

WORKING PAPER

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Educational Mobility in America: 1930s – 2000s

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Expanded Outline

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Introduction

Education emerged, over the course of the twentieth century, as America's key to opportunity and one of the main arbiters of success (Fischer and Hout 2006; Goldin and Katz 2007). For individuals, education is a human capital investment that improves the quality of life. For American society, equality of educational opportunity is an oft-stated goal. Equality of educational opportunity serves as a measure of the nation's progress toward fairness.

In the last fifteen years or so, scholars and other writers have expressed concern that rising wealth and income inequality threaten educational opportunity. The burgeoning assets and incomes of the affluent might enhance their ability to pursue higher education. Money confers choices that others cannot afford (e.g., Lucas 1997, 2002; Bowen, Kurzweil, and Tobin 2005; Douglass 2007; Massey 2007). Rising tuition might compound the problem for low-income families (Bowen et al. 2005).

Using data from the General Social Survey, we propose to present estimates of inequality in educational attainment and educational mobility for the cohorts who graduated from high school between 1926 and 2000. Specifically, in the first part of our chapter, we present trends across cohorts in the overall high school and college graduation rates.¹ In the second section we examine trends in high school graduation and college graduation by parents' educational attainment. We also present our results separately for men and women, respondents who grew up in two-parent and one-parent families, immigrants and natives, and racial ancestry groups. In the third section we plan to use logistic regression models to test specific hypotheses about these trends. While previous studies on educational inequality provide some guidance in building our models, it is difficult to ignore the undulations of the nonparametric regression lines that are fit to the data in the second section. While in the first three sections of our chapter we are primarily concerned with respondents' educational attainment and how high school graduation and college graduation

¹To bias that might creep in due to higher mortality of less-educated Americans, we restrict our analysis to those younger than 65 years old.

varies across categories of parental educational attainment, in the final section we compare the educational achievements of sons and daughters with those of their parents. We provide estimates of upward mobility, downward mobility, and immobility in parents' and children's educational achievements by gender, family type, nativity, and racial ancestry.

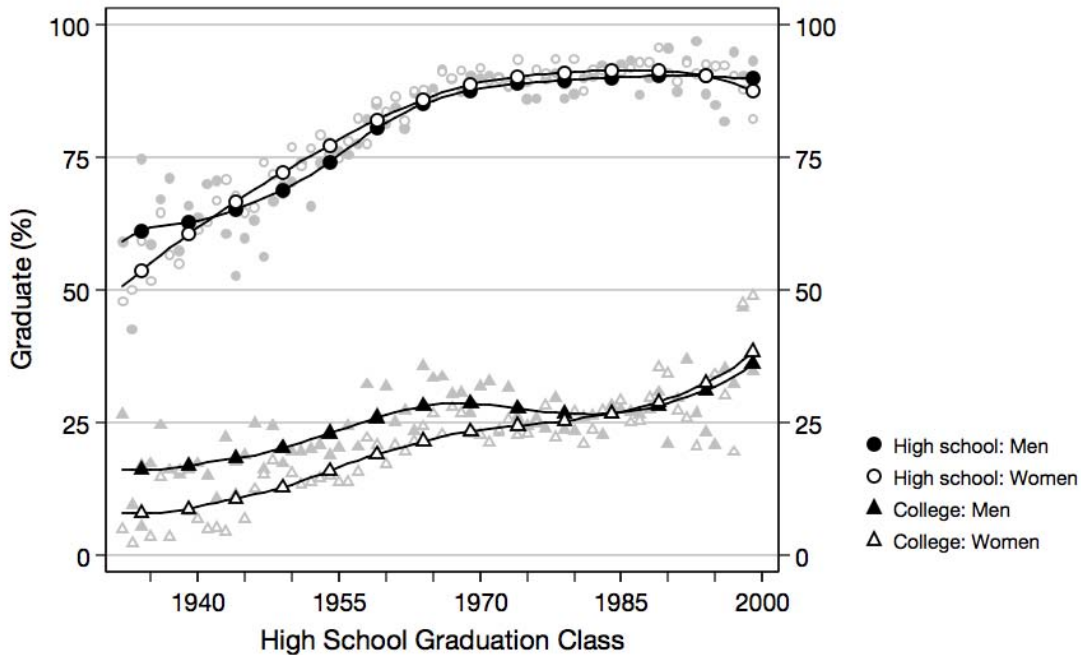
We find no evidence that inequalities in college opportunity have increased since 1977 (when economic inequality started rising). Yet all is not well. High school disparities rose sharply as young people whose parents had little education had an ever-harder time finishing high school.

Educational mobility across generations has declined in the last thirty years. The source was not a rising inequity in the distribution of educational opportunities so much as a shortfall of opportunities in the first place. The offspring of college graduates who sought to enter college this decade had the same quantitative advantage over their peers with less-educated parents as in the past. Educational mobility fell over the past thirty years because it got harder for everyone, regardless of parents' education, to get into college. For those who got in, graduating got harder at all but the best-administered colleges and universities because the course offerings did not keep up with enrollments. Time to degree rose and eventually drop out rose too.

