DOCUMENT RESUME

ED 440 793 RC 022 379

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TITLE Local Economic Environment and Dropout Rates in Appalachia.
PUB DATE 2000-04-00
NOTE 28p.; Paper presented at Annual Meeting of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Construction Industry; *Dropout Rate; *Economic Factors; *Education Work Relationship; High Schools; Labor Market; Manufacturing Industry; *Occupational Aspiration; *Rural Environment; School Holding Power; Socioeconomic Status
IDENTIFIERS *Appalachia; *Education Economy Relationship

ABSTRACT

This study sought to determine if the existence of a particular type of industry in a county affected the high school dropout rate after the influence of the general economic environment had been considered. The study also sought to clarify how the degree of ruralness might influence any relationship between the local economic environment and dropout rates. Analysis of national census data from 1990 for each of the 406 counties in the Appalachian region revealed that the type of industries within a county accounted for a significant amount of variance in dropout rates beyond that attributable to socioeconomic status, child poverty levels, and unemployment levels. The incidence of construction industries and the manufacture of nondurable goods were associated with higher dropout rates within the counties, but the presence of an industry that requires high school completion as an entry-level condition did not prevent students from dropping out of high school. These findings were interpreted within the framework of developing career aspirations and commitment to school. The proportion of rural population in a county did not reduce the economic influence on dropout rates. Some consistent yet statistically nonsignificant findings suggest the possibility of a rural effect that deterred dropping out; however, this was speculated as being due to smaller school sizes rather than some other rural-related factor. (Contains 22 references.) (TD)

# Local Economic Environment and Dropout Rates in Appalachia

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Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA

April, 2000

Abstract

National census data from 1990, aggregated by county, were used to investigate whether the types of industries in a county were related to high school dropout rates in Appalachia. The type industries within a county accounted for a significant amount of variance (19% to 25%) in dropout rates beyond that attributable to SES, the level of child poverty, and unemployment level. The incidence of construction industries and the manufacture of nondurable goods were associated with higher dropout rates within the counties. This was interpreted within the framework of developing career aspirations and commitment to school. The level of the rural population in a county did not serve to reduce this influence. Some consistent, but statistically nonsignificant findings suggest the possibility of a rural effect, but this was speculated as being due to smaller school sizes rather than some other rural-related factor.

# Local Economic Environment and Dropout Rates in Appalachia

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A good beginning point in developing an understanding of the manner in which the local economic environment might impact dropout rates is to consider how that environment is tied to career aspirations and/or choices. The social learning theory of career decision making suggests four areas that influence an individual's career decisions. These are (1) genetic endowment and special abilities, (2) environmental conditions and events, (3) learning experiences, and (4) task approach skills (Mitchell & Krumboltz, 1996). Our study focuses upon the second of these factors, environmental conditions and events. This represents a plethora of potential career influences ranging from the type of jobs available to career role models within the local community.

Evidence to support the importance of local environmental factors in career decisions is clearest from research that has investigated the link between parent occupation and career choice. Results from studies by Trice (1991a), Trice (1991b), Ok (1993), and Williams and Leppel (1994) all indicate a strong connection between the occupation of one or both parents and career aspirations. One could argue that this evidence certainly supports the idea that the occupations available locally are an important factor in an individual's career aspirations. A counter-argument could be offered that the link between parent occupation and career aspirations is more a reflection of a general parental influence rather than anything growing out of the community's occupational mix. Support for the former interpretation comes from research on the relationship between direct work

experience and career choice or career aspirations (Tabor, 1983; Miller & McDougle, 1986). These survey research efforts found that high school and college students perceived first hand knowledge or direct experience in the career as being instrumental in the career decision. Zimny and Sata (1986) further validate this with the finding that prior work experience was a contributing factor in medical students selecting psychiatry as a specialty. The cumulative evidence from these studies supports the social learning theory of career development and the importance of the local "career" environment on the developing job aspirations of adolescents.

