When Labor's Lost: Health, Family Life, Incarceration, and Education in a Time of Declining Economic Opportunity for Low-Skilled Men

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The economic progress of US men has stagnated in recent decades. The labor force participation rate of men ages 25–54 peaked at 97 percent in the mid-1960s and has declined by roughly eight percentage points since then (according to the Bureau of Labor Statistics), while men's real median earnings have been flat since the early 1970s (Fontenot, Semega, and Kollar 2018, figure 2). These population averages mask considerably larger declines in participation among less-educated and non-white men (as discussed in this symposium by Binder and Bound) as well as substantial increases in wage inequality (Autor, Katz, and Kearney 2008). The decline in economic opportunities for low-skilled men and the possible negative effects of this trend on their well-being is a matter of increasingly urgent concern for policymakers and the general public.

In this paper, we seek to illuminate the broader context in which prime-age men are experiencing economic stagnation. We explore changes for prime-age men over time in education, mortality, morbidity, disability program receipt, family structure, and incarceration rates. We focus on prime-age men, namely those ages 25–54, and on the years 1980–2016 (or 2017 when possible), encompassing much of the period of reduced economic progress for low-skilled men. Where possible, we examine trends by education, and in some cases, draw comparisons between

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men and women or highlight trends by race and ethnicity or geography. In the concluding discussion, we explore the relevance of these trends in the context of men's economic stagnation. Some of the key indicators that we discuss may be affected by men's sluggish economic progress or play a role in explaining it, or both. While establishing causality for such a wide range of health and other outcomes is inherently difficult, we will discuss some of the clues provided by recent research.

Our approach is consistent with Case and Deaton's (2017) theory of "cumulative disadvantage." While their approach was motivated by a rise in "deaths of despair" from drug poisonings, suicide, and alcohol-related liver disease, particularly among less-educated, non-Hispanic whites, they posit that worsening labor market opportunities for successive cohorts of less-educated whites affect and are affected by a cluster of factors including health, education, and marriage and family outcomes.

We build on their findings while considering additional measures of well-being among prime-age men and also highlighting some positive developments during the latter half of our analysis period. Interestingly, these more recent developments have tended to benefit white prime-age men much less than other men in the 25–54 age range.

Educational Attainment

Gains in the educational attainment of prime-age males have slowed over time. As illustrated in Table 1, between 1980 and 2000, men ages 45–54 (of all races) experienced a 22 percentage point decline in the share that were high school dropouts, as well as a 15-point increase in the share with some college and a 12-point increase in the share with a college degree. This reflects the fact that men in the first half of the Baby Boom cohort (those born between 1946 and 1955, who were ages 45–54 in 2000) had very different levels of educational attainment than those born 20 years earlier. By contrast, changes between 2000 and 2017 were minimal, as men born nearly two decades later (between 1963 and 1972, or roughly in the first half of the Generation X cohort) made similar educational choices as had the earlier cohorts. Recently, there has been a more modest increase in men's education, as the share of men ages 25–34 with a college degree grew by 5 percentage points between 2000 and 2017, indicating that birth cohorts from the Millenial generation are slightly more likely to seek higher education than were Gen Xers.

Gains in educational attainment for men have also lagged behind gains for women in recent years. In 1980, the share of men age 25–34 with a college degree exceeded the share of women with such a degree by 7 percentage points (28 percent for men versus 21 percent for women). But in the mid-1990s, the share of women ages 25–34 with a college degree surpassed that of men, and by 2017, this gender gap had grown to 7 percentage points in favor of women (34 for men versus 41 percent for women). Jacob (2002) finds that among a cohort making these decisions in the

Table 1
Educational Attainment, Men Ages 25–54, by Race, 1980 to 2017

Age group	Education level	1980	2000	2017	Change, 1980–2000 (in percentage points)	Change, 2000–2017 (in percentage points)
All Men						
25–34	< High school	14%	13%	9%	−1	−4
	High school	35%	32%	29%	−3	−3
	Some college	23%	26%	28%	+3	+2
	College	28%	29%	34%	+1	+5
35–44	< High school	22%	12%	11%	−10	−1
	High school	37%	35%	28%	−2	−7
	Some college	17%	26%	25%	+9	−1
	College	25%	27%	36%	+2	+9
45–54	< High school	33%	12%	11%	−22	−1
	High school	34%	29%	32%	−6	+4
	Some college	12%	27%	24%	+15	−3
	College	20%	32%	33%	+12	0
Black Men						
25–34	< High school	25%	12%	10%	−12	−3
	High school	39%	41%	34%	+2	−8
	Some college	24%	28%	35%	+4	+7
	College	12%	18%	22%	+6	+3
35–44	< High school	37%	12%	10%	−26	−1
	High school	41%	42%	35%	0	−7
	Some college	14%	30%	29%	+15	0
	College	7%	17%	26%	+10	+8
45–54	< High school	60%	19%	11%	−41	−8
	High school	25%	34%	40%	+8	+6
	Some college	8%	28%	28%	+20	−1
	College	7%	19%	22%	+12	+2