This pattern of results contributes to the growing literature on supply problems in higher education. The "cohort squeeze" identified by Bound and Turner (2007) is illustrative. They show that young people from big cohorts are four to ten percent less likely to graduate than young people from small cohorts. That is because private institutions seldom consider cohort size in setting admissions targets. State universities do, but few have funding formulas that increase faculty and course offerings when enrollments rise. Thus private colleges and universities reject more applicants from big cohorts, and state universities run out of seats in gateway courses. The upshot has been a near standstill in graduation rates and a rising in the time to degree among graduates (Turner 2006).

Overall High School and College Graduation Rates

Graduation from high school and college rose dramatically across cohorts from the 1930s to the mid 1970s. High school graduation rose from 60 percent of men and 51 percent of women in 1933 to 89 percent of men and 90 percent of women in 1973. Since then both have flat-lined (see Figure



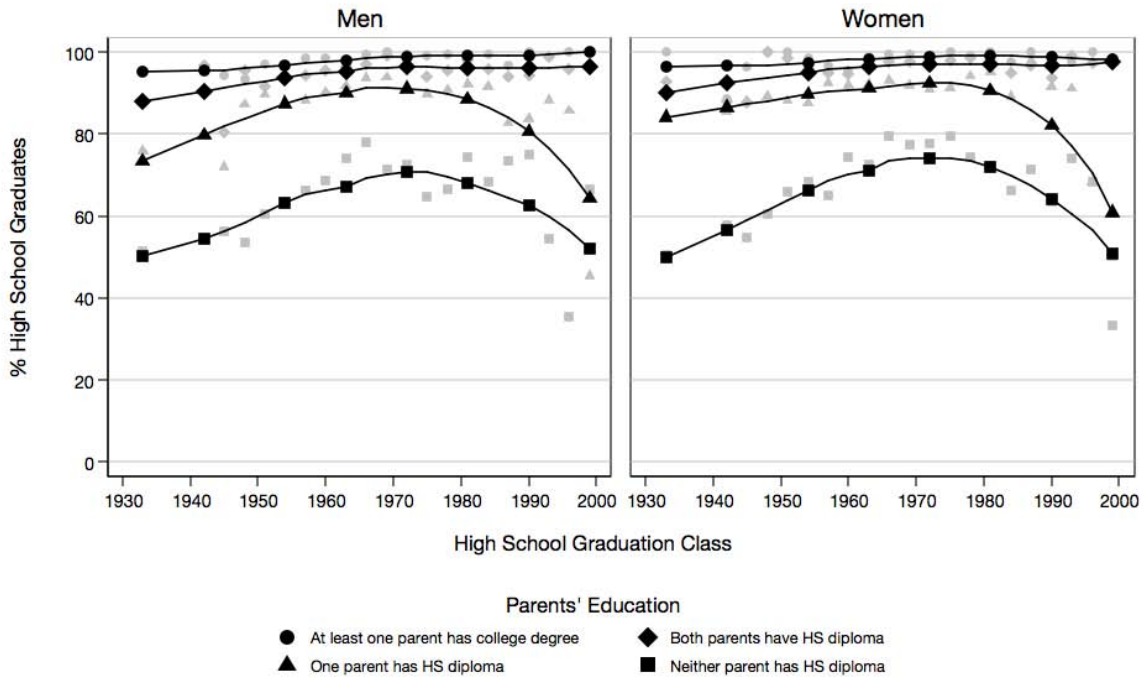
Note: Lines show trends smoothed by locally estimated (loess) regression; gray circles and triangles show the observed data. Source: General Social Surveys, 1972-2006.

Figure 1. Percentage Earning High School and College Diplomas by High School Graduating Class and Gender: Persons Born in the United States, 25-64 Years Old at Time of Interview.

1). College graduation rose from 16 percent of men and 8 percent of women in the high school class of 1933 to 28 percent of men and 24 percent of women in the class of 1973. Men’s college graduation rate actually peaked for the high school class of 1968 (men born in 1950) at 28 percent, declined slightly over a 17 year span, and resumed its climb in the last 12 cohorts to 36 percent most recently. Women’s rates pushed upwards throughout, but they also slowed in the late 1970s and through the 1980s. The precise values are uncertain in these data as we have, on average, just 200 observations per cohort. Fuller data sets yield similar trends, though the CPS yields estimates of both high school and college graduation that are three or four percentage points lower, topping out at 87 percent and 32 percent.

High School & College Graduation by Parents’ Education

As we saw in Figure 1, high school graduation rose from 60 to 85 percent between the 1935 and 1970. Even in the early years, high school graduation was over ninety percent among people with two educated parents (where “educated” means having a high school diploma or higher credential).

