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Industrial Composition and Intergenerational Mobility

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For five decades, the share of adults employed in college-degree-intensive industries, such as health care and education, has been rising. Industries that provided employment for workers without degrees, especially manufacturing, have been reducing their payrolls. This economic transition could impact the probability of children obtaining higher levels of education than their parents achieved. In this analysis, measures of the local industrial composition from the Current Population Survey are merged with the National Longitudinal Surveys of Youth using the confidential geo-coded records. Living in a labor market with a higher share of adults employed in degree-intensive industries is positively associated with obtaining a college degree among youth whose parents do not have a degree. An additional standard deviation difference in the share of employment in degree-intensive industries corresponds to a 0.02 increase in the probability of ascending to being a college graduate, from a mean of 0.23. For cohorts born in the 1960s, living in a manufacturing-intensive region was negatively correlated with college attainment, but the relationship becomes positive among more recent cohorts. Alternate specifications introduce measures of several factors that could relate the industrial composition to educational attainment, including returns to education (wage premiums), opportunity costs (youth employment), parental inputs (family structure, income), community resources (per capita income), information (regional education levels, post-secondary student populations), and networks (parent's employment).

Keywords: Industrial Composition, Intergenerational Mobility, Educational Attainment

JEL Codes: E24, J24, O14, R11.

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1 Introduction

The United States is now at least a half century into the second great transition in its industrial composition. Employment in degree-intensive industries, such as health care and education, has risen from approximately 20 percent of employment in 1965 to 40 percent in 2015. A degree-intensive industry can be defined as one in which the percentage of college-graduate employees is above the labor force average. Employment in manufacturing has declined from 25 percent to 10 percent of total employment over the same time frame. Large regional differences in educational attainment persist, and high school and college attainment has stopped rising with successive cohorts. This is the first attempt to investigate the influence of a local labor market's industrial composition on the educational mobility of the local youth. Using the confidential geo-coded data in the National Longitudinal Survey of Youth, measures of local labor markets can be merged with individual records. This analysis attempts to answer two questions. First, does the likelihood of a young person moving up or down from their parent's level of education vary with the shares of adults employed in degree-intensive industries, manufacturing, or other industries? If there is a relationship between industrial composition and educational attainment, does it appear to work through returns to education, opportunity costs, parent's employment opportunities, or neighborhood effects?

Understanding the relationship between industrial structure and educational attainment can help policy makers to assess the opportunities and limitations of economic development policies. As more metro-area labor markets transition from manufacturing and other heavy-industries to degree-intensive industries, can we expect the children of parents with no high school degree to complete high school more or less frequently? Will the decline of manufacturing decrease the opportunity cost of staying in high school or college? Or will the loss of relatively high-paying jobs for people without college degrees cause financial insecurity and prevent their children from taking advantage of educational opportunities?

To answer these question, we need a data set that combines information about parents,

children, and the local labor market conditions during the children's youth. The National Longitudinal Survey of Youth (NLSY) in its 1979 and 1997 cohorts provides some information about the youths' parents, and observations of the youths' educational outcomes. All the children born to women in the NLSY 1979 survey were also followed in periodic surveys, which creates a third sample. The confidential geo-coded data maintained with the NLSY identifies the county that a respondent was living in during their late teen years. Using microdata from the Current Population Survey (CPS), it is possible to create and assign numerous measures of labor market conditions that the young people would have been exposed to while they were making decisions about whether to complete high school and college. To focus on educational intergenerational mobility, I have created dependent variables that indicate if the child has moved up or down from the highest level of education attained by either of their parents. Children whose parents did not have high school degrees could ascend to attaining a degree, or not. Likewise children whose parents did not hold a college degree could ascend to being a college graduate. Equivalently, children who have at least one parent with a high school degree can descend an education level by dropping out of high school. Finally children of BA holders are represented as having descended if they are over 25 years old and do not have a college degree.

In the NLSY, we can observe the parent's employment and industry, income, and household structure. From the CPS, we can derive measures reflecting the returns to education and opportunity cost of continuing in school these include the share of young people (18-24) employed in each industrial sector, and the local high school and college wage premiums. We can also observe the local area's per capita income, adult educational attainment rates, and student populations. The presence in the region of higher or lower shares of students and graduates could serve as a norm to which local youth gravitate.

As in some other published studies of intergenerational mobility, it would not be appropriate to make causal interpretations of the results. Although some characteristics of the parents are measured, there is unobserved heterogeneity. The parents' abilities could

motivate them to relocate to metro areas with a specific industry mix. Their abilities could simultaneously have a direct impact on their children's educational achievement. The correlations between industrial shares and education measures will be a combination of selection effects and causal impacts.

The rest of this paper will proceed as follows. Section 2 will review the existing related literature. Section 3 will describe the data sets and selection and definition of the variables. Sections 4 and 5 will present descriptive statistics and model estimates. A discussion of conclusions can be found in section 6.

2 Literature

Despite numerous extensive related literatures that will be described below, no research has yet documented the overall relationship between a region's degree-intensive industry employment and the educational attainment of youth who grow up in the region. One published study has investigated the relationship between manufacturing employment and educational attainment. Donaldson and O'Keefe use Census micro data and regress educational attainment on the share of the labor force employed in manufacturing in the metropolitan area (2013). The manufacturing share is lagged by ten years to better represent what the adults would have experienced as youth. They report a negative relationship between manufacturing share and educational attainment. A major shortcoming of Donaldson and O'Keefe's study is that they attribute migrants' educational attainment to the industries they are living near as adult rather than the industries they were exposed to as youth. It is well documented that inter-regional mobility is positively correlated with education, and approximately half of college graduates no longer live in the state they where they were born (Whitaker, 2012; Knapp et al., 2013). Growth of non-manufacturing industries will force down the manufacturing share of the labor force unless manufacturing is growing at an equal pace. This should introduce bias in their specification because individuals who attain higher levels of

education in a manufacturing-intensive area are likely to relocate to places with growing non-manufacturing sectors. They do not have any linked information about individual's parents, and they do not investigate intergenerational mobility. The analysis presented here introduces youth and parental measures and expands the line of inquiry to the growing degree-intensive industries.

The topic of intergenerational income mobility and its determinants appears to be more extensively studied than intergenerational mobility of education levels. Most studies have used nationally representative data sets which lacked geographic or regional information (Lee and Solon, 2009; Wightman and Danziger, 2014). This is beginning to change as large administrative data sets with geographic information become available. Using Internal Revenue Service data, Chetty, Hendren, Kline, and Saez have estimated the relationship between characteristics of the region (county, commuting zone, etc.) of an individuals' childhood and the individual's income mobility (2014). They use income tax filings with children's social security numbers to place the children in a geographic region at each year in which their parents filed. Using the children's tax filings, they calculate intergenerational elasticities of income and rank-rank slopes. Five regional characteristics are identified in their study as impacting intergenerational mobility: segregation, inequality, primary school quality, social capital, and family stability. Following Chetty et al.'s approach this analysis will present a series of models with regional measures included. The primary focus will be on the industrial composition as a regional characteristic, with other regional or household measures considered as channels of influence from the industries to children's education.

