAL AND NON-RURAL SCHOOL DISTRICTS, 2011

	Enrollment in AP classes	Passing all AP tests taken	Passing no AP tests take	Passing some AP tests taken	Students who took AP courses but did not take any AP tests	Taking AP tests for all AP courses taken	Taking AP tests for some AP courses taken
Non-rural School Districts	15.6%	4.8%	3.8%	1.8%	2.7%	9.3%	2.4%
Rural School Districts	10.1%	2.5%	2.5%	1.1%	2.0%	5.5%	1.7%
Non-rural Over/(Under) Rural	5.6%	2.3%	1.3%	0.7%	0.7%	3.7%	0.7%

Source: Original data analysis based on data from U.S. Department of Education Office of Civil Rights

Lower rates of enrollment in AP courses have implications with regard to the relative rigor of the high school curriculum and postsecondary aspirations for students, as well as for the overall cost of college, since high scores on AP exams are counted for postsecondary credit by some institutions of higher education. Analysis of course offerings indicates that rural schools offer significantly fewer AP courses compared to non-rural schools. However, rural schools offer dual credit courses (courses offered in partnership between high schools and institutions of higher education to serve as both a high school credit and a college credit) at similar rates to non-rural schools (Provasnik 2007). So while there is an opportunity gap with regard to AP courses for rural students, there are substantially similar opportunities for rural students to engage in dual credit coursework, which could offer similar opportunities for rigor and college credit.

The final data point in our analysis of high school rigor is performance on the ACT among students in rural versus non-rural districts. The ACT measures the college readiness of high school students by establishing college-readiness benchmark scores on each of the four ACT subject tests. The benchmark scores are established based on a national sample of institutions and students, and represent the score necessary for a student to have a 50 percent chance of earning at least a B in a corresponding first-year credit-bearing college course or a 75 percent chance of earning a C (ACT 2015). Analysis of data from Idaho’s class of 2014 reveals that smaller percentages of students in rural districts meet college-readiness

benchmarks in any subject compared to their non-rural peers. The performance gap ranges from 11 to 13 percentage points and is greatest in science. In addition, rural Idaho students achieved lower composite and subject test scores on average compared to their non-rural peers (**Figure 13**). It should be noted that state law requires all Idaho students to take the SAT, the ACT, or the Compass by the end of grade 11. In-state institutions of higher education in Idaho require the ACT, so it is the more common choice (Idaho State Department of Education n.d.).

• Figure 13 •

AVERAGE ACT COMPOSITE AND SUB-SECTION SCORES OF ACT-TESTED STUDENTS IN IDAHO BY DISTRICT URBANICITY, CLASS OF 2014

Urbanicity of school district	ACT Composite	ACT Math	ACT English	ACT Reading	ACT Science
Urban	21.8	21.4	21.2	22.5	21.6
Rural	21.3	21.1	20.4	22.1	21.1
Total	21.6	21.3	20.8	22.3	21.3

PERCENT OF ACT-TESTED STUDENTS IN IDAHO ATTAINING COLLEGE AND CAREER BENCHMARKS BY DISTRICT URBANICITY, CLASS OF 2014

Urbanicity of school district	ACT Math	ACT English	ACT Reading	ACT Science
Urban	54.3%	76.5%	56.4%	46.7%
Rural	42.1%	65.6%	45.3%	34.0%
Total	52.6%	74.9%	54.7%	44.7%

Note: In this analysis, urbanicity is defined using the NCES urban locale codes consistent with the other analyses presented in this paper.

Source: ACT

• CONCLUSIONS AND RECOMMENDATIONS •

While none of the analysis here conclusively reveals a systematic, widespread dumbing down of rural high school curricula, or deliberate tracking to a non-college preparatory path in comparison with non-rural high schools, it does point to areas of concern.

While none of the analysis here conclusively reveals a systematic, widespread dumbing down of rural high school curricula, or deliberate tracking to a non-college preparatory path in comparison with non-rural high schools, it does point to areas of concern. In at least one state (Virginia), rural high school students graduate under the less rigorous diploma program at higher rates than non-rural peers. Further, analysis of available data shows that rural students across the country

may be enrolling in less rigorous coursework in high school than their non-rural peers—which may lead to inferior qualifications for postsecondary education and a lower probability of success for those students who do go on to college.

Although ample research is available determining barriers to college for groups of students analyzed by race, gender, and income, very few existing studies focus specifically on rural students as a group. This is a key area to which researchers and state policymakers should direct their attention.

Future research efforts should focus on continuing to establish patterns of enrollment in college preparatory coursework among rural and non-rural students and on determining the causality behind those patterns.

The first step in increasing postsecondary participation among any population of students is increasing the degree to which students are both college eligible (meeting admissions requirements) and college ready (able to complete college-level coursework). The more rigorous the high school curriculum, the better off students will be.

KEY QUESTIONS

Further research into the differences in high school coursework between rural and non-rural graduates and the causes of those differences should include some key questions:

- Are rural students counseled differently regarding postsecondary options and the relationship of high school coursework to those options?
- Are there other factors related to the rural community or high school experience that lead students to avoid more advanced courses?
- What is the relationship between high school course-taking, college- and career-readiness benchmarks, and the need for college remediation?