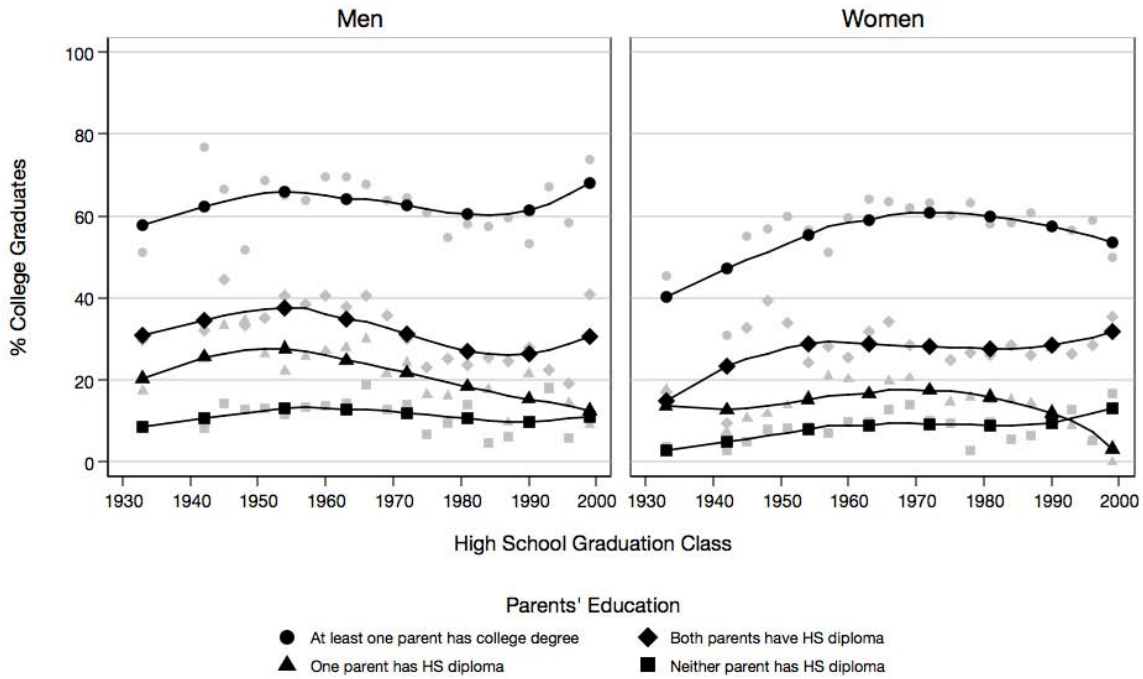


Note: Lines show trends smoothed by locally estimated (loess) regression; gray markers show the observed data.
 Source: General Social Surveys, 1972-2006.

Figure 2a. Percentage with High School Diploma by High School Graduating Class, Parents' Educations, and Gender: Persons 24-64 Years Old at Time of Interview.

People with just one educated parent – whether from parental absence or an educationally mixed marriage – saw their chances of high school graduation rise from 1935 to 1970, as did those who had no educated parents. Apportioning the rise in overall high school rates to differences among parental education categories and trends within parental education categories, we find that rising parental education accounts for almost 60 percent of the overall increase in high school graduation through 1970. That is, the momentum of earlier improvements carried forward into the lives of the succeeding generation, pushing high school graduation upward until 1970 or 1975. Since the late 1970s, however, the fortunes of people with less-educated parents substantially declined. The chances of getting a high school diploma fell from 87 percent to 61 percent for people with one high-school educated parent or less. We suspect that immigration and family break-up played a significant role in these changes. We will explore that as the analysis unfolds. For now, however, the fact remains on the table that U.S. adults with weak educational backgrounds are themselves less educated in recent cohorts than in cohorts that turned 18 years old in the 1970s.

College graduation also rose between 1935 and 1970, then leveled off. But the leveling off



Note: Lines show trends smoothed by locally estimated (loess) regression; gray markers show the observed data.
 Source: General Social Surveys, 1972-2006.

Figure 2b. Percentage with College Degree or Higher by High School Graduating Class, Parents' Educations, and Gender: Persons 24-64 Years Old at Time of Interview.

occurred at just below 30 percent graduating (compared with 90+ percent in the case of high school graduation). Substantial differences by parental education persisted throughout the 1935-1999 period of observation.

The educational trajectories of women and men through both the secondary and higher education systems diverged since the late 1970s. During the holding pattern of the 1980s and early 1990s, losses among men offset every gain by women. Both show progress overall in the most recent cohorts, but men's probability of graduating from college continues to decrease within categories of parents' education. Figures 3a and 3b show these trends. The gray circles, triangles, diamonds, and squares show the observed data; the lines show expected percentages from a nonparametric (loess) regression described below.