With the exception of direct employment of young people, most of the connections between industries and youths' education would be indirect, working through the parents or local communities. Research on the most recent industrial transition has already documented many of the direct effects on parents and adults generally. Bound and Holzer argued that the shift away from manufacturing in the 1970s lowered employment and wages for white men (1993). The impacts in this decade were small, but the impacts on less-educated men

and Blacks were larger. Acs and Danziger documented declines in low-skilled men's earnings in the 1980s (1993). They find a small overall effect that can be attributed to changes in industrial composition, but, again, the effect was larger for minorities. Feenstra and Hanson examined the relationship between technology changes, trade with low-wage countries and the growing wage gap between low- and high-skilled workers (1999). Using 1980s data, they attributed 15% of the wage gap to outsourcing and 35% to the increased use of computers and other information technology. The authors argued that firms' responses to foreign competition will include allocating the less-skilled tasks of their production process to low-wage countries. In this analysis, industrial structure is measured by employment, so outsourcing would contribute to changes in the measured industrial composition. In a working paper, Charles, Hurst and Notowidigdo argue that manufacturing decline during the 2000s pushed workers into non-employment (2015). Their analysis suggests that in metro areas that experienced a large housing expansion, the transition to non-employment was delayed because the construction industries temporarily absorbed many of the less-educated workers.

Regions that lack the relatively high-wage jobs for non-college-educated men that are provided by manufacturing could experience greater family instability, which in turn inhibits children's educational progress. Black, McKinnish and Sanders used natural experiments provided by cyclicality in the steel and coal industries to estimate the rise in welfare usage that can be attributed to job losses for high-wage, low-skilled men (2003). Welfare usage by a high school student's household, in turn, has been related to lower rates of gradation (Haveman et al., 1991). Declines in employment in high-wage manufacturing jobs cause wage declines in other sectors within the effected region (Beeson et al., 2001). Non-college-educated men's declines in real wages and attachment to the labor force have coincided with declines in marriage rates and increases in extra-marital births and children living in single-parent households (Wilson, 1999). Family structure has been related to educational outcomes, with children raised by single mothers fairing worse (Gruber, 2004; Bjorklund et al., 2007; Monserud and Elder, 2011). However, several studies have suggested that selection may

account for much of the difference (Manski, 1992; Ginther and Pollak, 2004). The connection between fathers' absence and their children's educational attainment could work through reduced household income limiting the purchase of educational inputs (Robert Crosnoe, 2002; Han et al., 2003; Ginther and Pollak, 2004).

An extensive literature exists regarding the relationship between industrialization and education in the decades between the Civil War and World War II. In this literature, the focus is on the extent to which children could be freed from farm or factory work so that they could attend school (Pamela Barnhouse Walters, 1988; Goldin and Katz, 2003). In the era of rapid industrialization of the Northeast and Midwest, school enrollment grew more slowly in urban areas (Fuller, 1983). Youth older than 14 were more likely to be out of school and employed if their region had more manufacturing activity relative to white-collar commercial economic activity (Fuller, 1983). Margo and Finegan demonstrated using data from the 1900 Census that compulsory schooling laws increased educational attainment if they were paired with laws restricting child labor (1996). Youth in rural areas were more likely to attend school generally because the opportunity cost was low during seasons of agricultural inactivity. During the expansion of primary education, children were more likely to attend school if their parents had higher incomes (Horan and Hargis, 1991). This is to be expected if higher wages for the parents enabled subsistence without children's incomes. At the level of the school district and state, the industrial composition can support educational investments via the tax base. Local economic activity determines local household incomes, and there is an extensive literature on equity in education funding that documents a positive relationship between household income and education expenditures (Fernandez and Rogerson, 2003; Schmidt and McCarty, 2008; Sweetland, 2014).

While compulsory schooling and child labor laws have shifted the work-school transition to later ages, industries still interact with schooling through opportunity costs and returns to education (Montmarquette et al., 2007; Murnane, 2013; von Simson, 2015; Stinebrickner and Stinebrickner, 2014). The industrial composition of a region could influence youths'

education decisions through parental or neighborhood information channels. Parents working in manufacturing could connect their children to work opportunities that increase the child's known opportunity cost (O'Regan and Quigley, 1993; Magruder, 2010). In a study using the NLSY's labor market information supplement, Ludwig demonstrated that young males in low-income neighborhoods have inaccurate information about the educational requirements for career paths (Ludwig, 1999). On a regional scale, information regarding the returns to education and educational requirements should be positively related to the share of graduates among the adult population and the fraction of employment in degree-intensive industries (Vartanian and Gleason, 1999). Additionally, the availability and proximity of colleges could increase college attendance and completion (Card, 1995). In each instance when an appropriate variable is available in either the NLSY or CPS, this analysis will test whether the measure appears to be a factor connecting the industrial composition of the local labor market and education attainment.

3 Data and Variable Selection

The first step of this analysis will involve regressing measures of the industrial composition in a region on four educational outcomes: completing high school or college if one's parents did not, and not completing high school or college, if one has a parent who did. The mobility outcomes will be referred to as "ascending" or "descending." This will return the correlation between industries and educational outcomes which has not yet been documented. While the industrial composition that a child is exposed to is not selected by the child, there is the possibility of confounding with parental ability. If higher-ability parents migrate toward areas with degree-intensive industries, this could increase the correlation between degree-intensive industries and their children's attainment. Likewise, a falling cost of housing could attract lower-ability people to areas with declining industries (Glaeser and Gyourko, 2005). I will present one set of estimates that utilizes the difference between the industrial composition

exposure at two times during childhood. This approach will use the change in exposure, rather than the level, to estimate the effect.

After estimating the unconditional correlation between industrial composition and intergenerational mobility, measures of intermediate factors can be introduced into the model. By observing their correlation with the educational measures and the changes in the coefficients on the industry composition measures, we can identify potential channels through which industries influence educational attainment.

As a measure of the opportunity cost of continuing in school we can include the share of young people, aged 18 to 24, who are employed in each industrial sector. If, for example, manufacturing provided abundant employment opportunities to young adults, we might observe youth in manufacturing centers being less likely to finish high school or college. From the CPS, we can calculate high school and college wage premiums. We would expect these to be positively correlated with educational attainment. To measure community income, which serves as the tax base for public subsidies to education, we can include the region's per capita income.

One specification will control for household income. For the NLSY 1979 Children sample, we observe the household income during most years of child's youth because the mothers were re-interviewed annually since becoming adults. In the original 1979 survey, we have the household income during the years while the respondent was still in their parent's household. Due to the age ranges, data availability varies from four years' values for those who were 14 in 1979 to a single year for those who were 18 in 1979. For older respondents in NLSY 1979, and those in the NLSY 1997 sample this information is not available.

The NSLY 1979 Children sample also provides the most information about the presence of the children's fathers during their youth. I construct and test a measure of the number of years that a child spent living without their father through age 18. Industries that provide higher wages and more stable employment to fathers should increase their likelihood of maintaining a relationship with the mothers, and the family stability could increase educational

attainment among the children. The NLSY 1979 respondents were asked the occupation of their mother and father during their youth. These occupations have been mapped into the industrial categories by recoding them to the industry that employs the largest share of people in each occupation. A household value is created to represent the exposure to the less common industry. For example, if the respondent reported that her mother worked as a sales clerk and her father worked as a manufacturing laborer, the household is classified as a manufacturing household. This reflects that either parent could provide information about a less common industry. Indicators of the household's direct industry affiliation are included in one specification to determine if an industry's impact on youth is realized via employment of their parents. The impact could work through the parent's network, income, or information about educational requirements and wages in his or her industry.

In addition to the local labor market industry composition measures, one specification will include direct measures of the educational attainment of the labor force. This will reveal if degree-intensive industries raise attainment by attracting and retaining educated adults in the community and inspiring and informing local youth. Finally, a specification will incorporate the percent of the local population that are currently undergraduate or graduate students. This should provide an indication of school availability as well as information availability and community norms.