How then does one move from recognition that the local career environment impacts career decisions to establishing a link with dropping out of school prior to graduating? Theoretically, the model of the dropout decision presented in Tinto (1987) provides a framework for understanding how a student's career aspirations influence the decision to remain in or drop out of school. One segment of this model suggests that a student's intentions and goal commitments contribute to her/his academic integration. This academic integration construct represents, among other things, the extent to which the student views the formal mission of the institution as being congruent with her/his personal aspirations. In the current investigation, our interests were in the student's personal, career aspirations. The dropout model indicates that if a student sees a high degree of correspondence between her/his career aspirations and the schooling experience, then the student is less likely to drop out. The lower the perceived congruence, the greater the likelihood the student will drop out. Research evidence in Schrom (1980) supports this hypothesized link between an individual's career aspirations and the decision to drop out.

Thus it appears that the industry mix in the local economic environment provides students with first hand experience/knowledge and this exposure influences developing career aspirations. In turn, these career aspirations impact a student's decision to remain in or drop out of school. Direct evidence to support this theoretically derived sequence is found in Stallman and Johnson (1996) and Stallman, Johnson, Mwachofi, and Flora (1993). In both of these, dropout rate was found to be associated with the proportion of a county's labor force employed in service industries and in managerial/professional occupations. An elevated dropout rate was associated with a greater prevalence of the low skill service sector in the local economy. Correspondingly, a lower dropout rate was related to a higher incidence of managers and professionals.

With the link between the local economic environment and dropout rate seemingly supported by the existing research/theoretical evidence, what needs to be clarified? While the two studies identified in the preceding paragraph established a relationship between dropout rate and two sectors of the local industry mix, other industries and occupations were not considered. Likewise, the conceptual framework used in these studies did not consider whether industry mix made a difference after the influence of the general economic environment was taken into consideration. The regression analyses reported allow some crude estimates to be made, but these are limited by the scope of the general economic and industry mix variables included. The first part of our study addressed the issue of whether the industry mix in a county (local economic environment) was related to the dropout rate, once the influence of the general economic climate was taken into account. More specifically, we were interested in whether having a particular type

industry within a county potentially impacted the dropout rate after the influence of the general economic environment had been considered.

The second part of the study focused upon determining how the degree of ruralness in an area might serve as an intervening variable in the relationship between the local economic environment and dropout rates. The degree of ruralness has been shown to be related to a greater sense of belonging and sense of community within a school (Cotton, 1996). In turn these concepts have been found to be linked to greater identity within the school and hence lower dropout rates (Tinto, 1987). Thus the level of ruralness within a community has the potential to counteract some of the negative impact the local economic environment may have upon dropout rates. Stallman & Johnson (1996) supports this conceptualization with the finding that after taking into account the economic mix, the more rural the county, the lower the dropout rate. However, Bickel and Papagiannis (1988) and Bickel (1989) did not find any evidence of a rural effect in assessing the impact of a county's economic opportunity upon high school completion rates. The second part of our study sought to clarify how the degree of ruralness might influence any relationship between the local economic environment and dropout rates.

## Method

### Rationale

The general problem area for the study focused upon determining whether the type industry within a county potentially impacted the high school dropout rate. Research has demonstrated the importance of environmental influences such as the family (Rumberger, 1990) and socioeconomic status (Beck & Muia, 1980) in identifying dropouts and in explaining why students leave high school before graduating. Therefore, before one can

determine the manner in which the mix of the local industry might influence dropout rate, the impact of these primary environmental forces must be removed. In this study, we assumed that if we took into account general socioeconomic status, the level of unemployment, and the incidence of poverty in the population, then we would get a clearer picture of the importance of the other variables. If these are not taken into account then the emerging picture about the general influence of the local economy's structure is distorted by broader economic conditions likely to impact students' specific family situations.