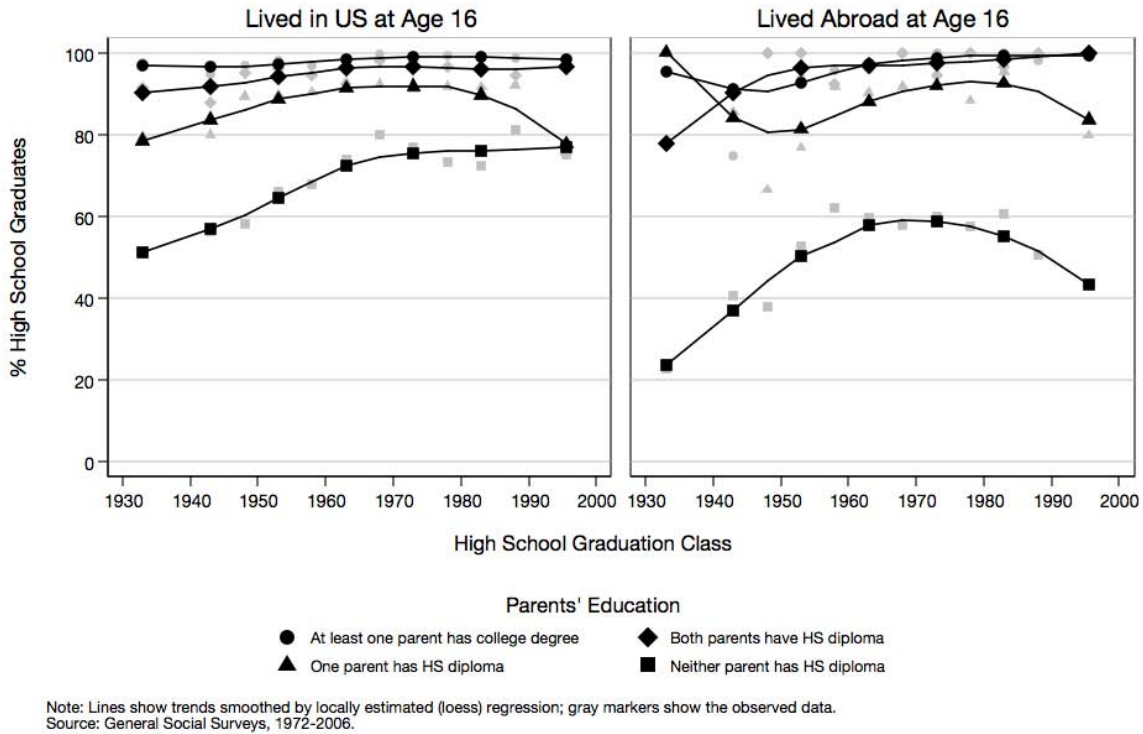
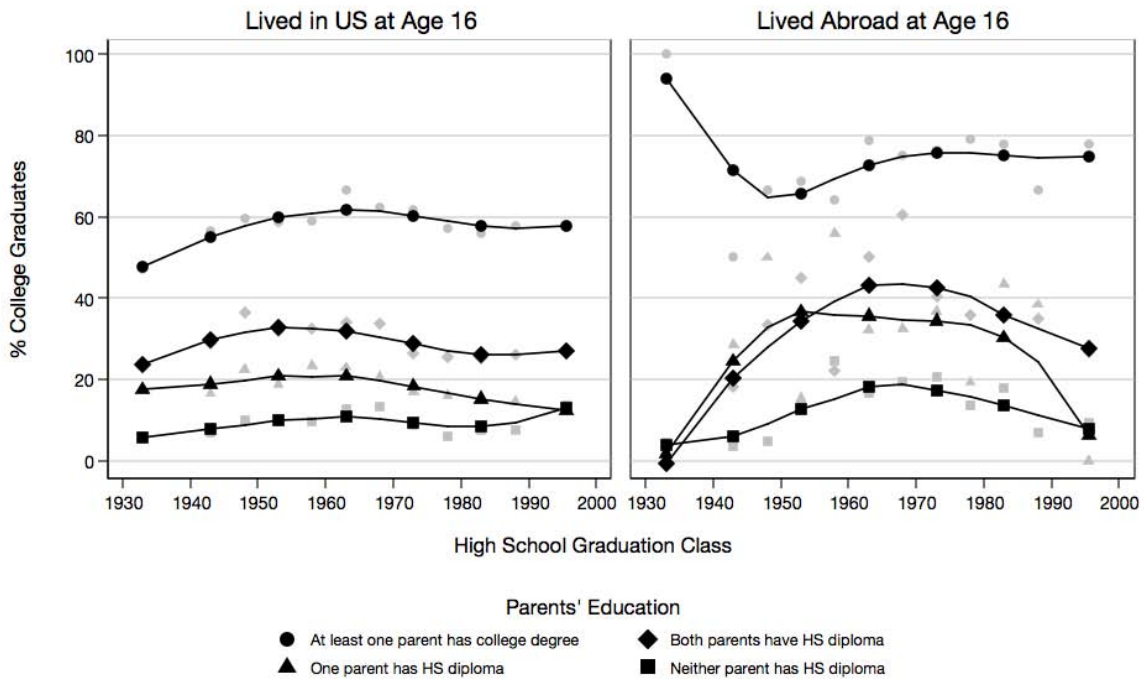


Figure 3a. Percentage with High School Diploma by High School Graduating Class, Parents' Educations, and Residence at Age 16 Years: Persons 24-64 Years Old at Time of Interview.