The NLSY 1979 and NLSY 1997 were designed to be nationally representative samples of youth in particular cohorts in the year the samples originated.[1] The Bureau of Labor Statistics provides weights to correct departures from national representativeness. The survey of children born to the 1979 survey respondent women can also be weighted to represent the native-born US population.[2] The participants agreed to participate in annual or biennial surveys. As with all surveys, the responses will have measurement error. Attrition is also a

[1]For a complete description of the NLSY 1979 and 1997 surveys, see https://www.nlsinfo.org/content/cohorts/nlsy79 and https://www.nlsinfo.org/content/cohorts/nlsy97. Accessed 21 December, 2015.

[2]For a complete description of the NLSY 1979 Children and Young Adults surveys, see http://www.bls.gov/nls/nlsy79ch.htm. Accessed 21 December, 2015.

problem for variables which require many years of observation, such as income. Fortunately, many of the individual characteristics used here are static, so they will can be accurately measured as long as attrition happens after they are determined. These include educational attainment, parents' educational attainment, gender, race, place of birth, and number of siblings.

Small sample sizes are a challenge for this analysis, so several steps were taken to preserve observations wherever possible. If an individual's county of residence was missing in any year, it was replaces with the most recent observed county for the individual. In instances where control variables were missing, such as the number of siblings, the missing value was replaced with a median or mean value, and a missing value indicator was set equal to one. For the measure of household income, the values were adjusted for inflation and then averaged over all relevant years in which data is available. The variation in availability is driven both by the structure of the survey and non-response. For example, if the respondent was 17 in 1979, we should observe her parents' income in her 17th and 18th year as long as she is living at home. For the respondents who were 14 in 1979, we can observe four years of parental income. Solon, Mazumber, and others have shown that longer panels reduce measurement error when trying to estimate the household income of parents in intergenerational research (Solon, 1992; Lee and Solon, 2009; Mazumder, 2015). Unfortunately, the unbalanced panels of household income for the NLSY respondents is a data limitation with no known solution at this time.

The Current Population Survey microdata is used to create the labor market measures. The category of degree-intensive industries is redefined within each year, to allow for within-industry upskilling. An industry is designated as being degree-intensive if the percentage of its employees with a college degree is above the labor-force average and the industry does not fall into one of the other categories (manufacturing, agriculture, mining, government). The regional measures are the ratio of employees to adults in the labor market. This reflects the possibility that a shrinking industrial sector could discourage some people from participating

in the labor force at all. In the regressions, all industries are included, so the omitted category is a combination of the unemployed and adults out of the labor force. The preferred geographic area for representing a labor market is the metropolitan area. The values of each measure were calculated for the metropolitan areas, counties, and states. If the metro value is available, it is linked to the individual record using the individual's reported county of residence. If the CPS identifies a county not in a metropolitan area, values calculated for that county are merged where appropriate. Finally, if no sub-state measure is available, the state-level value is used.

4 Descriptive Statistics

In table 1 and figure 2, we observe the four dependent variables of interest in the three samples. Among youth who do not have a parent who graduated from high school, 54 to 72 percent were able to earn a degree themselves. The expansion of college degree attainment is reflected in the higher share of first-in-the-family graduates in the oldest cohorts. Given the relatively low level of intergenerational mobility in the US compared to other developed countries, the data exhibit a surprising high level of downward mobility in college attainment. Roughly half of the children whose parents hold college degrees do not obtain one themselves by age 25. Both the 1979 and 1997 surveys include representative samples of immigrant youth, but the 1979 Children sample could only include the children of NLSY 1979 respondents living in the US. The income measures are all adjusted for inflation.

In table 2 and figure 1, the transition from the industrial economy to an information-based economy is reflected in the decline of manufacturing employment from 14 percent of working aged people to below 10 percent on average. Adults employed in industries with more college graduates than the labor force overall increased from below 15 percent to 25 percent. Employment in other (non-degree intensive) industries also appears to be higher for the 1979 Children and 1997 samples. The household designations place many

more households in industries because if either parent is working, the household's industry is designated. If a household has one parent in a degree-intensive industry and another in an "other" industry, the household is designated as degree-intensive. Despite favoring high-education industries and manufacturing, we can see that a large plurality of households only have parents employed in other non-degree-intensive industries. The last section of table 2 shows the measure of industries employing young people. The young are over-represented in "other" industries and under represented in both degree-intensive industries and manufacturing.

5 Results

The first set of results presented in table 3 is estimated with only the individual controls and year indicators. Most of the coefficients have the anticipated sign and magnitude. Females are more likely to ascend from their parent's level of education and less likely to descend. African Americans are less likely to complete college among youth whose parents are not graduates. Having additional siblings appears to make one less likely to ascend educationally and more likely to descend. All these controls are included in all subsequent models.

Table 4 contains the main industrial composition results which will be adjusted in later models by the addition of other regional and household measures. For young people finishing their education in the early 1980s, it appears that living in a labor market with greater shares of people employed in degree-intensive industries was associated with more students become first-in-family college graduates. Living in an area with high shares of manufacturing employment has the opposite relationship to college attainment. Among the 1979 survey respondents, no industry share is significantly related to ascending to high school completion or descending from one's parent education level. For the 1979 Children, living in a relatively manufacturing-focused labor market appears to have a desirable impact on ascending to high school completion. In fact, for these cohorts, who were completing school in the 1990s,

manufacturing shares are positively related to educational attainment by all measures. The share of degree-intensive employment is also favorably related to ascending and descending, with a particularly large coefficient of -.92 in the descending from college model. In the 1997 survey, the shares of employment in degree-intensive and manufacturing industries display no consistent relationship to educational attainment, and none of the coefficients are significantly different from zero. Since the 1997 sample covers cohorts that are in the middle of the 1979 Children sample, the contrast between the two sets of results suggest that the former is driven by the earliest or latest cohorts.

A measure of per capita income (see table 5) has counterintuitive relationships with descending from parent's college degree attainment in the 1979 survey and descending from high school attainment among the 1979 Children. For the 1979 Children of high school graduates, higher per capita income appears to explain much of the higher college completion associated with living in a labor market with more degree-intensive industries. In contrast to the metro-area per capita income, a measure of household income (see table 6) has the expected relationship with educational attainment in every model. It is also at least marginally significant in every instance. Judging by the attenuation of coefficients, household income may have been a mediating factor between the share of degree-intensive employment and ascending or not descending from college completion.

Information on both parents' employment is available in the 1979 survey. The results in table 7 suggest that while the parent's industry of employment can be strongly correlated with their children's educational mobility, it is not a central channel of influence for the industrial composition. Children whose parents had a high school education and worked in a degree-intensive industry were more likely to complete college. Children whose parents had a college degree and worked in manufacturing were more likely to not finish college.

Adding indicators for working mothers and non-working fathers (see table 8) does not suggest an interaction with industrial composition. Having a working mother is associated with a slightly higher probability of ascending to college completion and lower probabil-

ity of descending from high school completion. Having a non-working father is associated with lower ascension and higher descension. For the 1979 Children, each additional year of childhood without a father in the house is associated with one percent lower likelihood of ascending to college or one percent higher likelihood of descending.