Source: Authors using data from the Current Population Survey.
Note: Changes listed may differ slightly from implied changes due to rounding.

mid-1990s, differences in the return to attending college and in noncognitive skills[1] accounted for the vast majority of the female advantage in college attendance.

There have also been differential gains in educational attainment by race. As shown in Table 1, the share of black men ages 45–54 who had not completed high school fell by nearly 50 percentage points between 1980 and 2017, more than twice the decline for all men. Similarly, black men in each of the three age groups had larger increases in the share with some college or with a college degree between

[1] Noncognitive skills include the ability to pay attention in class, work with and seek help from others, and organize.

1980 and 2017 than did US men as a whole. While there remains a racial gap in educational attainment, its magnitude shrank considerably during this era.[2] Trends for native-born Hispanics during this time period were similar to those for blacks (Ryan and Bauman 2016).

Given the steady increase in the return to a college degree during our study period (Card and Lemieux 2001), one might have expected prime-age men to respond—as women appear to have done (Jacob 2002)—by attending college and community college in greater numbers. The much slower increase in educational attainment among men during the 1980–2017 period partially explains why the earnings of full-time male workers actually fell by 1 percent (in real terms) during this nearly 40-year period while earnings of full-time female workers increased by 32 percent (Fontenot, Semega, and Kollar 2018). The fact that men ages 25–34 experienced larger gains in educational attainment in the period since 2000 than between 1980 and 2000 is consistent with more recent cohorts of men responding to increasing (or increasingly evident) returns to education, but further research is needed to establish this pathway.

Mortality

According to mortality rates, which are probably the most widely used measure of health, the health of prime-age men steadily improved during the 1980s and 1990s. As shown in Table 2, between 1980 and 2000, mortality rates among men ages 25–34, 35–44, and 45–54 declined at annual rates of 1.7 percent, 0.8 percent, and 1.7 percent, respectively. Weighting each of these three age groups equally to reduce sensitivity to changes in the age distribution over time, the mortality rate among men ages 25–54 fell at an annual rate of 1.5 percent, from 421 per 100,000 in 1980 to 312 per 100,000 in 2000, a 26 percent decline.[3] This was larger than the corresponding drop of 20 percent among prime-age women during the same period. Despite this differential improvement, prime-age men still had an 80 percent higher mortality rate than prime-age women in 2000.

The substantial reduction in mortality among prime-age men did not continue in the subsequent years, with the mortality rate falling by less than 2 percent (from 312 to 307 per 100,000) from 2000 to 2016. This overall change masks substantial heterogeneity among the three age groups. Perhaps most strikingly, the mortality rate among men ages 25–34 increased by 28 percent (from 139 to 178 per 100,000) during this 16-year period, corresponding to an annual growth rate of 1.6 percent.

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[2]Western and Pettit (2000) caution that the exclusion of incarcerated persons from the Current Population Survey may lead to an overestimate of the rise in black men's education, as incarceration rates for black men have risen over time and incarcerated black males tend to have lower levels of education than non-incarcerated black males.

[3] Gelman and Auerbach (2016) argue for using even finer age adjustments when assessing mortality trends, as a population shift within a given age group—for example, having fewer 45 year-olds and more 54 year-olds—can affect the mortality rate within even a narrowly-defined group.