Next steps

We have begun the process of analysis by considering the similarities and differences we discover when we disaggregate the trends. In addition to gender, that we have already shown, we attach graphs that explore patterns by racial ancestry, nativity, and family structure. These are instructive and useful. The first lesson is the distinction between those who probably went to high school in the United States – those resident in the USA at age 16 – differ substantially from those living abroad (and presumably educated abroad). The differences by parents' educations are larger for the foreigners than for Americans. The downward trends in high school graduation is also far more pronounced for the foreigners. This suggests that the overall trends may reflect selective immigration more than an erosion of educational opportunity in this country. This will take much more work to nail down. But it is a working hypothesis worthy of the serious attention it will require.

Changing family structure is our other prime variable for consideration. The reason why people

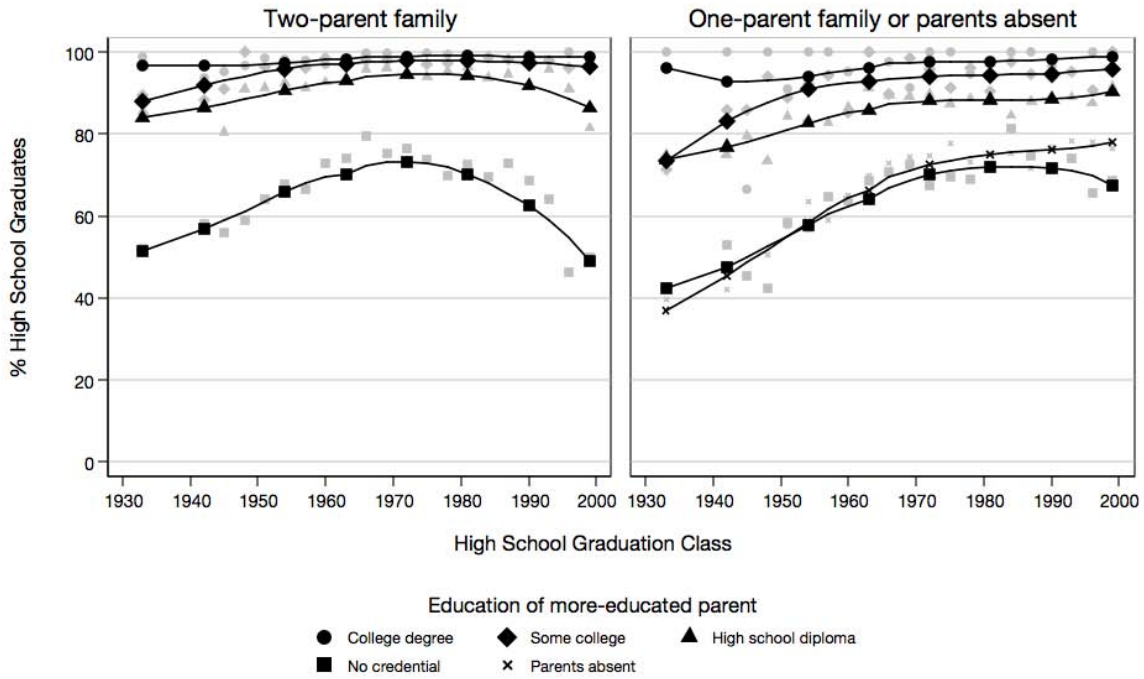


Note: Lines show trends smoothed by locally estimated (loess) regression; gray markers show the observed data.
 Source: General Social Surveys, 1972-2006.

Figure 3b. Percentage with College Degree or Higher by High School Graduating Class, Parents' Educations, and Residence at Age 16 Years: Persons 24-64 Years Old at Time of Interview.

have just one high school graduate parent changes across cohorts. In the early cohort, the main reason is because the non-graduate parent has less than 12 years of schooling completed. In more recent cohorts, it is because the education of an absent parent is unknown. This shows clearly in the trends in Figure 5. Of course family structure trends are more important for African Americans than others. For this and its intrinsic interest, we will give serious consideration to racial disparities in educational attainment.

To resolve the issue of absolute and relative impact of these factors – gender, nativity, family structure, and racial ancestry – we will need multivariate models of educational attainment. In searching for significant interaction effects, the charts here will be useful guides. We ran some very preliminary regressions to get going. These are appended for reference.