The prevailing level of education in a community appears to be an important predictor of intergenerational educational mobility. 1979 respondents living in labor markets with high shares of adults without high school degrees were less likely to ascend to holding a college degree and less likely to descend if their parents held a degree. The measure of non-high school graduates and college graduates in the local labor market appears to be explaining the same variation in ascending to college attainment that was explained by the presence of degree-intensive industries. However, for the 1979 Children, both measures of ascending are negatively related to the shares of both high school dropouts and college graduates. In the 1997 sample, the coefficients are not consistent with either of the other surveys. Introducing a measure of college students in the region (table 10) does little to change the coefficients on the shares of adults in degree-intensive or manufacturing industries.

In table 11, the industrial compositions of the local labor markets are replaced with the industrial shares of employment for people aged 18 to 24. These measures are highly correlated with the total adult shares, so including both in the same model is not feasible. This set of results speaks to the opportunity costs that young people may perceive as they are deciding whether to continue their education. They will be familiar with the demands, working conditions, and wages of industries that employ them or their peers. If these jobs are attractive, they may opt to forgo further schooling and work. For the 1979 sample respondents, the share of local youth employed in "other" occupations and government are negatively associated with ascending to high school and college graduation respectively. For the 1997 sample, employment in non-degree-intensive industries is association with less college completion. In these results, there is no clear evidence that manufacturing employment induced young people to drop out of high school or forgo college.

When direct measures of the college premium are added to the model, their impact on ascending or descending educationally appears weak. Higher high school premiums in the local labor market are associated with a higher likelihood of ascending to a high school degree for the 1979 respondents. All of the other coefficients are insignificant or have signs that are counter-intuitive. The coefficients on the shares of employment in degree-intensive industries or manufacturing are only slightly altered.

As discussed above, the parent's choice of a labor market is endogenous. Parents would presumably migrate to a labor market that rewards their ability level, and their abilities could impact both the industrial mix they expose their children to and the educational support they provide the children. However, there may be less correlation between the ages of youth when their household moves and the fixed characteristics of their parents. In table 13, results are presented from models using the variation in industry exposure between ages 1 and 17 and 10 and 17. Early moves toward places with higher shares of degree-intensive industries appear to increase a youth's probability of ascending to college. Later moves toward manufacturing-intensive places are associated with greater ascendence to having a high school or college degree. Moving toward places with higher agricultural and government industry shares are also positively associated with educational outcomes.

6 Conclusion

The negative relationship that Goldin, Katz and others have identified between manufacturing and educational attainment may have persisted through the peak of manufacturing employment in the middle of the last century (Goldin and Katz, 2003). We can see in the contrast between the results in the 1979 and 1979 Children's surveys that the relationship between manufacturing and college attainment appears to have changed. For people who were born in late 1950s and early 1960s, manufacturing was at the beginning of its decline as they were finishing school. In the 1970s, having ample manufacturing employment in the

region may have presented what appeared to be a viable career option. A generation later, in the 1990s, the decline of manufacturing in former manufacturing regions was clearly evident. The manufacturing employment that remained was more likely to be technologically advanced and demand more education (Voigtlander, 2014). In the models estimated with the 1979 Children, the impacts of degree-intensive employment and manufacturing employment on college attainment appear to be similar, and they respond to the introduction of the other measures similarly.

For more recent cohorts, manufacturing employment in the local labor market is positively associated with completing high school. For example, the 1979 Children ascend-to-high school model suggests a child of a high school dropout in Chicago (manufacturing share 7.4 percent) is 4.5 percentage points more likely to finish high school than the child of a high school dropout in Sacramento (manufacturing share 2.2 percent).[3] The 1979 Children ascend-to-college model would suggest that a child in the Boston metro (degree-intensive share 30.1) would be 2.1 percentage points more likely to ascend to having a college degree relative to a child in Chicago (degree-intensive share 24.9).[4] In the models estimated using the 1979 NLSY respondents, there was not a clear relationship between industrial composition and high school attainment. Despite containing larger samples of subsets of the 1979 Children birth cohorts, the NLSY 1997 does not support a detectable impact of degree-intensive or manufacturing employment on educational attainment.

While the presence of degree-intensive industries in the local labor market appears supportive of college attainment for both the children of bachelors degree holders and non-degree holders, the results are much less promising with regards to high school attainment. None of the specifications returns a significant positive relationship between degree-intensive employment and high school completion. This should raise concerns for policy makers in regions that are high-education-industry intensive but still have large populations of students that

[3]The Chicago and Sacramento metro areas have similar degree-intensive shares at 24.9 and 23.8 respectively.

[4]The Chicago and Boston metro areas have similar manufacturing shares at 7.4 and 7.1 respectively.

need to ascend to high school completion. The 1979 Children models, in several instances report that higher manufacturing shares are positively related to the children of parents with no degree completing high school and the children of high school graduates not dropping out. If one of the regional or household measures introduced into the model made a large change in the relationship between manufacturing and high school attainment, then that might be the factor that manufacturing industries provide for young people that high-skilled industries are not providing. We could then discuss policies to address what is lacking in regions that are further along in the industrial transition. Unfortunately, none of the labor-market, household or community measures introduced causes a major change in the coefficients on manufacturing share. It is possible that the measures added are not precise enough, and improved data may change the results. Alternately, other measures may need to be tested, such as within-metro educational segregation and the predominant family structure in each community.

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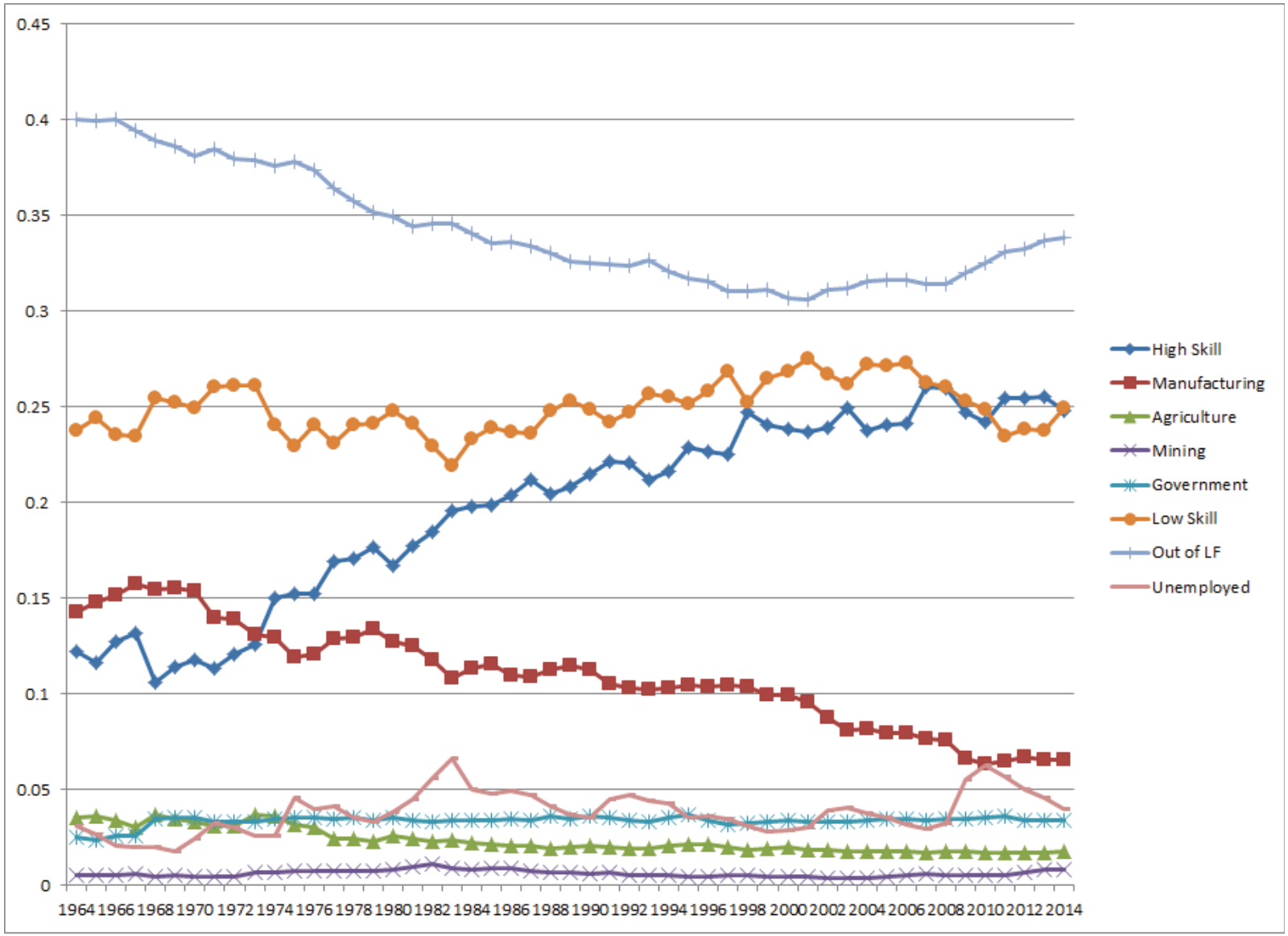

