Kathleen M. Paasch and Paul L. Swaim

More Rural Students Are Graduating From High School, But a Serious Dropout Problem Remains

The nonmetro dropout rate fell sharply between 1975 and 1993, closing the nonmetro-metro gap in high school completion, but only narrowing the nonmetro-suburban gap. Despite these gains, more than 10 percent of rural young people still do not finish high school and face bleak employment prospects. Low parental education and family income are the biggest barriers to reducing the rural dropout rate. High school students also appear to have unrealistic educational and occupational aspirations that may indicate a serious disconnection between school and work.

GRADUATING from high school is an important stage in the preparation for adult life. Secondary education provides a core of knowledge and competencies that are preconditions for performing well on many jobs and at other important activities, such as participating in the political process or being an informed consumer of health care. The decline in the inflation-adjusted wages of high school dropouts since the early 1970's is sobering testimony to the increased importance of finishing high school to individuals' life prospects.

In the last several decades, the share of nonmetro youths who drop out of high school has fallen sharply, largely erasing what had been a substantial nonmetro-metro gap in high school graduation rates. According to data from the Current Population Survey, 16.8 percent of nonmetro 16- to 24-year-olds were dropouts in 1975, only a little higher than the 15.7 percent dropout rate in central cities but much higher than the 10.2 percent rate in other—predominantly suburban—metro areas (fig. 1). By 1993, the nonmetro dropout rate had fallen to 11.1 percent and was intermediate between the 16.8 percent central city and 9.3 percent suburban rates. The long valid generalization that rural educational attainment lags urban now must be greatly qualified. As far as secondary education is con-

cerned, nonmetro students are approximately as likely to earn a high school diploma as all metro students, although suburban students continue to have a lower dropout rate than either nonmetro or central city students.

The dramatic improvement in rural dropout rates is good news for rural communities and students, but this good news is subject to several qualifications. First, more than 10 percent of rural high school students still fail to graduate by age 24 and this group may face a rather bleak future. The improvement in rural dropout rates also need not mean that the rural workforce is now competitive in terms of attracting firms who demand well-educated workers. Much of the adult workforce left school when rural dropout rates exceeded urban, with the result that 29 percent of the nonmetro population age 25 or older are high school dropouts, compared with 20 percent of metro adults. Lower dropout rates for new cohorts of rural workers are slowly erasing the rural deficit in secondary education, but progress is slow. Another potential concern is that the quality of rural education might be low, or have fallen as more marginal students were retained in the classroom. Greenberg and Teixeira's analysis of achievement test scores provides strong evidence that this is not the case (see their article on pages 17-23). Finally, rural college attendance continues to lag urban, even among new cohorts (see Gibbs' article on pages 35-44). Despite these cautions, the decline of rural dropout rates is a very positive social development.

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Dropout rates for 16- to 24-year-olds by residence

The dropout rate fell most strongly and consistently among nonmetro young people
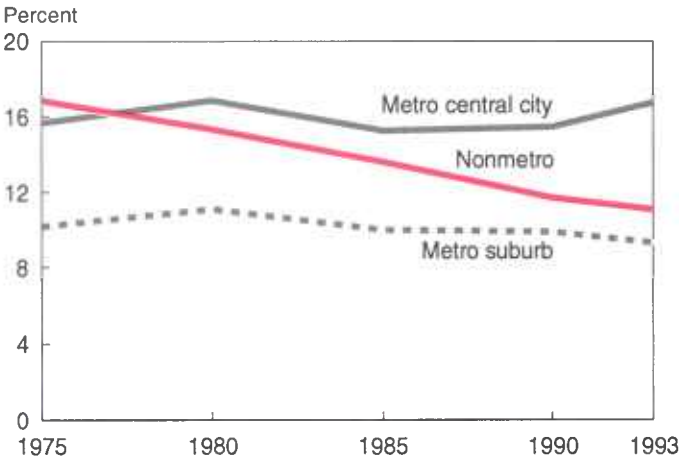
Source: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, various years.

Share of population with potential risk factors, 1980

Nonmetro schools face a different mix of students who may need extra help to stay in school

Source: Calculated by ERS using data from the 1990 Census of Population.

Dropping Out Reflects a Complex Mix of Personal and Community Factors

Previous research has identified a number of risk factors that increase the probability of dropping out (Ashtone and McLanahan). For example, children from families with incomes below the poverty line, with poorly educated parents, or headed by single mothers are more likely to drop out, as are Black and Hispanic children. Data from the 1990 Census of Population indicate that nonmetro children are more exposed to some of these risks than metro children, but less exposed to others (fig. 2). Nonmetro children are more often poor and more often have parents who are themselves dropouts, but are less likely than metro children to be raised by a single-mother or to be Black or Hispanic. The incidence of these risk factors shows that "at-risk" students in rural schools confront a different mix of potential stumbling blocks than their urban and suburban counterparts.