The logic underlying the analysis of a possible rural effect was similar. Ruralness was assumed to be a primary influence, i.e. its impact occurs earlier in a student's life than that of the local economic mix. Thus our analysis proceeded by determining whether the ruralness of the setting contributed anything toward the explanation of dropout level beyond that of the other assumed primary influences, socioeconomic status, unemployment level, and poverty level.

Sample and Variables

The data for the study comprised information extracted from the 1990 national census for each of the 406 counties in the Appalachian region, as defined by the Appalachian Regional Commission (Appalachian Regional Commission, 1999). Information was extracted from CD-ROMS distribute by the U.S. Census Bureau on the following variables, aggregated by county.

Socioeconomic status (SES): this was a composite variable created by using "factor" scores derived from the unrotated first component from a principal components analysis of six census items. These items addressed the percentage of the population aged

18 and over, as well as those 25 and over who had graduated from high school. Two similar items focused upon the proportions of these two populations who had a bachelors degree. The remaining two items used to create the SES variable were median family income and per capita income. The first component accounted for 80% of the variation in the six items.

Index of child poverty: percentage of the population in the county aged 17 and under that is classified as living in poverty

Index of unemployment: percentage of the population in the county aged 25 and older that is currently unemployed

Dropout rate: Two variables were used to describe the dropout level in the county. One of these was defined using the 1990 census data for the county. This variable represented the percentage of the population aged 18 to 24 who had not completed high school nor a high school equivalency. The advantage of this variable rested in its compatibility with the other data being used in that all were taken from national census information. It was also comprehensive and one might assume that the reliability of this variable would be similar to that of the other variables. The disadvantage of this variable is that it represents the population aged 18 to 24 that did not complete school . As such, the figure could represent, to some degree, individuals who migrated from other areas to that county. Hence, if there were a robust economy in the county then the planned analyses would suggest a strong link between aspects of the local economic environment and dropout rate. However, the link would not be one of spurring students to leave school early, but rather one of students, after having dropped out, were attracted to that county due to the robustness of the local economy. This problem was addressed to a

degree by including a second dropout variable into the analyses. This variable was the county wide dropout rate for the Appalachian counties as given in a report by Cox, Holley, Kite, and Durham (1985). This report began by pointing out the lack of compatibility of state reported dropout rates. From this beginning point, several different indices were developed to represent the dropout rate in the county. From the ones given in the report, we used the one that defined dropout rate in terms of the number of students who left school during the 1983-1984 school year without graduating or transferring to another school. This number was reported as a percentage of the total school enrollment in grades 7 through 12. This dropout variable had the advantage over the previous one described in that it reflected nothing but school leavers within that county as opposed to dropouts from other areas who may have migrated to that county. Using two dropout variables provided a better basis for assessing the potential influence of the local economy and any consistency of results would make a stronger case for any observed relationship. Defining dropout rate using the 1990 census information produced a description of that variable for all 406 counties currently designated as the Appalachian region. When dropout rate was described using the number of school leavers as a function of the grades 7 through 12 population, information was available for only 397 counties. The discrepancy stems from nine counties being added to the designation as Appalachia since 1985.

Industries: Two variables were used to describe the local economic mix. One of these was the percentage of the county's population aged 16 and over employed in the identified industry. Using the 1987 Standard Industrial Classification (U.S. Census Bureau, 1999), the Census Bureau categorizes industries into 17 groupings. These are

presented in Table 1. In the study we used the percentage of the county's population employed in each of 17 industry categories as being one indictor of the county's industry mix.