Figure 1: Percent of adults employed in each industrial sector, unemployed, and out of the labor force. Source: Current Population Survey.

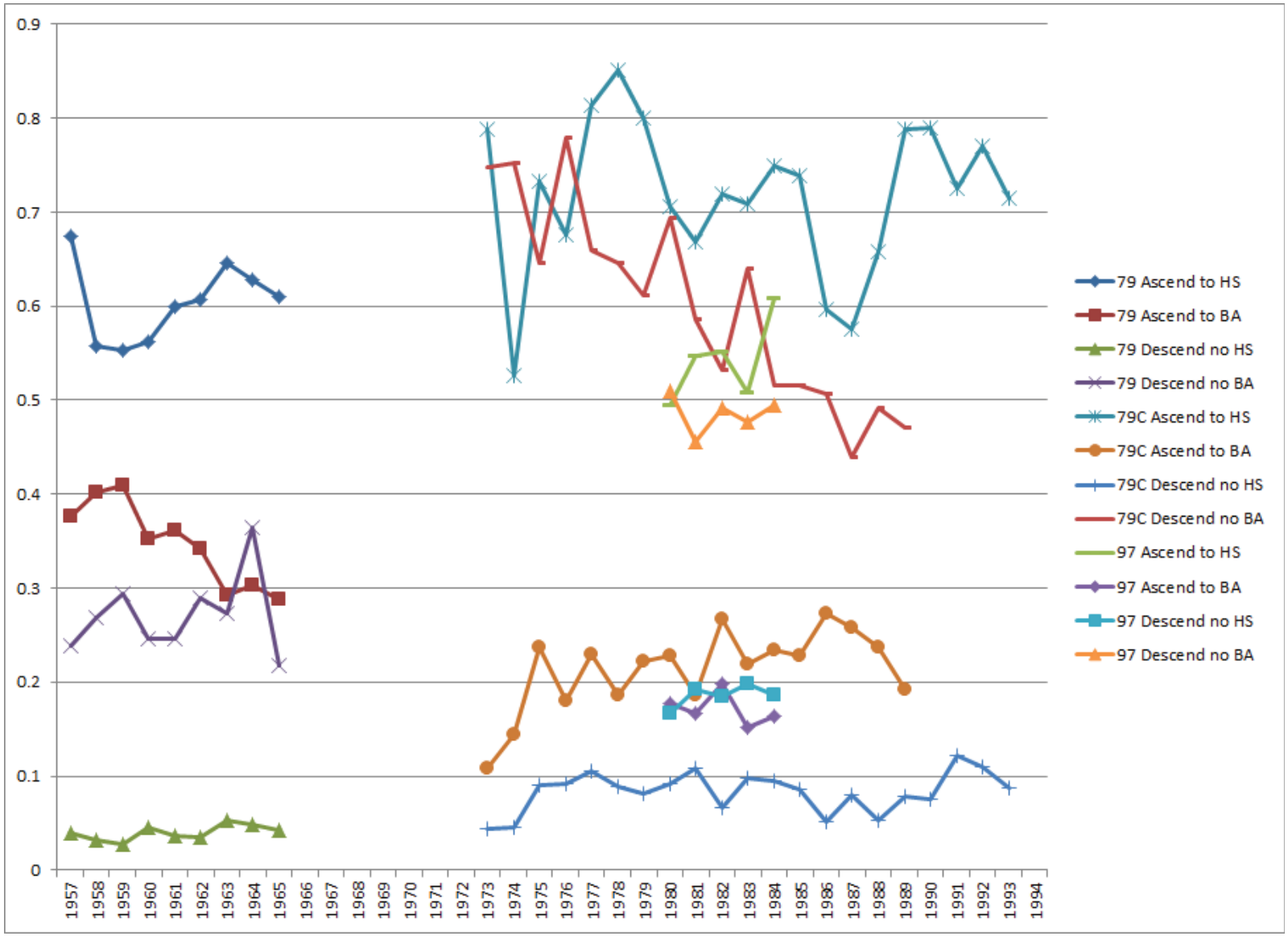

Figure 2: Percent of youth that ascended or descended from their parents' level of education. Source: National Longitudinal Surveys of Youth 1979, 1979 Chilren and 1997.

Survey		Ascend to High School	Ascend to College	Descend to No High School	Descend to No College
1979		0.60	0.35	0.04	0.28
1979 Children		0.72	0.23	0.09	0.54
1997		0.54	0.17	0.19	0.49
		Female	**African American**	**Hispanic**	**Siblings**
1979		0.49	0.14	0.07	3.35
1979 Children		0.48	0.18	0.09	1.85
1997		0.49	0.15	0.13	2.44
		Foreign Language	**Immigrant**	**Immigrant Parents**	
1979		0.13	0.05	0.09	
1979 Children		0.15		0.05	
1997		0.12	0.10		
		MSA Per Capita Income	**Household Income**	**Income Missing**	
1979	mean	10.28	11.05	0.24	
	sd	0.11	0.60	0.43	
1979 Children	mean	10.56	10.90	0.01	
	sd	0.17	0.80	0.10	
1997	mean	10.59	10.97	0.16	
	sd	0.17	0.89	0.36	
		Working Mother	**Non-Working Father**	**Years w/out Father**	
1979		0.51	0.19	.	
1979 Children		.	.	4.33	
1997		.	.	.	
		Less than High School	**High School Degree Only**	**College Graduates**	**College and Graduate Students**
1979	mean	0.31	0.38	0.15	
	sd	0.06	0.04	0.04	
1979 Children	mean	0.15	0.32	0.25	0.05
	sd	0.05	0.06	0.07	0.02
1997	mean	0.16	0.32	0.24	0.04
	sd	0.06	0.06	0.07	0.02
		High School Wage Premium	**College Wage Premium**		
1979	mean	9.03	10.02		
	sd	0.35	0.23		
1979 Children	mean	9.11	10.20		
	sd	1.05	0.62		
1997	mean	9.12	10.18		
	sd	1.18	0.81		

Table 1: Descriptive Statistics. Source: National Longitudinal Surveys of Youth and Current Population Survey.