Table 2

Male Mortality Rates by Age and Cause, Ages 25 to 54, 1980 to 2016

	Annual Mortality Rates per 100,000			*Annual % change*	
	1980	*2000*	*2016*	*1980–2000*	*2000–2016*
By Age					
25 to 34	196	139	178	–1.7%	+1.6%
35 to 44	299	255	244	–0.8%	–0.3%
45 to 54	767	543	498	–1.7%	–0.5%
By Race[a]					
Black	859	577	429	–2.0%	–1.8%
White	376	285	301	–1.4%	+0.3%
Hispanic[b]	–	257	212	–	–1.2%
Non-Hispanic White[b]	–	285	320	–	+0.7%
By Cause[a]					
Heart disease	121	64	53	–3.2%	–1.2%
Cancer	82	58	42	–1.8%	–2.0%
Accidents	65	48	76	–1.4%	+2.9%
Suicides	24	22	27	–0.4%	+1.5%
Homicides	25	11	14	–3.9%	+1.2%
HIV/AIDS	0	15	4	–	–8.3%
All other	105	94	91	–0.5%	–0.2%
Total	421	312	307	–1.5%	–0.1%

Source: Authors using data from Centers for Disease Control and Prevention, National Center for Health Statistics at https://www.cdc.gov/nchs/hus/contents2017.htm.
[a] The mortality rate for men ages 25–54 is computed as a simple average of the rate for men ages 25–34, 35–44, and 45–54, to minimize the effect of changing age distribution of the population over time.
[b] Mortality data is not available by Hispanic ethnicity status in 1980.

While mortality rates did fall for men ages 35–44 and 45–54, the annual rate of decline was much slower than it was from 1980 through 2000.

A closer examination of the changes in prime-age mortality rates by cause, as reported in Table 2, helps to explain these patterns. From 1980 to 2000, more than half of the improvement for prime-age men was driven by falling heart disease mortality, while nearly one-fourth was the result of an impressive reduction in cancer mortality. The rest was explained primarily by large reductions in homicides and in accidental (primarily motor vehicle) deaths. The only notable increase in cause-specific mortality during this time period was for HIV/AIDS, which accounted for more deaths than homicides by 2000.

From 2000 to 2016, the pace of improvement in heart disease mortality slowed considerably, with the annual mortality rate falling by just 11 deaths per 100,000 between 2000 and 2016 (versus a drop of 57 deaths per 100,000 between 1980 and 2000). The death rate from accidents rose substantially, with this entirely driven by an increase in drug overdose deaths, which nearly quadrupled—from 12 to 45 per 100,000—between 2000 and 2016, even as mortality from motor vehicle and other accidents fell modestly. In addition, there was an increase in both the suicide rate and in the homicide rate, both of which had declined between 1980 and 2000. Offsetting

these increases were declines in cancer mortality, which continued at a pace similar to that seen in the earlier period, as well as a remarkable 75 percent decline in the mortality rate from HIV/AIDS, which went from being the fifth most common cause of death among prime-age men in 2000 to the tenth most common in 2016.

These trends in mortality by cause of death also explain why young men fared substantially worse in the more recent period. Mortality rates from drug overdose and suicide as well as the increase in these rates between 2000 and 2016 are very similar across all age groups. By contrast, men ages 45–54 die from heart disease and cancer at rates more than ten times those of men 25–34. Thus, declines since 2000 in heart disease mortality (albeit smaller than those seen in earlier periods) and in cancer mortality have been sufficient to outweigh increases in drug overdose and suicide deaths for men 35–54, but not for men 25–34.

Mortality trends since 2000 have varied substantially by race and ethnicity, as highlighted by Case and Deaton (2015, 2017). For example, the mortality rate among black prime-age men declined at a similar rate before and after 2000 (2.0 percent annually from 1980 to 2000 versus 1.8 percent annually from 2000 to 2016). By contrast, the mortality rate among white prime-age men increased by 0.3 percent annually after 2000 versus a 1.4 percent annual decline in the preceding 20 years. One of the most important drivers of this difference was the differential benefit from declining HIV/AIDS mortality. Black prime-age men were seven times more likely than white prime-age men in 2000 to die from HIV/AIDS (65 versus 9 per 100,000), and thus benefitted far more from the subsequent plunge in the HIV/AIDS mortality rate.

In addition, black men saw much smaller increases in the suicide rate (7 percent versus 32 percent for white men) and were much less likely to commit suicide initially. As a result, white men are now more than twice as likely as black men to commit suicide (31 versus 13 per 100,000). Finally, the death rates from (primarily drug- and alcohol-induced) accidents increased by five times as much among white prime-age men as among black men of the same age. Thus, even though black men have been more affected by the increase in the homicide rate since 2000, this change is dwarfed by trends in the combination of HIV/AIDS, drug- and alcohol-induced accidents, and suicides.