Table 1

Industries and Occupations Used in the Study:

Census Bureau Classification

| Industries | Occupations |
|---|---|
| Agriculture, forestry, & fisheries | Executive, administrative, & managerial |
| Mining | Professional specialty |
| Construction | Technicians & related support |
| Manufacturing, nondurable goods | Sales occupations |
| Manufacturing, durable goods | Administrative support |
| Transportation | Private household service |
| Communication & other public utilities | Protective service |
| Wholesale trade | Service, except household & protective |
| Retail trade | Farming, forestry, and fishing |
| Finance, insurance, & real estate | Precision production, craft, & repair |
| Business & repair services | Machine operators, assemblers, & inspectors |
| Personal services | Transportation & material moving |
| Entertainment & recreational services | Handlers, equipment cleaners, helpers, & laborers |
| Health services | |
| Educational services | |
| Other professional & related services | |
| Public administration | |

Occupations: The second industry mix variable was the percentage of the county's population, aged 16 and over, employed in one of 13 occupations. The Census Bureau based these occupational categories upon the 1980 Standard Occupation Classification (Bureau of Labor Statistics, 1999). Table 1 contains a listing of the occupational categories used in the study.

The industry and occupation variables were entered into the analyses simultaneously. No distinction was made between variables the Census Bureau described as an occupation and those described as an industry. Due to the similarity of wording in two of the occupation and industry categories, combined variables were created rather than using separate industry/occupation variables. One of the industry classifications was "agriculture, forestry, & fisheries". The corresponding occupational category was "farming, forestry, and fishing". The similarity of the industrial classification and the occupational categorization prompted us to create a single agriculture, forestry, and fishing variable. The percentages from the two foundation industry and occupational variables were summed to produce the new variable. A similar technique was used with the industry category of "transportation" and the occupational classification of "transportation and material moving". Thus 28 industry/occupation categories were used initially in the study to define the industry, economic mix within a county.

Ruralness: Two rural variables are reported in the census information. One of these is the percentage of the county's population classified as being rural and living on a farm. The other is similar, but it references the rural, nonfarm population. The Census Bureau defines rural as any unincorporated area, not in an urbanized designation zone, that contains fewer than 2500 residents. The rural farm population is defined as those

individuals living in a rural designated area who live on a farm. A farm was defined as a place that generated $1000 or more in sales of agricultural products (U.S. Census Bureau, 1995). Both variables were used in the analyses, because we felt that counties with higher percentages of rural farm populations were different in important ways from counties with higher percentages of rural nonfarm populations.

## Results and Discussion

The major question investigated in the study was to determine whether the local industry/economic mix was related to a county's dropout rate. This was addressed after the impact of more general economic conditions had been taken into account. To investigate the question, we developed a regression model in which SES, the level of child poverty, the level of unemployment, and the industry/occupation variables were used to predict the two measures of dropout level. The summary results from the two analyses are presented in Table 2.

Table 2

Summary Regression Analysis Results

Predicting Dropout Levels From Industry and Occupation

| Variables in Regression Equation | Adjusted R-Square for Criterion Variables | |
|---|---|---|
| | Dropouts Aged 18-24 in 1990 | Dropout Rate in 1984 |
| Socioeconomic status (SES) | .48 | .17 |
| SES and poverty | .49 | .17 |
| SES, poverty, & unemployment | .49 | .18 |
| SES, poverty, unemployment, occupations, & industries | .68 | .43 |

From these it is evident that considering the industry, economic mix within the county contributes greatly to predicting the county's overall dropout rate. For the Census Bureau based definition of dropouts, economic mix added 19% to the R-square in the prediction of dropout rate beyond that attributable to the general social, economic variables incorporated into the model. A similar picture emerged with the "school leaver" definition of dropout rate. Twenty-five percent (25%) additional variation was added to the total adjusted R-square through including the industry/occupation variables into the prediction equation.

In looking at nothing beyond the face value of these results, it appears that the industry/economic mix of a county represents a major consideration in developing an understanding of the dropout decision. While these aggregated figures support the conceptual framework for the study and its extension presented in the introduction of this report, they merely corroborate the findings from Stallman and Johnson (1996) and Stallman, Johnson, Mwachofi, and Flora (1993). They do not tell us anything about the potential importance of a specific industry type within an area.