Community and area characteristics have not received nearly as much attention as demographic and family characteristics in prior research on the causes of dropping out. "Neighborhood" effects may, however, be an important part of the dropout problem and necessary for understanding how the rural dropout problem differs from the urban. Coleman hypothesizes that children are more likely to conform to social norms, such as completing high school, in communities in which parents' efforts to encourage such behavior are reinforced by other adults who take an active interest in the welfare of the community's children. This effect on children is called social capital because the reinforcing effect of the community on positive behavior adds to the children's ability to succeed in life. The greater social cohesion sometimes attributed
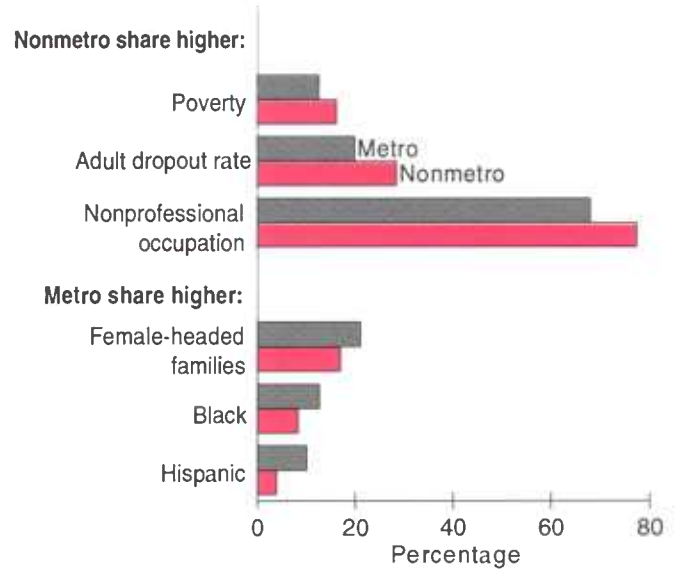
to rural life suggests that rural communities may provide more social capital. For example, Ballou and Podgursky's analysis of rural schools suggests that rural students benefit from more effective integration of schooling into the broader life of the community (see their article on pages 6-16).

Characteristics of the local labor market may also have an important influence on the dropout problem. If few professional and technical jobs are available for local workers, as is the case in most rural labor markets, youths may be less likely to aspire to such careers and, hence, place a lower priority on education. The incentive to persist in school is reduced because the additional earnings that potentially follow from more schooling are not often attainable in the local community. This lack of economic incentive is particularly strong for those who want to remain in their home communities. For those willing to move to areas with higher income employment opportunities, the local disincentive to invest in education is not a strong factor in their risk of dropping out. At the social level, the scarcity of professional adults also provides few role models for rural youth to identify with and aspire to emulate. Our tabulations of data from the 1990 Census of Population indicate that dropout rates vary by the economic specializations of nonmetro counties, suggesting that area differences in labor markets may influence school attainment.

New Data Provide Additional Insights into the Rural Dropout Problem

We use data from the National Education Longitudinal Study (NELS) of 1988, including data from the 1990 and 1992 follow-up interviews, to extend previous research on rural dropouts (see Data and Methods, pp. 33 -34), for a description of the NELS data). Our overall purpose is to analyze the social and economic processes leading to school failure.

We explore the age at which students drop out because of its importance for a significant minority of rural students in the 1990's. We are particularly interested in identifying commonalities and differences in the causes of dropping out among rural, urban, and suburban students. These three community types differ by average education level, earnings, employment opportunities, and family structure, and the students who drop out of school in each area will probably also differ from the dropouts in the other areas in the processes leading to school failure.

The richness of the NELS data allows us to consider several issues that most earlier studies have not addressed. For example, we can distinguish dropouts by when, between the 8th and 12th grades, they stopped attending school. The age at which students drop out is of potential importance for policy because younger dropouts probably experience greater labor market disadvantage. Different processes may be at work at different ages. For example, younger students' decisions whether to persist in school may be more influenced by their families' characteristics, while older students may be more influenced by labor market opportunities. If such differences are substantial, programs geared towards dropout prevention in eleventh grade may provide little in the way of support for potential ninth-grade dropouts. The NELS also included data on students' occupational and educational aspirations, which offer additional insights into schooling outcomes.

In addition to the individual and family risk factors for dropping out, which were emphasized in most previous studies, we also investigate the effects of school environment and labor market and social conditions in the surrounding community on dropping out. Such an analysis is necessary to distinguish, for example, whether students from poor families more often experience school failure due to the deprivations experienced at home or because they attend poor schools or live in areas with poor employment prospects, factors that would also affect even those fellow students whose families were more prosperous. Or, turning the example around, does a shortage of good jobs locally increase the dropout risk for all students or only for students whose families are poor because their parents have not found good jobs and earn little?