Adult Employment		**Degree-Intensive**	**Manufacturing**	**Agriculture**	**Mining**	**Government**	**Other**	**Out of LF**
1979	mean	0.17	0.14	0.01	0.00	0.03	0.23	0.36
	sd	0.03	0.04	0.01	0.01	0.02	0.03	0.04
1979 Children	mean	0.25	0.09	0.01	0.00	0.03	0.26	0.32
	sd	0.05	0.04	0.01	0.01	0.02	0.04	0.05
1997	mean	0.25	0.10	0.01	0.00	0.03	0.26	0.31
	sd	0.05	0.05	0.02	0.01	0.02	0.04	0.05
Parent Employment		**Degree-Intensive**	**Manufacturing**	**Agriculture**	**Mining**	**Government**	**Other**	**Out of LF**
1979	mean	0.23	0.14	0.04	0.01	0.04	0.44	0.10
Youth $18-24$ **Employment**		**Degree-Intensive**	**Manufacturing**	**Agriculture**	**Mining**	**Government**	**Other**	**Out of LF**
1979	mean	0.16	0.12	0.01	0.00	0.03	0.29	0.29
	sd	0.03	0.04	0.01	0.01	0.02	0.04	0.05
1979 Children	mean	0.18	0.05	0.01	0.00	0.02	0.36	0.30
	sd	0.07	0.05	0.03	0.01	0.03	0.09	0.10
1997	mean	0.19	0.07	0.01	0.00	0.02	0.37	0.27
	sd	0.08	0.06	0.03	0.00	0.03	0.10	0.10

Table 2: Source: National Longitudinal Surveys of Youth and Current Population Survey.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Female	0.00	(0.02)	0.05 **	(0.01)	−0.02 ***	(0.00)	−0.07 ***	(0.02)
Black	0.05 **	(0.02)	−0.05 ***	(0.01)	0.01	(0.01)	0.09 **	(0.04)
Hispanic	0.00	(0.03)	−0.13 ***	(0.02)	0.03 **	(0.01)	0.01	(0.06)
Siblings	−0.01 **	(0.00)	−0.02 ***	(0.00)	0.01 ***	(0.00)	0.01	(0.01)
Siblings missing	−0.13	(0.18)	−0.17	(0.14)	0.09	(0.07)	−0.22	(0.38)
Foreign Language	−0.01	(0.03)	0.07 ***	(0.02)	0.02 ***	(0.01)	0.06	(0.04)
Immigrant	−0.03	(0.04)	−0.06 **	(0.03)	−0.02	(0.01)	−0.08	(0.06)
2nd Generation	−0.09 ***	(0.03)	0.06 ***	(0.02)	−0.02	(0.01)	−0.04	(0.04)
Constant	0.67 ***	(0.03)	0.44 ***	(0.03)	0.03 ***	(0.01)	0.23 ***	(0.07)
R^2	0.02		0.03		0.01		0.02	
N	4,100		10,376		8,141		1,865	
1979 Children								
Female	0.07 **	(0.03)	0.10 ***	(0.01)	−0.05 ***	(0.01)	−0.11 ***	(0.02)
Black	0.06	(0.04)	−0.10 ***	(0.02)	0.01	(0.01)	0.22 ***	(0.03)
Hispanic	−0.11	(0.07)	−0.19 ***	(0.03)	0.07 ***	(0.02)	0.16 ***	(0.06)
Siblings	−0.06 ***	(0.01)	−0.02 ***	(0.00)	0.01 ***	(0.00)	0.01	(0.01)
Foreign Language	0.20 ***	(0.07)	0.08 ***	(0.03)	−0.02	(0.01)	−0.01	(0.04)
2nd Generation	0.02	(0.06)	0.14 ***	(0.03)	−0.04 **	(0.02)	−0.03	(0.06)
Constant	0.86 ***	(0.14)	0.50*	(0.29)	0.02	(0.25)	0.65 ***	(0.24)
R^2	0.09		0.05		0.02		0.07	
N	831		4,032		6,386		1,802	
1997								
Female	0.09 ***	(0.03)	0.08 ***	(0.01)	−0.05 ***	(0.01)	−0.14 ***	(0.02)
Black	−0.04	(0.04)	−0.07 ***	(0.01)	0.07 ***	(0.01)	0.15 ***	(0.04)
Hispanic	0.04	(0.04)	−0.12 ***	(0.02)	0.04 **	(0.02)	0.16 ***	(0.04)
Siblings	−0.01 **	(0.01)	−0.02 ***	(0.00)	0.02 ***	(0.00)	0.03 ***	(0.01)
Siblings missing	−0.07 **	(0.04)	−0.09 ***	(0.01)	0.14 ***	(0.01)	0.31 ***	(0.03)
Foreign Language	0.02	(0.06)	0.03	(0.02)	0.01	(0.02)	−0.02	(0.04)
For. Lang. missing	0.07*	(0.04)	0.03 **	(0.02)	0.05 ***	(0.02)	0.06	(0.04)
Immigrant	0.10 **	(0.05)	0.08 ***	(0.02)	−0.08 ***	(0.02)	−0.05	(0.04)
Constant	0.46 ***	(0.04)	0.21 ***	(0.01)	0.09 ***	(0.01)	0.38 ***	(0.03)
R^2	0.04		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 3: Control variable regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.02	(0.38)	0.68 ∗ ∗∗	(0.23)	−0.11	(0.11)	−0.04	(0.49)
Manufacturing	0.19	(0.28)	−0.49 ∗ ∗∗	(0.17)	−0.02	(0.08)	−0.35	(0.40)
Agriculture	0.35	(0.75)	0.80 ∗ ∗	(0.39)	−0.28	(0.17)	−0.84	(0.80)
Mining	1.58	(1.02)	−0.74	(0.63)	−0.22	(0.31)	2.31	(1.53)
Government	−0.07	(0.48)	−1.25 ∗ ∗∗	(0.30)	0.03	(0.14)	−0.59	(0.61)
Other	−0.27	(0.35)	−0.21	(0.22)	0.06	(0.11)	0.66	(0.49)
R^2	0.02		0.03		0.01		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.19	(0.40)	0.40 ∗ ∗	(0.16)	−0.12	(0.09)	−0.92 ∗ ∗∗	(0.28)
Manufacturing	0.87 ∗ ∗	(0.44)	0.53 ∗ ∗∗	(0.19)	−0.21 ∗ ∗	(0.11)	−0.60∗	(0.35)
Agriculture	0.24	(1.06)	0.44	(0.52)	−0.56∗	(0.31)	−2.02∗	(1.06)
Mining	4.56	(4.37)	−2.44∗	(1.40)	−0.91	(0.70)	4.34 ∗ ∗	(2.05)
Government	0.99	(0.74)	0.12	(0.30)	0.00	(0.18)	−0.67	(0.62)
Other	0.60	(0.42)	−0.15	(0.18)	−0.13	(0.10)	−0.12	(0.34)
R^2	0.11		0.05		0.02		0.08	
N	811		3,984		6,322		1,779	
1997								
Degree-Intensive	0.30	(0.35)	0.17	(0.12)	0.06	(0.11)	−0.14	(0.24)
Manufacturing	0.32	(0.39)	−0.18	(0.13)	−0.02	(0.12)	0.07	(0.27)
Agriculture	1.98 ∗ ∗	(0.86)	−0.23	(0.34)	−0.83 ∗ ∗∗	(0.32)	0.12	(0.68)
Mining	0.65	(1.97)	−1.07	(0.79)	1.87 ∗ ∗	(0.80)	2.02	(1.91)
Government	−1.86 ∗ ∗	(0.80)	−0.45∗	(0.24)	0.21	(0.23)	0.11	(0.52)
Other	−0.04	(0.40)	−0.33 ∗ ∗	(0.14)	0.48 ∗ ∗∗	(0.13)	0.41	(0.29)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 4: Industrial composition regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	−0.11	(0.50)	0.57∗	(0.30)	−0.06	(0.14)	−1.18∗	(0.64)
Manufacturing	0.16	(0.29)	−0.52 ∗ ∗	(0.18)	−0.01	(0.09)	−0.68	(0.42)
Per Capita Income	0.04	(0.11)	0.04	(0.07)	−0.02	(0.03)	0.44 ∗ ∗	(0.16)
R^2	0.02		0.03		0.01		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.29	(0.56)	0.25	(0.23)	−0.29 ∗ ∗	(0.12)	−1.30 ∗ ∗	(0.40)
Manufacturing	0.91∗	(0.47)	0.46 ∗ ∗	(0.20)	−0.29 ∗ ∗	(0.11)	−0.77 ∗ ∗	(0.37)
Per Capita Income	−0.03	(0.14)	0.06	(0.06)	0.07 ∗ ∗	(0.03)	0.16	(0.12)
R^2	0.11		0.05		0.02		0.08	
N	811		3,984		6,322		1,779	
1997								
Degree-Intensive	0.48	(0.45)	0.19	(0.15)	0.04	(0.14)	−0.05	(0.30)
Manufacturing	0.43	(0.42)	−0.17	(0.13)	−0.03	(0.13)	0.12	(0.29)
Per Capita Income	−0.07	(0.10)	−0.01	(0.04)	0.01	(0.04)	−0.04	(0.08)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 5: Per capita income regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	−0.00	(0.38)	0.56 ∗ ∗	(0.23)	−0.03	(0.11)	0.09	(0.48)
Manufacturing	0.16	(0.28)	−0.50 ∗ ∗∗	(0.17)	0.01	(0.08)	−0.28	(0.40)
Household Income	0.03 ∗ ∗	(0.01)	0.09 ∗ ∗∗	(0.01)	−0.06 ∗ ∗∗	(0.00)	−0.14 ∗ ∗∗	(0.03)
R^2	0.02		0.05		0.03		0.04	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.29	(0.40)	0.27∗	(0.16)	−0.03	(0.08)	−0.69 ∗ ∗	(0.28)
Manufacturing	0.89 ∗ ∗	(0.43)	0.53 ∗ ∗∗	(0.19)	−0.23 ∗ ∗	(0.11)	−0.55	(0.34)
Household Income	0.06 ∗ ∗	(0.02)	0.10 ∗ ∗∗	(0.01)	−0.06 ∗ ∗∗	(0.01)	−0.17 ∗ ∗∗	(0.02)
R^2	0.13		0.07		0.04		0.14	
N	811		3,984		6,322		1,779	
1997								
Degree-Intensive	0.23	(0.35)	0.10	(0.12)	0.19∗	(0.11)	0.05	(0.23)
Manufacturing	0.34	(0.39)	−0.26 ∗ ∗	(0.13)	0.06	(0.12)	0.17	(0.27)
Household Income	0.02∗	(0.01)	0.07 ∗ ∗∗	(0.01)	−0.09 ∗ ∗∗	(0.01)	−0.13 ∗ ∗∗	(0.01)
R^2	0.05		0.07		0.08		0.14	
N	1,379		6,375		7,225		2,229	