In order to determine which individual occupations, industries might be linked to dropout rate, they were analyzed separately and independently. Before doing this, we decided to analyze only a subset of available occupation/industry variables. The rationale for this decision rested upon the following. Quite a few of the identified industries/occupations did not fit what we conceptualized as being ones that would present the following to the potential dropout. Should the student enter the workforce because of the attractiveness of the employment available or should the student remain in school because graduation was necessary or at least preferred in order to qualify for the

desired employment? As such the occupations/industries selected for further analysis represented ones in which employment to the potential dropout was attainable, as opposed to being a fantasy. The selected occupations had to be attainable in the foreseeable future, as opposed to ones that would require an extended period of formal educational training. This resulted in the removal of such industries as health services (e.g. nurses), public administration (e.g. administration of economic programs), and such occupations as executives, managers, and professional specialists. Likewise, service and sales occupations were removed because these typically have low educational requirements and their presence seems to be more a function of the overall vibrancy of the local economy. The stronger the local economy, the more sales and service occupations will be in demand and will be supported. The weaker the local economy, the less need there exists for such positions. The reduced set of industries/occupations included for analysis, along with their incidence in the Appalachian counties, is presented in Table 3. For the agriculture and transportation variables the means and standard deviations are based upon the percentage of the population in those industries, as opposed to using both the industry and occupation classifications of the Census Bureau. The identified industries in Table 3 employ between 25 and 30% of the adult workforce in the Appalachian region. When the analyses reported in Table 2 were rerun using this reduced set of variables, the amount of additional variance accounted for by industries/occupations was reduced from that obtained with the full set of industries/occupations. The selected set of industries accounted for 14% additional variance in the dropout rate based upon the 1990 census figure, as compared with a 19% increase associated with the total set of industries. The

Table 3

Percent of County's Population Aged

16 and Over Employed in the Identified Occupations/Industries

| Occupation/Industry | Mean | Standard Deviation |
|---|---|---|
| Agriculture, forestry, & fishing | 1.94 | 1.44 |
| Mining | 1.23 | 2.22 |
| Construction | 4.06 | 1.43 |
| Manufacturing, nondurable goods | 6.74 | 4.86 |
| Manufacturing, durable goods | 7.64 | 4.19 |
| Transportation | 2.10 | 7.03 |
| Communication & other public utilities | 1.37 | 7.17 |
| Business & repair service | 1.67 | 6.18 |
| Precision production, craft, & repair | 8.03 | 1.61 |
| Machine operators, assemblers, & inspectors | 7.34 | 4.03 |

corresponding figure for the dropout rate based upon the 1984 school leavers was 15%, as compared with 25% using the total set of industries.

The results from Table 2 established that the industry/economic mix in a county contributes a significant amount to the prediction and understanding of dropout rate. With this determined the next step was to determine to what extent each of the selected industry variables was related to dropout rate. To investigate this, part correlations were used. Part correlations allowed a description of the relationship between the presence of a particular industry and dropout rate after partialling out from the dropout rate variable the influence of SES, the incidence of child poverty, and the unemployment level. Regression

weights would not have provided this because they reflect the independent contribution of each variable to the overall prediction (explanation). In this study, the fact that the number employed in one industry might be related to the number employed in another industry was of no consequence. We were interested in the degree of the relationship between the individual industries and dropout rate.