Even absent that additional research, there are policy actions that would benefit rural students now:

- 1. States, districts, and schools must ensure that students in all high schools, rural and non-rural, have access to a rigorous curriculum.** Policies that can benefit all students, and rural students in particular, include leveraging distance education and technology, expanding Advanced Placement and dual credit options, and fostering partnerships with institutions of higher education, both locally and virtually, to offer expanded upper-level course offerings.
- 2. States should consider increasing rigor in graduation requirements.** Students who opt to pursue postsecondary education are enrolling in remedial courses at an alarming rate, yet high school graduation rates are at an all-time high. This suggests a disconnect between the requirements for a high school diploma and the academic base required for postsecondary work at all levels. Increased rigor could take the form of increasing the number of courses required, or could include adding specificity to the list of courses that would fulfill core curricular requirements. In some states, students have to opt in to the most rigorous paths; making these paths the default, and requiring informed consent from parents for students to opt out, would help level the playing field and better inform parents and students about the consequences of various decisions.

One potential pitfall of increasing requirements is that performance standards for advanced coursework may be watered down in an effort to ease requirements for all students. Some evidence of this phenomenon has been tied to the Advanced Placement program as participation has increased over the years.⁴ But much like the AP exam provides a common measure of the rigor of instruction in those courses, tying high school requirements to rigorous third-party benchmarks, such as ACT college- and career-readiness benchmarks, could help mitigate the potential for decline in the quality and rigor of instruction.

3. **States and districts should ensure that all students, especially rural students, have access to curricular planning tools and college counseling from resources knowledgeable about admissions, college readiness, and college financing.** With a higher likelihood of being first-generation college students, many rural students lack a network of knowledgeable adults who can provide information on postsecondary options, requirements, and financing. Ensuring that rural students and their families are informed and prepared for college-level work by providing them access to assistance with postsecondary goal setting, high school course selection, and applications for admission and financial assistance from an early stage in students' school careers may help boost enrollment and persistence. These resources need not be guidance counselors, per se. Specialized high-quality training or leveraging external or community partnerships could enable teachers, other school personnel, or third parties to serve this function.
4. **All levels of government should improve data collection and reporting to allow analyses based on rural locale.** Specifically:
 - The U.S. Department of Education should continue collecting and publishing data on course offerings, enrollments, and measures of student achievement at the district level that allows identification by geographic locale, and should ensure that other published data on programs and outcomes in districts be identifiable by geographic locale.
 - As states continue to develop and implement statewide longitudinal data systems linking K-12, higher education, and workforce data, they should be incentivized or even required to report data such that rural districts can be identified.
 - States should track and publish dual enrollment offerings and participation at the district level.

- 5. Through partnerships between K-12 and higher education, states and districts can offer postsecondary bridge courses for students who miss college-readiness benchmarks on state assessments.** Students can be identified early, while still in high school, for summer or extracurricular programs aimed at providing intensive developmental instruction. This approach contrasts with traditional developmental education in the higher education context by targeting students earlier, providing intensive instruction in a compressed timeframe (more boot camp, less non-credit, semester-long course), and could be customized based on individual student needs and tied to tools used for actual course placement decisions by postsecondary institutions. The goal would be to reduce the amount of time students spend in non-credit-bearing remedial college courses, thereby reducing the time to degree. Ideally, these courses would also cost less than a semester-long remedial college course or could be subsidized. Several institutions of higher education in Kentucky offer similar summer programs for incoming freshman, a model that could be adapted to serve high school students aspiring to college.⁵

With postsecondary training becoming a necessity rather than an option in the modern workforce, the economic future of both rural students and rural communities depends in large part on the ability of rural schools to prepare students for college-level or other postsecondary work and to help students and families set college-going expectations early. Any downsides to increased rigor are far outweighed by the benefits, making this a reform that policymakers should pursue even in the face of the tentative results we present here.

In the longer term, improved data and research specific to the condition and needs of rural students are critical, and focused rural research can inform tailored solutions that leverage rural strengths and address unique challenges that may not be appropriately addressed by policies targeting urban settings. Today, with evidence pointing to a lack of rigor in high school coursework in rural schools relative to non-rural schools, states and districts should take immediate steps to increase access to rigorous courses, encourage students to take them, and improve the quality of information available to rural students and families about postsecondary requirements and options.

• ENDNOTES •

- 1 For more information on the National Student Clearinghouse, visit <http://www.studentclearinghouse.org/>.
- 2 In all original analyses conducted for this paper, the NCES Urban-Centric Locale (UCL) codes were used to designate districts as “rural” or “non-rural.” Further, districts with UCL codes of 41-Rural Fringe, 42-Rural Distant, and 43-Rural Remote were designated “rural” and all other districts were designated “non-rural.” This methodology is consistent with analysis presented by NCES, but may vary from other analyses. For more information about UCL codes, see http://nces.ed.gov/ccd/rural_locales.asp.
- 3 A lower percentage of rural students relative to their urban peers surveyed also earned credit in calculus, but results were not statistically significant, perhaps due to low overall percentages of students earning calculus credits.
- 4 For a discussion of this issue, see “Questions for Advanced Placement” by Tamar Lewin, *The New York Times*, April 17, 2002. Accessed from <http://www.nytimes.com/2002/04/17/education/17COUR.html> on May 19, 2015.
- 5 For Kentucky examples, see <https://bluegrassblade.wordpress.com/2013/05/29/college-readiness-bridge-programs-in-kentucky/>.

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