Table 6: Household income regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
MSA Industrial Composition								
Degree-Intensive	0.11	(0.38)	0.59 * **	(0.22)	−0.07	(0.11)	−0.04	(0.48)
Manufacturing	0.13	(0.28)	−0.44 * *	(0.17)	−0.03	(0.08)	−0.23	(0.40)
Parents' Occupation								
Degree-Intensive	0.02	(0.04)	0.18 * **	(0.02)	−0.03 * **	(0.01)	−0.11 * **	(0.03)
Manufacturing	0.03	(0.02)	0.01	(0.01)	0.02 * *	(0.01)	0.14 * *	(0.06)
Agriculture	0.18 * *	(0.08)	0.14 * **	(0.03)	−0.03 * **	(0.01)	−0.00	(0.06)
Mining	−0.03	(0.03)	0.04*	(0.02)	−0.01	(0.01)	−0.06	(0.08)
Government	0.02	(0.07)	−0.04	(0.05)	0.02	(0.03)	−0.09	(0.20)
Out of Labor Force	−0.02	(0.02)	−0.06 * **	(0.02)	0.02 * *	(0.01)	−0.01	(0.06)
R^2	0.02		0.06		0.02		0.05	
N	3,781		9,310		7,172		1,643	

Table 7: Parental occupation regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.05	(0.38)	0.67 * **	(0.23)	−0.11	(0.11)	−0.04	(0.49)
Manufacturing	0.14	(0.28)	−0.52 * **	(0.17)	−0.00	(0.08)	−0.32	(0.40)
Working Mother	−0.01	(0.02)	0.03 * **	(0.01)	−0.01 * **	(0.00)	0.00	(0.02)
Non-working Father	−0.05 * **	(0.02)	−0.03 * *	(0.01)	0.03 * **	(0.01)	0.05	(0.04)
R^2	0.02		0.04		0.02		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.23	(0.40)	0.39 * *	(0.16)	−0.11	(0.09)	−0.80 * **	(0.28)
Manufacturing	0.84*	(0.44)	0.49 * *	(0.19)	−0.19*	(0.11)	−0.53	(0.35)
Single Parent (years)	−0.00	(0.00)	−0.01 * **	(0.00)	0.00 * **	(0.00)	0.01 * **	(0.00)
R^2	0.11		0.06		0.03		0.11	
N	811		3,984		6,322		1,779	