For Hispanic or Latino prime-age males, mortality rates fell by 1.2 percent annually from 2000 to 2016, while the corresponding rate among their non-Hispanic white counterparts rose by 0.7 percent annually.[4] As a result of these changes, mortality rates among white, non-Hispanic prime-age males are now more than 50 percent higher than among Hispanic prime-age males (320 versus 211 per 100,000).

The adverse mortality trend for white non-Hispanic men is stronger among those with low levels of education, Case and Deaton (2017) find that mortality rates have risen over the past two decades among prime-age white non-Hispanic men without a college degree, while holding steady or declining for their counterparts with a college degree. One challenge for assessing how mortality changes have

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[4] The Centers for Disease Control did not collect data on ethnicity in 1980, so it is not possible to compare the 1980–2000 trends with the 2000–2016 trends for these two groups.

Table 3

Male Mortality Rates among White, Non-Hispanic Males Aged 25–54, by State Education Quartile, 2000 and 2016

State education quartile	% without HS degree	Annual mortality rates per 100,000		
		2000	2016	% Change
1	10%	257	265	+2.8%
2	13%	262	296	+12.9%
3	17%	275	329	+19.7%
4	23%	334	400	+19.6%

Source: Authors using data from the US Census, CDC Wonder.
Note: Changes listed may differ slightly from implied changes due to rounding.

differed by educational attainment is that the fraction of men who are high school dropouts has fallen substantially over time (as shown earlier in Table 1). Differential changes in mortality by education in recent decades thus could be driven by changes in the composition of individuals in each education group—that is, high school dropouts becoming more adversely selected—rather than by differential changes in each group's mortality rate. To address this issue, Bound, Geronimus, Rodriguez, and Waidmann (2014) categorize individuals by their rank in each year's educational attainment distribution and show that from 1990 to 2010 the life expectancy at age 25 of non-Hispanic white males in the bottom quartile of educational attainment rose by three years less than in the top three quartiles (a six-year increase versus a three-year increase). These findings imply that low-skilled men have fallen further behind high-skilled men with respect to this key measure of health.[5]

An alternative way to examine the relationship between education and mortality changes is to compare trends in geographic areas with lower levels of educational attainment with those with greater attainment. Consistent with the evidence from Bound et al. (2014), mortality rates among prime-age men rose by substantially more from 2000 to 2016 in states with low levels of education. Table 3 groups all 50 states and the District of Columbia into four quartiles based on the share of non-Hispanic white men aged 25–54 who were without a high school degree in 2000. As Table 3 shows, mortality rates were already higher in states with the most low-skilled men in 2000. This disparity increased significantly in the subsequent years, with mortality rising by just 3 percent in the state with higher levels of education such as California and Washington, DC, compared with a 20 percent increase in the states with lower levels of education such as West Virginia and Kentucky.[6]

Establishing whether there is a link between the rise in mortality for low-skilled men—particularly the increase in "deaths of despair"—and economic conditions

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[5]Consistent with this finding, Chetty et al. (2016) find that life expectancy of 40-year old males in the highest income quartile increased by 2.6 years from 2001 to 2014 versus only 1.0 years among 40 year-old men in the lowest income quartile.
[6]For an in-depth analysis of mortality trends by state, see US Burden of Disease Collaborators (2018).

is an active area of research. Pierce and Schott (2016) find that the lowering of trade barriers with China around 2000 led to substantial increases in both suicide and opioid overdose mortality rates, with larger effects in trade-exposed counties with a higher share of less-educated men, reflecting the policy's larger employment effects on this group. This is consistent with Case and Deaton (2017), who find that increases in reports of pain (which is often treated with opioids) since the mid-1990s have occurred exclusively among the less educated. Ruhm (2018) argues that the rise in opioid use is more strongly related to drug access (the "drug environment") than to economic conditions. Krueger's (2017) surprising finding that nearly half of prime-age men who are out of the labor force take pain medication on a daily basis does not establish the direction of causality between employment and opioid use, but does underscore the importance of future research that might do so.

Morbidity, Self-Reported Health Measures, and Disability Insurance

Health measures other than mortality may capture health issues that are more prevalent among prime-age men and potentially more pertinent to labor force participation. On Table 4, we report values for a variety of measures frequently used in the literature on health and disability trends, including self-reported health, work-limiting disability, physical limitations, limitations in Activities of Daily Living (ADLs) or in Instrumental Activities of Daily Living (IADLs), and obesity, using data from the National Health Interview Survey (NHIS).