The part correlations are presented in Table 4. We used the .01 level of significance as a criterion for determining the potential relative importance of the various

Table 4

Part Correlations Between Dropout Variables and Selected Occupations/Industries Partialling SES, Poverty, and Unemployment from Dropout Rate

| Occupation/Industry | Dropout Variable | |
|---|---|---|
| | Dropouts Aged 18-24 in 1990 | Dropout Rate in 1984 |
| Agriculture, forestry, & fishing | -.06 | -.15 ** |
| Mining | -.02 | -.07 |
| Construction | .17 ** | .17 ** |
| Manufacturing, nondurable goods | .16 ** | .19 ** |
| Manufacturing, durable goods | .03 | .02 |
| Transportation | .11 | -.01 |
| Communication & other public utilities | .25 ** | .08 |
| Business & repair service | .25 ** | .19 ** |
| Precision production, craft, & repair | .24 ** | .19 ** |
| Machine operators, assemblers, & inspectors | .07 | .15 ** |

** $p < .01$

industries in understanding dropout rates. While this criterion offers no guarantees of importance, it represents a commonly used statistical standard and reduces the chances of attaching conceptual importance to variables purely as a function of random factors. This criterion suggests that four industries/occupations were consistently related to dropout rates across both measures. These were construction; manufacturing, nondurable goods; business & repair services; and precision production, craft, & repair. Three others produced mixed results (significantly related to one dropout measure, but not the other). Agriculture; communication & other public utilities; and machine operators, assemblers, & inspectors met this criterion. The magnitude of these coefficients suggests that between two and four percent of the variation in dropout rate across the counties is related to the proportion of the county's population employed in a specific type of industry.

To give the reader a better idea of how this translates into the dropout rate figures, we performed a supplementary analysis of the dropout rates by industry. We created grouping of the counties based upon quartile divisions of the selected industries. This was done for the four industries/occupations that were consistently related to dropout rate, the three that produced mixed results, and one that produced no relationship across the two dropout variables. This latter variable was included just to serve as a reference point. For the top and bottom quartile industry/occupation groups, adjusted mean scores on the two dropout variables were produced. The means were adjusted for SES, the level of child poverty, and unemployment level. These means are presented in Table 5. Across the high and low industry employment categories, the differences in the means range from about 1% to 6.5% for the dropout rate based upon the 1990 census figures. The corresponding figures were from .1% to 1.9% for the dropout rate based upon the 1984 school leavers.

Table 5

Adjusted Means on the Dropout Rate Measures Across

Industry Groups Controlling for SES, Poverty, and Unemployment

| Occupation/Industry | Adjusted Means for Dropout Variable | |
|---|---|---|
| | Dropouts Aged 18-24 in 1990 | Dropout Rate in 1984 |
| Agriculture | | |
| Lower 25% counties | 30.4 | 4.31 |
| Upper 25% counties | 29.3 | 3.69 |
| Construction | | |
| Lower 25% counties | 27.6 | 3.36 |
| Upper 25% counties | 31.2 | 4.67 |
| Manufacturing, nondurable goods | | |
| Lower 25% counties | 27.7 | 3.47 |
| Upper 25% counties | 32.5 | 5.12 |
| Manufacturing, durable goods | | |
| Lower 25% counties | 29.6 | 4.11 |
| Upper 25% counties | 30.6 | 4.20 |
| Communication & other public utilities | | |
| Lower 25% counties | 29.0 | 3.97 |
| Upper 25% counties | 32.8 | 4.28 |
| Business & repair service | | |
| Lower 25% counties | 28.4 | 4.08 |
| Upper 25% counties | 31.7 | 4.69 |
| Precision production, craft, & repair | | |
| Lower 25% counties | 26.2 | 3.27 |
| Upper 25% counties | 32.7 | 5.19 |
| Machine operators, assemblers, & inspectors | | |
| Lower 25% counties | 29.0 | 3.65 |
| Upper 25% counties | 32.2 | 5.33 |