Table 8: Parental characteristic regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.68	(0.66)	0.13	(0.40)	−0.01	(0.19)	−0.89	(0.83)
Manufacturing	0.21	(0.28)	−0.49 ∗ ∗∗	(0.17)	−0.02	(0.08)	−0.32	(0.40)
No High School Degree	0.05	(0.20)	−0.23∗	(0.12)	0.09	(0.06)	−0.66 ∗ ∗	(0.28)
College Graduates	−0.56	(0.56)	0.21	(0.34)	0.02	(0.16)	−0.02	(0.71)
R^2	0.02		0.04		0.01		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.60	(0.62)	0.50 ∗ ∗	(0.25)	−0.16	(0.13)	−1.05 ∗ ∗	(0.44)
Manufacturing	0.60	(0.46)	0.44 ∗ ∗	(0.20)	−0.21∗	(0.11)	−0.81 ∗ ∗	(0.37)
No High School Degree	−0.98 ∗ ∗∗	(0.36)	−0.31∗	(0.17)	0.03	(0.09)	−0.64 ∗ ∗	(0.31)
College Graduates	−0.89 ∗ ∗	(0.42)	−0.29∗	(0.18)	0.05	(0.09)	−0.22	(0.32)
R^2	0.12		0.05		0.02		0.08	
N	811		3,984		6,322		1,779	
1997								
Degree-Intensive	0.51	(0.49)	−0.01	(0.16)	0.19	(0.14)	−0.10	(0.31)
Manufacturing	0.41	(0.40)	−0.16	(0.13)	0.01	(0.13)	0.07	(0.29)
No High School Degree	0.17	(0.27)	0.06	(0.10)	0.09	(0.10)	0.00	(0.23)
College Graduates	−0.09	(0.37)	0.23 ∗ ∗	(0.12)	−0.10	(0.11)	−0.04	(0.23)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 9: Local educational attainment regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979 Children								
Degree-Intensive	0.15	(0.42)	0.39 ∗ ∗	(0.16)	−0.10	(0.09)	−0.86 ∗ ∗∗	(0.29)
Manufacturing	0.87 ∗ ∗	(0.44)	0.53 ∗ ∗∗	(0.19)	−0.22 ∗ ∗	(0.11)	−0.61∗	(0.35)
College and Grad Students	0.38	(0.97)	0.18	(0.41)	−0.23	(0.21)	−1.05	(0.75)
R^2	0.11		0.05		0.02		0.08	
N	811		3,984		6,322		1,779	
1997								
Degree-Intensive	0.34	(0.35)	0.17	(0.12)	0.06	(0.11)	−0.13	(0.24)
Manufacturing	0.46	(0.39)	−0.17	(0.13)	−0.03	(0.12)	0.08	(0.27)
College and Grad Students	1.31 ∗ ∗	(0.54)	0.25	(0.22)	−0.31	(0.22)	0.41	(0.48)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 10: College and graduate student regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.05	(0.30)	0.46 ∗ ∗∗	(0.17)	−0.15∗	(0.08)	−0.41	(0.38)
Manufacturing	−0.03	(0.24)	−0.18	(0.15)	0.02	(0.07)	−0.34	(0.32)
Agriculture	0.42	(0.77)	0.76∗	(0.40)	−0.17	(0.18)	−0.42	(0.83)
Mining	1.22	(0.79)	−0.39	(0.49)	−0.20	(0.24)	1.95∗	(1.11)
Government	−0.40	(0.39)	−0.80 ∗ ∗∗	(0.25)	−0.01	(0.12)	−0.16	(0.56)
Low Skilled	−0.44 ∗ ∗	(0.21)	0.26 ∗ ∗	(0.12)	−0.05	(0.06)	0.29	(0.28)
R^2	0.02		0.03		0.01		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.16	(0.22)	0.07	(0.09)	−0.03	(0.05)	−0.11	(0.19)
Manufacturing	0.33	(0.28)	0.32 ∗ ∗	(0.13)	−0.04	(0.08)	−0.21	(0.26)
Agriculture	0.65	(0.67)	0.14	(0.30)	−0.20	(0.13)	0.28	(0.60)
Mining	4.18	(5.02)	0.81	(1.18)	−0.37	(0.52)	1.84	(1.17)
Government	0.05	(0.60)	−0.09	(0.24)	0.10	(0.14)	0.64	(0.54)
Low Skilled	0.38 ∗ ∗	(0.18)	0.15∗	(0.08)	−0.04	(0.04)	0.01	(0.14)
R^2	0.11		0.05		0.02		0.07	
N	811		3,981		6,318		1,778	
1997								
Degree-Intensive	−0.33	(0.22)	−0.01	(0.07)	−0.01	(0.07)	−0.09	(0.15)
Manufacturing	−0.06	(0.21)	−0.06	(0.08)	−0.12	(0.08)	−0.06	(0.16)
Agriculture	0.53	(0.47)	0.05	(0.17)	−0.18	(0.15)	0.06	(0.29)
Mining	−0.42	(2.15)	−1.75∗	(0.97)	0.01	(1.01)	3.18	(2.31)
Government	0.96∗	(0.50)	−0.34∗	(0.18)	0.15	(0.18)	0.03	(0.42)
Low Skilled	−0.10	(0.16)	−0.13 ∗ ∗	(0.05)	0.05	(0.05)	0.07	(0.11)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,369		7,215		2,225	

Table 11: Youth (18-24) employment regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.05	(0.38)	0.70***	(0.23)	−0.11	(0.11)	−0.20	(0.49)
Manufacturing	0.03	(0.29)	−0.49***	(0.17)	−0.04	(0.08)	−0.30	(0.40)
High School Premium	0.09***	(0.03)			0.01	(0.01)		
College Premium			−0.01	(0.02)			0.12**	(0.06)
R^2	0.02		0.03		0.01		0.03	
N	3,781		9,310		7,172		1,643	
1979 Children								
Degree-Intensive	0.27	(0.41)	0.37**	(0.16)	−0.14	(0.09)	−0.97***	(0.29)
Manufacturing	0.93**	(0.44)	0.53***	(0.19)	−0.22**	(0.11)	−0.57	(0.35)
High School Premium	−0.03**	(0.01)			0.00	(0.00)		
College Premium			0.01	(0.01)			0.04**	(0.02)
R^2	0.11		0.05		0.02		0.08	
N	811		3,983		6,317		1,778	
1997								
Degree-Intensive	0.37	(0.35)	0.18	(0.12)	0.03	(0.11)	−0.14	(0.24)
Manufacturing	0.37	(0.39)	−0.18	(0.13)	−0.03	(0.12)	0.07	(0.27)
High School Premium	−0.02*	(0.01)			0.00	(0.00)		
College Premium			−0.00	(0.01)			−0.00	(0.01)
R^2	0.05		0.04		0.05		0.10	
N	1,379		6,375		7,225		2,229	

Table 12: High school and college premium regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.

	Ascend to High School Degree		Ascend to College Degree		Descend to No High School Degree		Descend to No College Degree	
1979								
Degree-Intensive	0.07	(0.42)	0.45 **	(0.17)	0.00	(0.09)	−0.39	(0.29)
Manufacturing	0.37	(0.48)	0.16	(0.19)	0.08	(0.10)	0.02	(0.33)
Agriculture	0.79	(1.05)	1.00 **	(0.48)	−0.42	(0.27)	−0.63	(0.90)
Mining	−0.37	(2.47)	0.39	(0.89)	−0.41	(0.52)	2.05	(1.58)
Government	0.62	(0.78)	0.75 **	(0.31)	−0.24	(0.17)	0.61	(0.57)
Other	0.47	(0.42)	−0.08	(0.17)	0.03	(0.09)	0.12	(0.30)
R^2	0.11		0.05		0.02		0.07	
N	699		3,520		5,814		1,636	
1979 Children								
Degree-Intensive	−0.16	(0.39)	0.24	(0.17)	0.14	(0.09)	−0.11	(0.29)
Manufacturing	1.04 **	(0.45)	0.46 **	(0.20)	−0.04	(0.11)	0.06	(0.35)
Agriculture	1.73*	(0.98)	1.27 ***	(0.49)	−0.31	(0.29)	1.77*	(0.97)
Mining	3.76	(4.09)	1.20	(1.39)	−0.95	(0.71)	4.35 **	(2.01)
Government	1.60 **	(0.75)	1.24 ***	(0.31)	−0.15	(0.18)	−0.14	(0.60)
Other	0.17	(0.35)	0.24	(0.16)	0.02	(0.09)	−0.20	(0.30)
R^2	0.12		0.05		0.02		0.08	
N	810		3,964		6,279		1,765	

Table 13: Age 1 to age 17 and age 10 to age 17 industrial composition change regressions. Dependent variables are indicators that the individual ascended or descended from their parent's level of education. Populations are limited to children of parents who either held or did not hold the degree as indicated. The standard errors appear to the right in parentheses. BLS-provided weights are applied in all regressions. All models include individual demographics and birth cohort fixed effects. The data sources are the National Longitudinal Surveys of Youth. Significance key: * for p<.1, ** for p<.05, and *** for p<.01.