James J. Heckman and Paul A. LaFontaine

The high school graduation rate is a barometer of the health of American society and the skill level of its future workforce. Throughout the first half of the twentieth century, each new cohort of Americans was more likely to graduate from high school than the preceding one. This upward trend in secondary education increased worker productivity and fueled American economic growth .

In the past 25 years, growing wage differentials between high school graduates and dropouts increased the economic incentives for high school graduation. The real wages of high school dropouts have declined since the early 1970s while those of more skilled workers have risen sharply. Heckman, Lochner, and Todd show that in recent decades, the internal rate of return to graduating from high school versus dropping out has increased dramatically and is now above 50 percent. Therefore, it is surprising and disturbing that, at a time when the premium for skills has increased and the return to high school graduation has risen, the high school dropout rate in America is increasing. America is becoming a polarized society. Proportionately more American youth are going to college and graduating than ever before. At the same time, proportionately more are failing to complete high school.

One graduation measure issued by the National Center for Educational Statistics (NCES), the status completion rate - widely regarded by the research community as the official rate- shows that U.S. students responded to the increasing demand for skill by completing high school at increasingly higher rates. By this measure, U.S. schools now graduate nearly 88 percent of students and black graduation rates have converged to those of non-Hispanic whites over the past four decades.

A number of recent studies have questioned the validity of the status completion rate and other graduation rate estimators. They have attempted to develop more accurate estimators of high school graduation rates. Heated debates about the levels and trends in the true high school graduation rate have appeared in the popular press. Depending on the data sources, definitions, and methods used, the U.S. graduation rate has been estimated to be anywhere from 66 to 88 percent in recent years-an astonishingly wide range for such a basic statistic. The range of estimated minority rates is even greater-from 50 to 85 percent.

In an NBER Working Paper published in 2007 , we demonstrate why such different conclusions have been reached in previous studies. We use cleaner data, better methods, and a wide variety of data sources to estimate U.S. graduation rates. When comparable measures are used on comparable samples, a consensus can be reached across all data sources. After adjusting for multiple sources of bias and differences in sample construction, we establish that: 1) the U.S. high school graduation rate peaked at around 80 percent in the late 1960s and then declined by 4-5 percentage points; 2) the actual high school graduation rate is substantially lower than the 88 percent estimate; 3) about 65

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percent of blacks and Hispanics leave school with a high school diploma, and minority graduation rates are still substantially below the rates for non-Hispanic whites. Contrary to estimates based on the status completion rate, we find no evidence of convergence in minority-majority graduation rate Exclusion of incarcerated populations from some measures greatly biases the reported high school graduation rate for blacks.

These trends are for persons born in the United States and exclude immigrants. The recent growth in unskilled migration to the United States further increases the proportion of unskilled Americans in the workforce, apart from the growth attributable to a rising high school dropout rate.

As others have shown   , and we confirm, the most significant source of bias in estimating graduation rates comes from including GED recipients as high school graduates. GEDs are high school dropouts who certify as the equivalents of ordinary graduates by passing an exam. Currently 15-20 percent of all new high school credentials issued each year are GEDs. In recent years, inclusion of GEDs as high school graduates has biased graduation rates by upwards of 7-8 percentage points. A substantial body of scholarship summarized in our 2008 book   shows that the GED program does not benefit most participants, and that GEDs perform at the level of dropouts in the U.S. labor market. The GED program conceals major problems in American society.

The decline in high school graduation is of interest in its own right as a measure of the performance of American schools. It has important implications for interpreting a wide variety of educational statistics. The slowdown in the high school graduation rate accounts for a substantial portion of the recent slowdown in the growth of college educated workers in the U.S. workforce.   This slowdown is not due to a decline in rates of college attendance among those who graduate high school.

Table I performs standard growth accounting, decomposing the change in college graduation into the change attributable to high school graduation, the change in college attendance given high school graduation, and the change in college graduation given college attendance. It shows that the growth in college attendance and graduation for cohorts born before 1950 was fueled by growth in high school graduation. This contribution diminishes and turns negative for more recent cohorts of Americans.