Dropout Rates Are Significant, Even as Early as the 10th Grade

According to the NELS, national dropout rates are 6.0 percent for younger students and 6.7 percent for older students (table 1 and see "Data and Methods," pp. 33-34, for our definition of dropouts). The rates for rural students are a little higher in the younger group at 6.3 percent and quite a bit higher in the older group at 8.1 percent. Suburban dropout rates are the lowest in both groups. Urban students are somewhat more likely than rural students to drop out at younger ages, while older rural students are more likely than their urban counterparts to drop out. Consistent with the Current Population Survey data for 16-24 year olds, rural schools have a substantial dropout problem, which is more severe than in suburban schools.

We were initially concerned there would be too few dropouts between 8th and 10th grades to support statistical analysis, because 16 is the legal age to leave school in most States. But dropping out during the early years of high school is not such an uncommon occurrence as might be expected. Many early dropouts have been held back for one or more grades making them legally old

Table 1

Sample sizes and dropout rates

Quite a few students drop out early in high school

Item	Unit	United States	Rural	Urban	Suburban
Younger students, 8th-10th grades, 1988-90:					
Sample size	Number	17,424	5,576	4,495	7,353
Dropout rate	Percent	6.0	6.3	7.7	4.8
Older students, 10th-12th grades, 1990-92:					
Sample size	Number	16,749	5,285	4,653	6,811
Dropout rate	Percent	6.7	8.1	6.6	5.5

Note: See Data and Methods, pp. 33-34, for definition of dropouts.
Source: Calculated by authors using data from the National Education Longitudinal Survey.

enough to leave school. Others appear simply to have left school at early ages. Many of these individuals probably will later return to school and perhaps even graduate, but they are at risk of never acquiring a satisfactory basic education.

The Determinants of Dropping Out

The NELS data confirm that minorities and children from low-resource families have above-average dropout rates (fig. 3). Dropout rates also differ when students are classified by many other variables available in the NELS data, but we would like to know which of these associations reflect the most important causal relationships. To judge better the effects of these personal and other factors on the odds of dropping, we conducted a logit regression analysis of individuals' dropout probabilities (see Data and Methods, pp. 33-34, for details on the analysis and definitions of variables used). For our independent variables, we selected 17 individual, family, school, and community variables that are either risk factors potentially leading to increased dropping out or resources potentially helping students to persevere in high school. Unlike simple tabulations, the logit coefficients for these variables provide estimates of each factor's independent effect on the probability of dropping out, holding all of the other factors constant.

The fourth column of table 2 reports our logit estimates of the effects of a unit increase in each of the 17 independent variables on the odds ratio for dropping out. For example, the 0.326 value for SES (socio-economic status) indicates that the dropout odds for an individual with an SES score one unit above a reference person's score is only 0.326 (about a third) as high as that of the reference person. Note that a value of 1.0 indicates that the variable has no effect on the risk of dropping out, a value larger than 1.0 indicates increased risks, and a value smaller than 1.0 indicates diminished risks (see Data and Methods, pp. 33-34, for an explanation of odds ratios).

Some of the variables that alone are strongly associated with above-average dropout rates turn out to have no significant effect when we control for the effects of other variables. For example, once we control for family and school characteristics, Black and Hispanic students are not more likely to drop out than non-Hispanic Whites; indeed they appear slightly less likely to drop out. Rural and urban residences also lose their significance, suggesting that the schooling advantages of suburban students are adequately captured by the other independent variables. This does not mean that minority or rural students do not have above-average dropout rates, but that their higher dropout rates are due to their greater exposure to some of the risk factors, such as low family socio-economic status (SES), that are controlled for in the model.

Variables that significantly increase the risk of dropping out include low SES, living with a stepparent, limited

Figure 3

Dropout rate among students by age and risk factors

Having parents who dropped out of high school elevates younger and older students' dropout rates more than any other risk factor
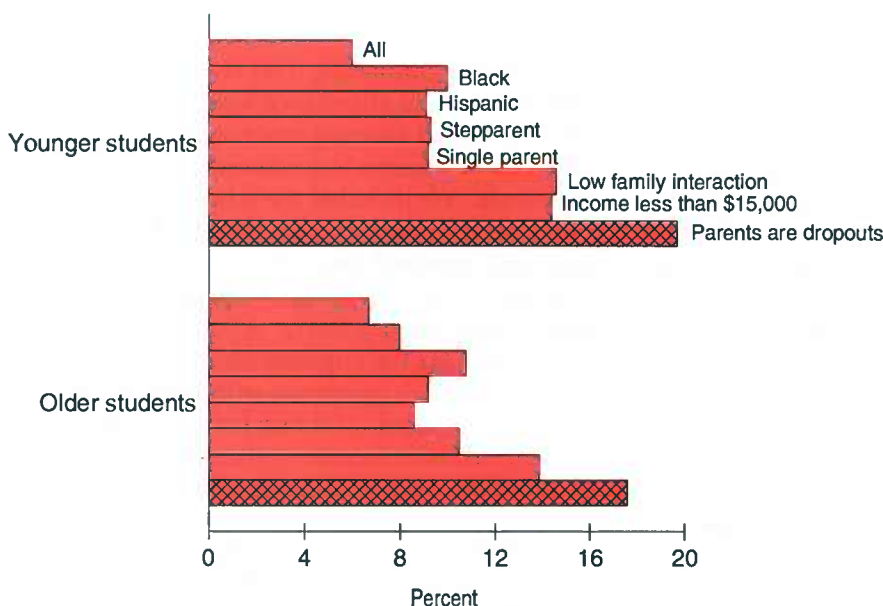
Source: Authors' calculations from the National Education Longitudinal Survey.