Health problems rise with age, as expected, although their incidence depends on the measure used. In 2000, the share of men without a high school degree who report themselves to be in fair or poor health triples from 6 percent at ages 25–34, to 18 percent at ages 45–54; the share reporting a work-limiting disability is similar. The same age pattern exists for the other health measures, but the share of men without a high school degree reporting ADL or IADL problems (1 to 3 percent) is much lower and the share reporting physical limitations (14 to 34 percent) or obesity (22 to 29 percent) is much higher.

There is a steep health gradient with respect to education—within each age group, the share in fair or poor health is roughly 2.5 times as large for men with a high school education or less than for men with some college or more. Men with less education are similarly more likely to report having a work-limiting disability, limitations in physical activity or ADLs/IADLs, and obesity, although the relative differences are somewhat smaller for physical limitations and obesity (about 1.3 times as large). Interestingly, for ADL/IADL difficulty, there is some indication that the education gradient is larger (on a relative basis) for young men than for older men.

Men's health, as captured by these measures, is getting worse over time. As seen in Table 4, the fraction of men reporting a health problem is higher in 2015 than in 2000 in nearly every case. On a relative basis, increases are greatest for ADL and IADL difficulties, which had the lowest values initially but saw increases of about

Table 4

Health Measures, Men Ages 25 to 54, 2000 and 2015

Health measure	Age group	Education group	Share with condition 2000	2015	Change 2000–2015 (percentage points)
Fair/Poor health	25–34	HS or less	5.8%	8.4%	2.6
		>HS	2.3%	3.7%	1.4
	35–44	HS or less	9.4%	12.0%	2.5
		>HS	3.7%	5.0%	1.3
	45–54	HS or less	17.7%	18.6%	0.9
		>HS	6.5%	7.7%	1.2
Work-limiting disability	25–34	HS or less	5.9%	8.3%	2.4
		>HS	2.6%	2.9%	0.3
	35–44	HS or less	8.9%	9.7%	0.7
		>HS	4.7%	3.8%	−0.9
	45–54	HS or less	15.1%	16.0%	0.9
		>HS	7.4%	7.5%	0.1
Physical limitations	25–34	HS or less	13.9%	18.8%	4.8
		>HS	11.2%	11.4%	0.2
	35–44	HS or less	21.3%	26.0%	4.7
		>HS	17.4%	18.4%	1.0
	45–54	HS or less	33.5%	38.0%	4.5
		>HS	24.5%	27.4%	2.9
ADL Difficulties	25–34	HS or less	0.6%	1.3%	0.7
		>HS	0.2%	0.3%	0.2
	35–44	HS or less	0.9%	1.6%	0.7
		>HS	0.4%	0.4%	0.0
	45-54	HS or less	1.4%	1.7%	0.3
		>HS	0.5%	0.9%	0.5
IADL Difficulties	25–34	HS or less	1.3%	2.4%	1.0
		>HS	0.3%	0.8%	0.5
	35–44	HS or less	1.7%	2.9%	1.2
		>HS	0.7%	0.8%	0.1
	45–54	HS or less	3.0%	3.7%	0.7
		>HS	1.1%	1.7%	0.6
Obesity	25–34	HS or less	21.8%	27.7%	5.9
		>HS	16.8%	22.6%	5.9
	35–44	HS or less	24.5%	35.3%	10.8
		>HS	19.5%	29.1%	9.7
	45–54	HS or less	28.7%	36.6%	7.9
		>HS	21.4%	32.5%	11.1

Source: Authors using data from the National Health Interview Survey (NHIS).
Note: HS is "high school." All measures rely on self-reported data. Data is reported for 2000 and 2015 only due to a NHIS redesign in 1997. Data are aggregated over a 3-year period (1999–2001 or 2014–2016) to minimize sampling variation; data are weighted to reflect population values. Fair/poor health is based on self-reported health. Work limitations, physical limitations, and ADL/IADL difficulties refer to the share reporting any level of difficulty with work, physical activity, or Activities of Daily Living/Instrumental Activities of Daily Living (ADL/IADL). For physical limitations, the nine physical activities include: walking a quarter mile, climbing ten steps, standing two hours, sitting two hours, stooping/bending/kneeling, reaching over one's head, grasping small objects, carrying ten pounds, and moving large objects. For ADLs, the six activities include: bathing, dressing, eating, toileting, getting around the house, and getting in and out of a bed or chair. The IADL measure is based on a single question about difficulty with routine needs such as such as everyday household chores, doing necessary business, shopping, or getting around for other purposes. Obesity is defined as having a Body Mass Index (BMI) over 30. Changes listed may differ slightly from implied changes due to rounding.