Of the ten industries included in the analysis, only agriculture and mining had a consistent negative relationship with dropout rate. The magnitude of these negative relationships was not sufficient to reach statistical significance across both dropout variables. None of the other industry variables provided any suggestion of a "positive" influence on dropout rates. From the part correlations and the table of adjusted means four industries/occupations emerge as being consistently linked to the dropout rate. These four are construction, manufacturing of nondurable goods, business/repair services, and precision production, craft, repair. Sample jobs subsumed under each of these industries/occupations are presented in Table 6. Since the precision production, craft, and repair occupational category seems to be subsumed in the business and repair service industry, it was ignored in further analyses to reduce affording too much importance to an industry/occupation by duplicating counts. Correspondingly, this leaves construction industries, manufacturing of nondurable goods, and business/repair industries. What do these have in common and why should a greater presence on their part be related with higher dropout rates? Construction trades and the manufacture of nondurable goods, while requiring skill, do not require an educational level beyond minimum competencies. Thus the student who is contemplating leaving high school before graduating has employment opportunities available in these two industries that do not require high school graduation. With such industries available within the community, career plans can be adapted to fit those industries, as opposed to continuing in school and aiming for a career that has greater minimum educational requirements. The results suggest that the more prominent these two industries in the local economic/industry mix, the higher the dropout rate.

Table 6

Sample Jobs for the Selected Industries/Occupations

| Occupation/Industry | Jobs Contained Within Occupation/Industry |
|---|---|
| Construction | General building<br>Heavy construction<br>Special trade |
| Manufacturing, nondurable goods | Food & kindred products<br>Textile mill products<br>Paper & allied products<br>Petroleum & coal products |
| Business & repair service | Advertising<br>Computer & data processing<br>Automotive repair<br>Electrical repair shops |
| Precision production, craft, & repair | Automobile mechanics<br>Data processing equipment repairers<br>Heavy equipment mechanics<br>Millwrights |

The importance of the third industry that was found to be consistently related to the dropout rate measures was the business and repair services. The presence of this industry may be a function of our violating our own stricture about not including service industries in our analyses because they reflect the general health of the local economy. For instance, the selected jobs presented in Table 6 for the business and repair industry includes ones that generally require additional training, education beyond high school (e.g. advertising and computer related services). As such, it is difficult to see how the presence of industries within a community that required more education would in some way foster a higher dropout rate. It seems more plausible that a greater presence of this industry in an

area indicates a local economy that supports a multitude of service industries, some of which are low skill and low paying. The presence of such jobs indicates there are individuals to fill them and hence a sizable segment of the population that fits the educational and social background profile for the potential dropout.

To reinforce this point about industries/occupations reflecting a general community characteristic, as opposed to promoting a specific dropout decision, part correlations were computed between the dropout rate variables and the industries/occupations removed from consideration in the initial analyses (e.g. professionals and services). These part correlations were developed in the same manner as the ones reported earlier. The influence of SES, the incidence of child poverty, and the unemployment rate were removed from the dropout rate variables and then this "residual" was correlated with industry/occupation type. These correlations are presented in Table 7. The significant correlations between the dropout rate variables and the following variables (wholesale trade; finance, real estate, & insurance; executive, administrative, & managerial; and sales) suggest that the relationship with dropout rate is not a function of the industry itself. Rather, it is a reflection of the population in the community that supports that industry or is serviced by that industry.

What overall conclusion can we draw about the impact of industry/economic mix within a county upon dropout rate? The clearest picture emerged for the construction industry and the manufacture of nondurable goods industry. As previously stated, the strong presence of these industries within a county could provide an available career option for the potential dropout that requires minimal education. Correspondingly, the mere presence of industries within a county requiring higher educational standards such as