Table 2

Logit analysis of the effects of risk factors and resources on dropout rates, by grade and residence

Lower socio-economic status of rural students' families is the most important factor elevating younger...

	Young students, 8th-10th grades, 1988-90					
	Data means			Logit model estimate of change in the risk of dropping out	Change in dropout risk from changing rural data mean to the mean for--	
Variable	Rural	Urban	Suburban		Urban students	Suburban students
	Average			Multiplicative effect on the odds ratio		
Black (yes=1)	0.080	0.245	0.081	0.864	NS	NS
Hispanic (yes=1)	.063	.166	.082	.726	NS	NS
Other nonwhite (yes=1)	.026	.066	.050	.519*	.974	.985
Female (yes=1)	.497	.510	.494	.915	NS	NS
South (yes=1)	.407	.426	.272	1.532***	1.008	.994
SES (-2.97 to 2.56)	-.279	-.108	.051	.326***	.825	.691
Stepparent (yes=1)	.153	.138	.150	1.361*	.995	.999
Single parent (yes=1)	.157	.228	.147	1.063	NS	NS
Number of siblings	1.291	1.265	1.276	.846**	1.004	1.003
Parent-child interaction (1 to 3.5)	2.657	2.709	2.713	.564***	.974	.968
Parents do not know friends (yes=1)	.077	.095	.062	1.464*	1.010	.994
Times changed school	1.017	1.328	1.145	1.462***	1.125	1.050
White enrollment in school (percent)	4 .569	3.425	4.514	.867**	1.021	1.008
Free lunch receipt in school (percent)	1.909	1.771	1.389	.809**	1.020	1.116
School attendance (percent)	94.2	92.8	94.1	.939***	1.084	.998
Rural (yes=1)	1	0	0	.972	NS	NS
Urban (yes=1)	0	1	0	1.133	NS	NS
Total compositional effect on the relative rural dropout odds ratio	NA	NA	NA	NA	1.009	.730

See notes at end of table.   --Continued

interactions with parents, parents not knowing their friends, frequently changing schools, and attending a school with a large minority enrollment. Living in the South increased the risk of dropping out among young students but was insignificant for older students. These findings strongly confirm that students whose families have adequate economic resources and whose parents are actively engaged in their lives are much less likely to experience school failure. The great importance of these family characteristics also suggests that it may be difficult for schools to offset the disadvantages faced by students lacking these resources.

Some of our other results are more difficult to interpret and, while offering some interesting insights, indicate a need for further research. For the younger—but not the older—students, schools with good attendance rates or many students receiving free lunches are apparently more

successful at graduating their students. It seems reasonable that student attendance would be higher in schools offering a good learning environment, but the school lunch finding seems less reasonable and should be treated cautiously. We included the school lunch variable as a proxy for the prevalence of poverty among the student body and expected dropout rates to rise, rather than fall, with this variable because of a negative peer group effect from concentrated poverty. A possible, but speculative, explanation for the opposite result is that students whose incomes are high compared with their peers' incomes may do better in school. Holding family income constant, a student's relative income in the school is higher, the higher the share of other students who are poor.

Contrary to our expectations, older students' probabilities of dropping out are just as influenced by family variables as are the dropout probabilities for younger students.

Table 2
Logit analysis of the effects of risk factors and resources on dropout rates, by grade and residence--Continued
...and older students' dropout rates

Variable	Averages			Logit model estimate of change in the risk of dropping out	Change in dropout risk from changing rural data mean to the mean for--	
	Rural	Urban	Suburban		Urban students	Suburban students
	Average			Multiplicative effect on the odds ratio		
Black (yes=1)	0.064	0.182	0.059	0.667*	0.953	1.002
Hispanic (yes=1)	.059	.139	.060	.822	NS	NS
Other nonwhite (yes=1)	.025	.067	.051	.783	NS	NS
Female (yes=1)	.498	.509	.491	1.057	NS	NS
South (yes=1)	.371	.363	.272	1.031	NS	NS
SES (-2.97 to 2.56)	-.162	.086	.190	.407**	.800	.729
Stepparent (yes=1)	.132	.129	.142	1.476**	.997	1.004
Single parent (yes=1)	.138	.159	.138	1.204	NS	NS
Number of siblings	1.815	1.779	1.738	1.200**	.993	.986
Parent-child interaction (1 to 3.5)	2.343	2.393	2.429	.769***	.987	.978
Parents do not know friends (yes=1)	.065	.063	.049	1.032	NS	NS
Times changed school	1.017	1.282	1.199	1.185***	1.045	1.031
White enrollment in school (percent)	4 .167	3.254	4.167	.895*	1.017	1.000
Free lunch receipt in school (%)	1.858	1.474	1.346	1.078	NS	NS
School attendance (percent)	93.4	92.1	93.0	1.009	NS	NS
Rural (yes=1)	1	0	0	1.190	NS	NS
Urban (yes=1)	0	1	0	.951	NS	NS
Total compositional effect on the relative rural dropout odds ratio	NA	NA	NA	NA	.793	.723