The decline in high school graduation is greater for males than it is for females. Men now graduate from high school at significantly lower rates than women. For recent birth cohorts, the gap in college attendance between males and females is roughly 10 percent. However, the gap in college attendance given high school graduation is only 5 percent. Half of the growing gender gap in college going documented by Goldin, Katz, and Kuziemko   can be explained by declining rates of high school graduation.

Especially striking are the comparisons in graduation rates between minorities and whites. Our estimated black graduation rate is 15 percentage points higher than the 50 percent rate reported in some recent studies, but it is also 15 points lower than the NCES status completion rate. About 65 percent of blacks and Hispanics leave secondary schooling with a diploma. An additional 5 percent eventually receive a regular diploma through a variety of job training and adult education programs. According to the status completion rate, white and minority secondary completion rates have converged since the early 1970s. However, these estimates exclude those who are in prison and count GED recipients as graduates. We show that when we count GED recipients as dropouts (incarcerated or not), there is little convergence in high school graduation rates between whites and minorities over the past 35 years. A significant portion of the racial convergence commonly reported in the literature is due to black males obtaining credentials in prison. Research by Tyler and Kling and Tyler and Lofstrom shows that, when released, prison GEDs earn at the same rate as non-prison GEDs, and the GED does not reduce recidivism.

In the first half of the twentieth century, growth in high school graduation was the driving force behind increased college enrollments. The decline in high school graduation since 1970 (for cohorts born after 1950) has flattened college attendance and completion rates as well as growth in the skill level of the U.S. workforce. To increase the skill levels of its future workforce, America needs to confront a large and growing dropout problem.

The origins of this dropout problem have yet to be fully investigated. Evidence suggests a powerful role for the family in shaping educational and adult outcomes. A growing proportion of American children are being raised in disadvantaged families. This trend promises to reduce productivity and promote inequality in the America of tomorrow.

Table 1. Decomposition of the Sources of Change in College Graduation in the Cohorts Born Between 1900 and 1980 (Broken Down by Birth Cohorts 1900-1949 vs. Birth Cohorts 1950-1980)

Totals Pre- and Post 1950 Cohort	Change in College Graduation Rate due to Change in High School Graduation Rate	Change in College Graduation Rates Due to Change in College Attendance Given High School Graduation	Change in College Graduation Rate Due to Change in Finishing College Given Enrollment in College	Change Due to Interaction
Overall				
Birth Years 1900-1949	8.99 %	3.17 %	0.81 %	0.92 %
% of Total Change	64.71%	22.86%	5.80%	6.63%
Birth Years 1950-1980	-1.47%	6.70%	5.20%	0.03%
% of Total Change	-14.05%	64.02%	49.75%	0.28%
Males				
Birth Years 1900-1949	12.38%	3.81%	0.40%	0.35%
% of Total Change	73.10%	22.49%	2.36%	2.06%
Birth Years 1950-1980	-1.59%	2.90%	0.86%	2 0.08%
% of Total Change	-70.02%	128.26%	38.14%	2 3.63%
Females				
Birth Years 1900-1949	7.06%	3.69%	2.19%	0.78%
% of Total Change	51.44%	26.89%	15.98%	5.68%
Birth Years 1950-1980	-0.94%	9.50%	6.20%	0.65%
% of Total Change	-6.13%	61.70%	40.23%	4.20%

Source: Heckman and LaFontaine (2007), op cit.

*James J. Heckman is a Research Associate in the NBER's Program on Labor Studies and Henry Schultz Distinguished Service Professor of Economics at the University of Chicago. He is also affiliated with the American Bar Foundation and University College Dublin.

†Paul LaFontaine is affiliated with the American Bar Foundation.

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STRATEGIES AND ACTIVITIES FOR ELEMENTARY SCHOOL STUDENTS

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