Table 7

Part Correlations Between Dropout Variables and
Occupations/Industries Not Focused Upon in the Study
Partialling SES, Poverty, and Unemployment from Dropout Rate

| Occupation/Industry | Dropout Variable | |
|---|---|---|
| | Dropouts Aged 18-24 in 1990 | Dropout Rate in 1984 |
| Wholesale trade | .24 ** | .17 ** |
| Retail trade | -.01 | .10 |
| Finance, real estate, & insurance | .18 ** | .14 ** |
| Personal services | .05 | .09 |
| Entertainment & recreation services | -.04 | .15 ** |
| Health services | -.10 | -.16 ** |
| Educational services | -.33 ** | .03 |
| Other professional & related services | .09 | .03 |
| Public administration | .13 | .05 |
| Executive, administrative, & managerial | .21 ** | .24 ** |
| Professional specialty | -.07 | .08 |
| Technical, sales, & administrative support | .07 | .07 |
| Sales | .17 ** | .24 ** |
| Administrative support, includes clerical | .13 | .16 ** |
| Private household service | .08 | .03 |
| Protective service | .10 | .10 |
| Other service, except household & protective | -.18 ** | -.17 ** |
| Handlers, equipment cleaners, helpers, & laborers | -.05 | -.10 |

** $p < .01$

the manufacture of durable goods (e.g. machinery/computing equipment, transportation equipment) does not provide a career deterrent to dropping out of high school. Our results suggest that having an industry within a county that requires high school completion as an entry level condition does not prevent students from dropping out of high school. The major contributors to the career aspirations of the potential high school dropout may be needs and perceived needs that can be addressed by employment in local industries not requiring a minimum education level. With such career aspirations, other factors that would need to elevate the importance of education and thus hold the student in school. One such factor, ruralness, provided a focus for the second part of our study.

This second question was to determine the potential influence of the "rural" factor as a possible buffer between industry/economic mix and dropout rate. We initiated our investigation of this question by considering rural as a primary influence of dropout rate, with the industry mix being a secondary influence. Thus, we felt that if rural served as such an influence, then it would make a "significant" contribution to the prediction/explanation of dropout rate after taking into account SES, the incidence of child poverty, and the level of unemployment. This analysis paralleled that presented in Table 2, except the two rural variables (rural farm and rural nonfarm) were entered into the regression equation after SES, etc. and before the industry/occupation variables. For each of the dropout rate variables, the adjusted R-square for the regression equation increased only .6 of one percent (.006) with the inclusion of the rural farm and rural nonfarm variables. On the surface this suggests that neither of the rural variables is important in developing an understanding of a county's dropout rate once general economic conditions are taken into account. However, the part correlations presented in

Table 4 indicated that the county's level of employment in the classic rural industries of agriculture, forestry, and fishing was negatively related to dropout rate. Thus, the greater the presence of such industries in a county, the lower the dropout rate. Such a negative correlation suggests a positive rural influence. Further evidence that the level of ruralness was related to dropout rates was obtained by generating part correlations between the dropout rates and the two rural variables. As with the other part correlations; SES, the incidence of child poverty, and the level of unemployment were partialled out. The correlations with the nonfarm variable were .01 and -.03 respectively. They were -.09 and -.07 for the farm population variable. The negative signs suggest a possible rural effect, but the magnitude of the coefficients indicates that at most, it would be a very minor influence.

The lack of a sizable rural effect was further reinforced by our analyses to determine whether the level of the rural population might ameliorate any potential negative effects growing out of the industry/economic mix within a county. In the previously reported analyses, the levels of construction industry and the manufacture of nondurable goods were found to be associated with higher dropout rates. To determine whether the level of ruralness within a county might have an interaction with the level of these industries and have a positive influence on dropout rate, two regression analyses were generated. In one the dropout rate based upon the 1990 census data was the criterion variable and in the other, the dropout rate was based upon the school leavers in 1984. In both equations the SES, level of child poverty, and level of unemployment variables were entered first. These were followed by constructed variables representing the interaction between the rural variables and the proportion of the population employed in the specific industry. In both

regression equations, the addition of the interaction term accounted for approximately one half percent (.005) additional variance in dropout rate. Based upon these data, it appears that the ruralness of a county does not have much influence on the high school dropout rate. The rural effect for dropout rates may be restricted to that attributable to smaller size schools (Cotton, 1996), rather than being due to some other aspect of rural life.

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