NA = Not applicable.
NS = Associated logit coefficient not statistically significant.
Note: ***,**,* denote statistical significance at 1-, 5-, and 10-percent confidence levels, respectively.
Source: Calculated by authors using data from the National Education Longitudinal Survey.

Parent-child interactions diminish between 8th and 10th grades, reflecting increasing independence with age, but both age groups' school prospects strongly reflect conditions in their families. We also expected the dropout probability to be higher for students with more siblings, because they would receive less attention from their parents. This was the case in the older group, but not in the younger. We lack a satisfactory explanation for this result, but conjecture that older students in large families might face greater pressures to help with child care or to earn money.

Little Support Found for the Importance of Community-Level Variables, But that May Reflect Data Limitations

Our results provide no support for the prediction that higher social capital in rural communities enhances the educational outcomes of rural students. We could not include a direct measure of social capital among the model's independent variables because the NELS data do not contain a reliable measure of this rather elusive concept. Nonetheless, if rural communities benefit from an important social capital advantage, the rural residence variable should have picked up that advantage, which was not the case. An important task for future researchers, perhaps especially for those using ethnographic techniques, is to develop direct measures of social capital and its effects.

For the subsample of students for whom we could determine county of residence, we added an extensive list of county-level measures of labor market and other economic and social conditions to the list of independent variables supplied with the NELS. When added to the logit regression model, few of the county-level variables were

statistically significant. The insignificance of most county-level variables does not mean that community characteristics do not matter for school success. For example, labor market conditions clearly affect dropout rates indirectly, by first affecting family income levels and parents' occupations. Although we find no evidence for an additional, direct effect it may be that counties do not adequately capture the relevant neighborhoods within which these area effects operate. For example, in some areas the local labor market may embrace several counties and in others only a small part of the county of residence.

The few cases in which labor market variables explained a significant share of differences in the likelihood of dropping out were mostly limited to older students, consistent with our expectation that older students are more strongly affected by labor market conditions than younger. The labor market characteristic that appears to have the largest direct impact on lowering dropout rates is a relative abundance of midlevel jobs that do not require a college education. Contrary to our expectations, the availability of professional level jobs does not appear to be important to potential dropouts, except as it operates through family SES. This may be because the relevant alternative to dropping out for a struggling student is unlikely to be a professional degree. What matters is whether the local labor market offers a substantial number of less skilled jobs that a high school graduate can compete for. The availability of professional jobs may matter much more for college attendance (see Gibbs' article on pages 35-44).

Which Factors Most Disadvantage Rural Students?

Our analysis provides estimates of the effects of various risk factors on students' odds of successfully graduating. By combining these findings with data on the differential exposure of rural students to these risk factors, as compared with urban and suburban students, we can assess which of these risk factors play especially large roles in the rural dropout problem and hence require special attention in rural education and dropout prevention programs.

On average, rural, urban, and suburban students differ substantially on many of the factors potentially affecting dropping out of school (table 2, columns 1-3). For example, the family socio-economic status (SES) average is considerably lower for rural than urban students, who in turn have lower SES than suburban students. We calculated how the risk of dropping out would change for rural students if their mean value for that independent variable were changed to the urban (column 5) or suburban (column 6) mean values, with the change in dropout risk again expressed in terms of its multiplicative effect on the odds ratio. For example, the average rural student in the younger age group would be only 0.825 times as likely to

drop out if his/her SES level increased to the average metro SES level and only 0.691 times as likely to drop out at the average suburban SES level. The corresponding values for an average older rural student are 0.800 and 0.729 times as likely to drop out.

Lower rural SES is the single largest factor elevating rural dropout rates relative to urban and suburban rates, but several other factors also advantage or disadvantage rural students. For example, rural dropout rates are also elevated by lower parent-child interaction than in urban and suburban families. On a more positive note, rural dropout rates are lowered because rural students less frequently experience the dislocation of changing schools. Other variables have smaller effects, or effects that vary depending on the age group considered or whether rural students are compared with urban or suburban students.

The total compositional effects indicate that rural dropout rates are raised quite strongly relative to suburban rates by differences in the independent variables for both the younger and the older students (table 2, bottom row). The corresponding odds ratios (0.730 and 0.723) are similar in magnitude to those implied by the rural and suburban dropout rates reported in table 1, indicating that our logit model does a good job of accounting for the excess of rural over suburban dropouts. The results for the rural/urban comparison are somewhat different. The total compositional differences between rural and urban students do a good job of explaining why the rural dropout rate is higher for the older students, but explain very little of the excess of the urban dropout rate for younger students.