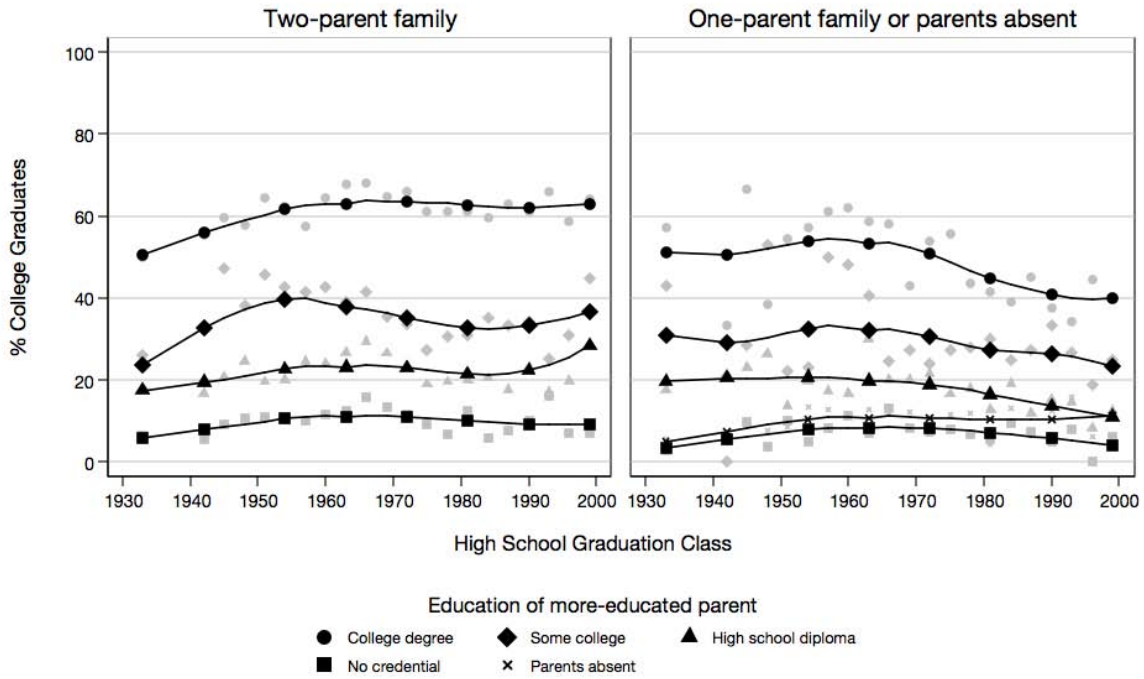
Note: Lines show trends smoothed by locally estimated (loess) regression; gray markers show the observed data.
 Source: General Social Surveys, 1972-2006.

Figure 4a. Percentage with High School Diploma by High School Graduating Class, Parents' Educations, and Family Structure at Age 16 Years: Persons 24-64 Years Old at Time of Interview.

Mobility, Marginals, and Correlation

The slowing trends in educational attainment imply less upward mobility and more downward mobility (unless fertility differentials by education are far larger than they have been for recent U.S. cohorts; see Maralani 2008). Mobility is the difference between a person's education and her or his parent's education.² During periods of accelerating upward trends, each generation leaves education farther ahead of their parents than previous generations were. But when trends decelerate, intergenerational gains do not accumulate as fast. Those generalities describe the American experience since the high school classes of the 1970s (see Figure 2). Upward mobility – defined as having more education than the more-educated parent – increased from 40 to 51 percent of men and women from the high school graduating classes of 1933 to 1958 (most of the increase occurred

²Descriptive statistics like percent mobile depend on which parent's education goes into the rate. The choices include father's education, mother's education, same-sex parent's education, or the education of the more-educated parent. We use the latter – the education of the more-educated parent – here.



Note: Lines show trends smoothed by locally estimated (loess) regression; gray markers show the observed data.
 Source: General Social Surveys, 1972-2006.

Figure 4b. Percentage with College Degree or Higher by High School Graduating Class, Parents’ Educations, and Family Structure at Age 16 Years: Persons 24-64 Years Old at Time of Interview.

before the class of 1950). Upward mobility for women fell back down to 40 percent in the early 1980s and leveled off just below 40 percent in recent cohorts. Upward mobility for men decreased more sharply and continuously to a low of just 28 percent in the most recent cohort. Table 1 shows the mix of upward and downward mobility in ten-year cohorts (the remainder of each cohort had the same education as their more-educated parent).³

Precise statements about the rates of upward and downward mobility depend not only on trends in the distribution of educational outcomes – what stratification researchers call the “destination marginal” – but also on the degree of association between a person’s education and that of his or her parents. In an unprecedented hypothetical world in which one generation’s educational distribution

³The details of the mobility estimates depend on our choice to define mobility as the difference between a person’s education and that of his or her more-educated parent. Calculations that use alternative baselines – father’s education, mother’s education, or same-sex parent’s education – imply the same qualitative conclusions that upward mobility increased very early in the time series and then fell (more for men than women) and downward mobility increased dramatically in recent years.