Student Aspirations Provide Additional Insights

The educational and occupational aspirations of rural, urban, and suburban students can help to make sense of these dropout patterns. In choosing to drop out, students are making an important decision about their futures, so we would expect that how they envision their futures is a key factor in making that choice.

Students have quite high occupational aspirations, which have risen over time and appear to be overly optimistic compared with the mix of jobs available (table 3). When they were in the eighth grade, 52 percent of rural students expected to be employed in managerial, professional, or technical occupations at age 30. The percentage of students aspiring to those jobs rose steadily over the following 4 years, with 64 percent aspiring to them in their senior year. To some extent, this rise reflects the tendency of dropouts to have lower aspirations, but most of the rise reflects upward adjustments on the part of continuing students.

Table 3

Type of work expected at age 30 compared with occupational mix of employment

Rural students are less likely to aspire to professional jobs than urban and suburban students, but are still quite ambitious by historical standards

Group	Managerial, professional, or technical job	Craft or operative job
	Percent	
Type of work expected by:		
1988 8th-graders:		
Rural	51.6	7.6
Urban	59.0	5.0
Suburban	58.3	5.0
1990 10th-graders:		
Rural	61.3	8.7
Urban	70.2	5.8
Suburban	69.3	2.9
1992 12th-graders:		
Rural	63.5	6.2
Urban	74.1	3.1
Suburban	71.2	4.2
1980 12th-graders:		
Rural	50.8	13.2
Nonrural	65.1	7.8
Occupational mix of employment:		
1980--		
Nonmetro	19.9	32.3
Metro	27.4	25.1
1990--		
Nonmetro	22.6	29.0
Metro	32.0	20.5

Source: Jobs expected by students in 1988, 1990, and 1992, calculated by authors using data from the National Education Longitudinal Survey; jobs expected by students in 1980 from Cobb, McIntyre, and Pratt; and occupational mix calculated by the authors using data from the 1980 and 1990 Censuses of Population.

Compared with urban and suburban students, however, rural students have lower occupational aspirations. Urban and suburban students were even more likely than rural students to expect to hold the best paying and highest status jobs. Compared with opportunities to work in those fields, however, all students appear to be overly optimistic. While about two-thirds of high school seniors aspire to managerial, professional, and technical jobs, less than a quarter of nonmetro jobs and only a third of metro jobs were in those occupations in 1990. The other side of the coin is that fewer students aspire to craft and operative jobs than are available. This suggests a possible disconnection between school and work, particularly for students lacking a strong aptitude for advanced education. It also appears that this disconnection may have increased in recent years. High school seniors in 1980 were considerably less likely than 1992 seniors to aspire to professional jobs and more likely to aspire to the best blue collar jobs. While employment opportunities have declined for many of the best blue collar occupations, at least relative to many other occupations, students may be overreacting to this trend.

Students' educational plans paint a similar picture (table 4). Rural students are more likely to expect to complete high school or technical school, about as likely to expect to complete some college or a bachelor's degree, and much less likely to expect to complete more advanced degrees than urban and suburban students. However, a large majority of students in all three areas anticipate continuing their educations beyond high school. By the time they were seniors, less than one student in five anticipated no post-secondary education and over half anticipated earning a bachelor's or higher degree. Seniors in 1980 were considerably less likely to expect to complete college, a clear indication that high school students are now aware that advanced education is increasingly decisive in determining who gets ahead, but may also be unaware of potentially attractive career options that do not require advanced degrees.

Unrealistic or not, students' aspirations appear to influence schooling outcomes. Dropout rates are much higher for students with low educational and occupational aspirations (fig. 4). Students who aspire to professional occupations and the education levels those occupations require are more likely to persist in their schooling. Policies to raise the aspiration levels of rural students sometimes may be a valuable component of dropout prevention programs. However, the fact that urban students have higher aspirations than rural students, yet dropout at comparable rates, indicates that higher aspirations alone are not sufficient to guarantee schooling success.

Summary and Policy Implications

The dropout rate for nonmetro youths fell sharply between 1975 and 1993, closing the nonmetro-metro gap in high school completion, but only narrowing the rural-suburban gap. Despite these gains, more than 10 percent of rural youths still do not finish high school and probably face bleak employment prospects. We find that the effects of individual, family, community, and school risk factors on the probability of dropping out are similar for rural, suburban, and urban students, but the fraction of students exposed to these risks differs significantly across the three community types. Low parental education and family income appear to be the biggest barriers to reducing rural dropout rates. Low parent-child interaction also elevated rural dropout rates, but less frequent school changes lowered the rural rates. The fact that many of the most important causes of school failure appear to be rooted in family circumstances suggests the difficulty of developing effective remedies, especially at a time when
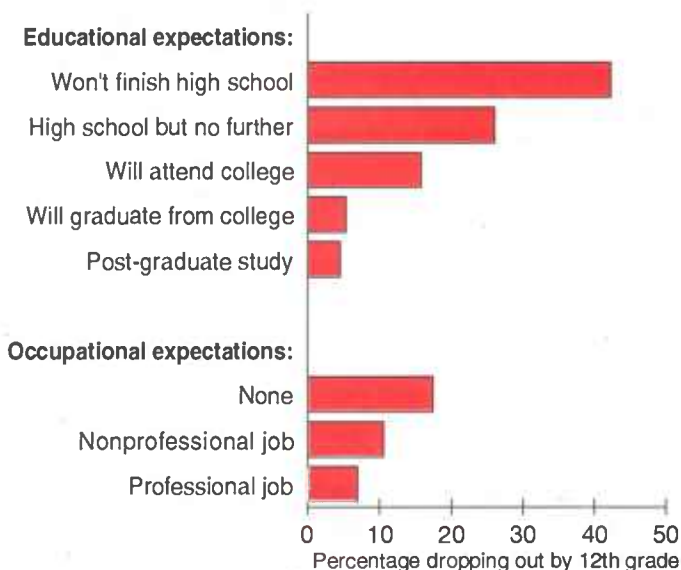
Table 4

Students' educational expectations by grade and residence

Almost all students plan on post-secondary schooling, even in rural areas

Group	Won't finish high school	High school graduate	Vocational technical school	Some college	B.A. or B.S.	M.A. or higher
			Percent			
1988 8th-graders:						
Rural	2.0	13.9	11.3	13.5	40.7	18.7
Urban	1.5	8.8	8.6	14.0	41.7	25.4
Suburban	1.7	9.1	8.5	12.4	44.8	24.0
1990 10th-graders:						
Rural	2.6	15.1	16.2	17.0	28.0	21.1
Urban	1.9	10.0	11.9	16.4	30.1	29.7
Suburban	1.5	9.3	11.8	18.6	32.3	26.5
1992 12th-graders:						
Rural	.3	8.7	15.9	15.7	33.9	17.4
Urban	.3	4.4	8.6	12.5	37.6	35.4
Suburban	.1	5.1	11.1	15.7	35.7	32.2
1980 12th-graders:						
Rural	.8	22.8	23.0	15.4	22.6	13.3
Urban	.7	14.1	17.7	15.5	26.1	26.0
Suburban	.3	13.7	16.7	15.4	27.8	26.0

Source: Students' educational expectations in 1988, 1990, and 1992 calculated by authors using data from the National Education Longitudinal Survey; students' educational expectations in 1980 from Cobb, McIntyre, and Pratt.

Figure 4

Dropout rates for 8th graders by educational and occupational expectations

Low aspirations increase the likelihood of dropping out

Educational expectations:
Won't finish high school
High school but no further
Will attend college
Will graduate from college
Post-graduate study

Occupational expectations:
None
Nonprofessional job
Professional job

Percentage dropping out by 12th grade

Source: Calculated by authors using data from the National Education Longitudinal Survey.

general economic trends are eroding the position of low-skill workers.

Our results also indicate that the process of dropping out begins early in high school for many students, but that the factors causing school failure are quite similar for younger and older students. Larger numbers of siblings and adverse labor market conditions appear to adversely affect students only in the last 2 years of high school, suggesting that policies aimed at dropout prevention should be alert to potential strains faced by older students in balancing school with family responsibilities and work.

Somewhat more speculatively, our analysis of students' educational and occupational aspirations suggests that an important disconnection between schools and labor markets may have developed. Students appear to be acutely aware that the economy has shifted away from blue-collar jobs and that the best paying jobs are those requiring 4 or more years of college study, but may be overreacting to these trends. The fact that a majority of students who are planning their future are planning for a professional career suggests that students today have little belief that other careers are viable. This finding reinforces recent concerns that the school-to-work transition for students who are not bound for college is increasingly dysfunctional. The disconnection between schooling and nonprofessional careers appears to be no more severe in rural areas, but it may matter more in those areas, because a larger percentage of rural workers hold nonprofessional jobs.

This disconnection also suggests that youth apprentice-ships and similar initiatives, intended to better link secondary schooling and work for students who are not bound for college, may be timely.

For Further Reading. . .

N.M. Astone and S.S. McLanahan, "Family Structure, Parental Practices and High School Completion," *American Sociological Review* , Vol. 56, 1992, pp.309-20.

R.A. Cobb, W.G. McIntyre, and P.A. Pratt, "Vocational and Educational Aspirations of High School Students: A Problem for Rural America," *Research in Rural Education,* Vol. 6, 1989, p.2.

J. Coleman, "Social Capital in the Creation of Human Capital," *American Journal of Sociology,* Vol. 94, Supplement, 1988, pp.S95-S120.