Table 1
 Percentage Mobile by High School Graduation Class,
 Mobility Direction, and Gender: U.S. Born Persons,
 25-64 Years Old at Time of Interview

<i>High School Graduation Class</i>	<i>Mobility Direction</i>			
	Upward		Downward	
	Men	Women	Men	Women
1928-1937	48	43	10	8
1938-1947	49	47	9	9
1948-1957	52	51	10	11
1958-1967	54	52	12	13
1968-1977	46	46	18	17
1978-1987	37	40	26	22
1988-1997	31	37	32	27
1998-2000	24	34	37	29

Source: General Social Surveys, 1972-2006.

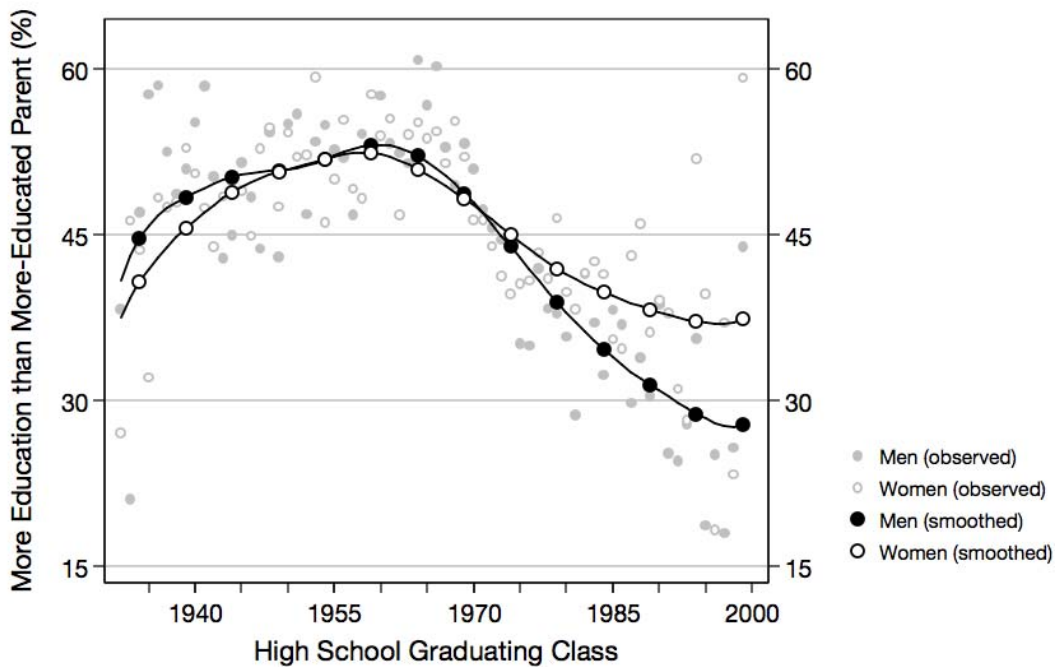
– destination marginal – perfectly matched that of the previous generation – the origin marginal – upward mobility would perfectly offset downward mobility. But how much of each would occur depends on the correlation between origins and destinations. Table 2 illustrates this for a simple {High / Medium / Low} educational classification.

Table 2
 Educational Mobility in Two Hypothetical Situations
 Both Have No Difference Between the Destination and Origin Marginals
 But They Differ in the Degree of Association Between Origins and Destinations

<i>Origin</i>	<u>Example A</u>				<i>Origin</i>	<u>Example B</u>			
	<i>Destination</i>					<i>Destination</i>			
	Low	Medium	High	Total		Low	Medium	High	Total
Low	200	25	25	250	Low	63	125	62	250
Medium	25	450	25	500	Medium	125	250	125	500
High	25	25	200	250	High	62	125	63	250
Total	250	500	250	1,000	Total	250	500	250	1,000

In Example A, the correlation is quite high ($r = .70$), and mobility is quite low. Just 7.5 percent of people in Example A are upwardly mobile, and 7.5 percent are downwardly mobile. In Example B, the correlation is almost zero ($r = .004$), and mobility is much higher. In B, 31.2 percent of people are upwardly mobile and another 31.2 percent are downwardly mobile.

In real societies, intergenerational mobility reflects the difference between the destination and origin marginals and the correlation between origins and destinations (Sobel, Hout, and Duncan 1985). If the destinations are, on average, higher than the destinations, upward mobility will exceed downward mobility, and vice versa, if destinations are lower then downward mobility will exceed upward mobility. But the exact amount of mobility depends on the correlation.



Note: Lines show trends smoothed by locally estimated (loess) regression; gray circles show the observed data.
Source: General Social Surveys, 1972-2006.

Figure 5. Percentage with More Education than Their Better-Educated Parent by High School Graduating Class and Gender: Persons Born in the United States, 25-64 Years Old at Time of Interview.

The less frequent upward mobility and more frequent downward mobility of recent cohorts necessarily reflects the slowdown of American higher education over the past thirty years. The question for this paper is whether a tightening correlation between educational origins and destinations compounds the changes implied by the marginals.