Data and Methods

The National Education Longitudinal Study (NELS) of 1988 is comprised of approximately 25,000 eighth graders surveyed in 1988 with follow-up surveys conducted in 1990 and 1992. NELS is particularly well suited for our study of rural dropouts. The respondents are members of a recent cohort and were initially interviewed in eighth grade, allowing us to examine young dropouts. In addition to student data, NELS contains information gathered from parents, teachers, and school administrators, making possible many levels of analysis. Finally, we were able to use the NELS data to compare dropout patterns in rural schools to those in urban and suburban schools, although some complications arise.

The NELS data classify each student according to whether they attend a rural, urban, or suburban school. The NELS classifica-tions do not correspond exactly to the Bureau of the Census' official designations of rural and urban places or to official metro and nonmetro county designations, but appear to be reasonably close approximations.

To verify these classifications and enable us to supplement the NELS data with county-level measures of labor market and social conditions, we received special permission from the U.S. Department of Education to attach county identifiers to the data. For technical reasons, we were able to obtain county identifiers for only 72 percent of the total NELS sample. Most significantly, county codes could not be obtained for any private school students. Thus, we conduct most of our empirical analysis using the full sample and the NELS urban categories. When we incorporated county-level information into the second logit analysis, we used the smaller sample.

From the cases to which we could attach a county code, the NELS urban-rural classification appears to be quite similar to the offi-cial metro-nonmetro designations, The county codes indicate that 99.5 percent of students living in a nonmetro county were clas-sified by NELS as attending a rural school, and virtually every student classified by NELS as attending a suburban or urban school lived in a metro county. Note, however, that 17.1 percent of the students NELS identified as rural lived in metro counties, probably an accurate reflection of the fact that many metro counties are quite large and contain areas possessing a rural character.

Defining Dropouts

To examine possible differences in the likelihood of dropping out by age, we examine the data in two panels. Panel 1 respon-dents were selected on the condition of having completed interviews in both 1988 (as 8th graders) and 1990. We refer to this panel as younger students. Panel 2 respondents had to have been interviewed in 1990 (as 10th graders) and then again in 1992. We refer to this panel as older students.

Choosing a definition of "dropouts" is a complication that arises when using the NELS data. We followed the procedure suggest-ed in the Department of Education's documentation of the data file.
For the period between 8th and 10th grades (panel 1), dropouts are students who were attending 8th grade in Spring 1988 but
• had been absent from school 20 or more consecutive days when contacted by an interviewer in Spring 1990, or
• had more than one episode of 20 or more days of absence and had been attending school for less than 2 weeks before the Spring 1990 interview.

For the period between 10th and 12th grades (panel 2), dropouts are students who were attending 10th grade at the time of the Spring 1990 interview but were neither graduates nor regularly attending school when contacted for the Spring 1992 interview.

Logit Regression Analysis of the Causes of Dropping Out

Dropping out of high school is the result of a complex array of causes and multivariate regression is an indispensable tool for sorting out the relative importance of the various factors involved. We adopt a logit model, which is a widely used modification of standard regression techniques for cases when the dependent variable is the probability that an event, such as dropping out of school, occurs.

The estimated coefficients in a logit model are a little more difficult to interpret than are the more familiar standard regression coefficients. The key to interpretation is to think in terms of the effect of an independent variable on the odds ratio of the event happening, where the odds ratio is defined as the ratio of the probability the event happens to the probability of it not happening. Consider dropout rates. If a student has a 10-percent chance of dropping out, the corresponding odds ratio is 10 percent divided by 90 percent, or one-ninth. The effect of an increase in an independent variable can be expressed as its multiplicative effect on the odds ratio. Suppose we consider a second student who is the same in every respect except that he lives with a stepparent. If the logit coefficient indicates a multiplicative effect of 1.0 then living with a stepparent has no effect on the chances of dropping out. A multiplicative effect greater than 1.0 indicates increased chances of dropping out and an effect less than 1.0 a decrease.

Variables Used in the Logit Analysis

The logit model of the probability of dropping out reported in table 2 includes 17 independent variables that are available in the NELS. We include dummy variables for whether the student is Black, is of another nonwhite race, is Hispanic, is female, lives in the South, lives with a stepparent, lives with a single parent, has parents who do not know the students' friends, lives in a rural community, or lives in an urban community. We also include variables indicating the number of siblings and the number of times the student has changed schools. Three variables measuring the characteristics of the student's eighth grade school are also included: the percentage of students who are White, the percentage receiving free lunches, and the percentage attendance rate.

The final two independent variables require a little more explanation. Family socio-economic status (SES) is a composite measure of family income and parents' education and occupation. Parent-child interaction is a composite measure of parent child interactions that is constructed from seven separate questions about the breadth, depth, and frequency of interactions.

When we could identify the student's county of residence, we added a large number of variables measuring county economic and social conditions to our analysis file. Most of these measures were taken from 1990 Census of the Population county files. We also added some labor market variables from the Current Population Survey.