There is a third element in changing patterns of educational mobility. Educational origins move up in proportion to the previous generation's trends in educational attainment. The education of parents has improved faster than the education of the current generation for recent American cohorts. Table 3 illustrates this phenomenon by comparing the high school graduating classes of the 1950s and 1990s.

Table 3
Educational Mobility in Two American Cohorts: High School Graduating Classes
of the 1950s and 1990s, U.S. Born Persons, 25-64 Years Old at Time of Interview

<i>Education of more- educated parent</i>	<i>Education</i>						<i>Total</i>
	<i>High school class</i>	<i>(% of parents)</i>	<i>Some high school</i>	<i>High school diploma</i>	<i>Some college</i>	<i>College degree</i>	
Some high school	1950s	(52)	34	42	14	10	100
	1990s	(10)	23	39	31	8	100
High school diploma	1950s	(30)	8	46	25	21	100
	1990s	(32)	12	39	33	17	100
Some college	1950s	(8)	4	26	31	39	100
	1990s	(27)	4	21	47	28	100
College degree	1950s	(7)	2	15	29	54	100
	1990s	(18)	3	9	35	53	100
Advanced degree	1950s	(3)	2	10	20	68	100
	1990s	(14)	1	7	31	61	100
Total	1950s	(100)	21	39	20	20	100
	1990s	(100)	8	24	37	31	100

Note: Sample sizes are 3,511 for the high school class of the 1950s and 1,258 for the 1990s.
Source: General Social Surveys, 1972-2006.

The 1990s cohort (born 1972-1981) got more education than the 1950s cohort (born 1932-1941). Less than ten percent of the recent cohort failed to finish high school, compared with 20 percent of the earlier cohort; one-third of the 1990s cohort had a college degree by age 25 compared with 20 percent of the 1950s cohort. The 1990s cohort was much less upwardly mobile, though, than the 1950s cohort. In the recent cohort upward and downward mobility were about the same, 33 and 30 percent, respectively; in the earlier cohort upward mobility exceeded downward mobility by a wide margin, 52 percent up compared with 10 percent down. The correlation between origins and destinations was virtually unchanged; $r = .45$ in the 1950s cohort and $.46$ in the 1990s cohort. The key difference between the two cohorts is that in the recent one, the distribution of educational destinations was indistinguishable from that of educational origins while in the 1950s cohort educational destinations far outpaced educational origins. The slowdown in the expansion

of college opportunities made it far harder for the 1990s cohort to achieve more education than their parents had. The 1950s cohort entered secondary school just as American higher education was taking off; their opportunities exceeded their parents' by a very wide margin.

A preliminary bibliography is attached.

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Table 4
 Logit Regression Coefficients and Fit Statistics for Regression from
 Models of Graduation by Level of Education and Gender:
 U.S. Born Persons, 25-64 Years Old at Time of Interview

<i>Independent variable</i>	<i>Level of Education</i>			
	High School		College	
	Men	Women	Men	Women
Father's education	.650*	.650*	.477*	.477*
	(.090)	(.090)	(.015)	(.015)
Mother's education	.650*	.834*	.477*	.477*
	(.090)	(.104)	(.015)	(.015)
Parent's education missing	.577*	.577*	.337*	.337*
	(.056)	(.056)	(.054)	(.054)
<u>High school graduating class</u>				
1918-1932	-1.639*	-1.639*	.683	-1.210
	(.394)	(.394)	(.797)	(.710)
1933-1947	-.708*	-.708*	.346	-.759*
	(.178)	(.178)	(.197)	(.187)
1948-1962	-.195	-.195	.518*	-.138
	(.174)	(.174)	(.178)	(.155)
1963-1977	.297	.297	.473*	.003
	(.173)	(.173)	(.174)	(.148)
1978-1992	.257	.257	.065	-.066
	(.177)	(.177)	(.170)	(.145)
1993-2000	.000	.000	.000	.000
	—	—	—	—
<u>Parents' educations × high school graduating class</u>				
1918-1932	.442	.442	.347	.347
	(.612)	(.612)	(.201)	(.201)
1933-1947	.257*	.257*	.134*	.134*
	(.114)	(.114)	(.050)	(.050)
1948-1962	.361*	.361*	.075*	.075*
	(.102)	(.102)	(.025)	(.025)
1963-1977	.230*	.230*	.020	.020
	(.095)	(.095)	(.019)	(.019)
1978-1992	.126	.126	.000	.000
	(.098)	(.098)	—	—
1993-2000	.000	.000	.000	.000
	—	—	—	—
Constant	.929*	1.085*	-2.397*	-2.193*
	(.176)	(.175)	(.171)	(.144)
-2 log pseudolikelihood	16,568.01		24,228.47	
Number of cases	25,384		25,384	

* $p < .05$.

Note: High school graduating class equals year of birth plus 18.

Source: General Social Surveys, 1972-2006.