70 percent relative to baseline. For the other health measures, the increases are about 10 percent for work and physical limits and 30 to 40 percent for self-reported health and obesity. Using an earlier version of this data, Duggan and Imberman (2009) find a small increase in work and activity limitations among prime-age men from 1984 to 1996, while Martin and Schoeni (2014) show that the increase in limitations is partly explained by the rise in body mass index.

Although the recent changes represent sizeable increases over a relatively short period, the absolute share of the population reporting the most serious health problems, such as ADL difficulties, generally remains low. In comparing changes in mortality and morbidity, it is interesting to note that mortality improved from 1980 to 2000 but the trend reversed after 2000 for younger men and non-Hispanic less-educated whites, while morbidity has worsened continuously since 1980 and more so for the less educated.

The increases over time in reports of health problems are generally larger in absolute terms for less-educated men. On a relative basis, the pattern is less uniform. Even so, the larger absolute increases for less-educated men could contribute to divergences in labor force participation, although the changes in health reported here are significantly smaller than the changes in labor force participation (discussed in Binder and Bound in this symposium).

Receipt of disability benefits is also of interest, because it may be related to health through the medical eligibility requirement, yet also potentially subject to influence by economic factors and by political decisions about eligibility standards. Approximately 3 million prime-age men (4.5 percent of the total) currently receive Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) benefits, which provide cash benefits to individuals unable to engage in substantial gainful activity. Average monthly benefits among nonelderly adult males enrolled in the SSDI and SSI programs are approximately $1,300 and $600, respectively. SSDI and SSI recipients also typically qualify for health insurance through the federal Medicare and federal-state Medicaid programs, respectively. Individuals must have worked in at least five of the ten most recent years to be potentially eligible for SSDI benefits, while no work history is required for the means-tested SSI program.

The fraction of prime-age men receiving benefits from the Social Security Disability Insurance and Supplemental Security Income programs declined somewhat in the early 1980s and then rose steadily for decades (in this journal, Liebman 2015). For example, Table 5 shows that the fraction of men 45–54 receiving SSDI benefits fell from 4.1 percent to 3.4 percent in the first few years of the 1980s and then rose steadily to 5.7 percent by 2010. SSI enrollment followed a similar pattern over this period, with SSI receipt higher than SSDI receipt among those ages 25–34 and lower among those ages 35–54.

One driver of these changes in enrollment is changes in the medical eligibility criteria. The criteria for both Social Security Disability Insurance and Supplemental Security Income became much more stringent in the late 1970s and early 1980s and then much more lenient beginning in 1984. Before 1984, the most common conditions with which individuals qualified for SSDI benefits were circulatory conditions

Table 5

**Social Security Disability Insurance (SSDI) and Supplemental
Security Income (SSI) Enrollment, Men Ages 25 to 54, 1980 to 2017**

		Share of men enrolled				
Program	*Age group*	*1980*	*1984*	*2000*	*2010*	*2017*
SSDI	25–34	0.8%	0.8%	0.9%	1.2%	0.9%
	35–44	1.7%	1.8%	2.4%	2.5%	2.2%
	45–54	4.1%	3.4%	4.8%	5.7%	5.0%
SSI	25–34	0.9%	0.9%	1.6%	2.5%	2.7%
	35–44	0.8%	0.8%	1.7%	1.8%	1.8%
	45–54	1.4%	1.5%	2.0%	2.3%	2.5%

Source: Authors using data from Social Security Administration (for SSDI and SSI enrollment) and U.S. Bureau of the Census (for population for denominators of the rates).

(for example, heart attacks and stroke) and cancer. Then, with the 1984 changes, it became easier for individuals with relatively subjective conditions such as back pain and depression to qualify for the program and the award rates for these conditions increased substantially.

Economic factors also affect disability program enrollment. Over the past several decades, increases in wage inequality interacted with both programs' benefit formulas led to substantial increases in the share of low-skilled workers' wages that would be replaced by these programs (in this journal, Autor and Duggan 2006). Applications and awards for disability insurance fluctuate with the business cycle (Autor and Duggan 2003; Maestas, Mullen, and Strand 2018), suggesting that more permanent declines in economic opportunities for low-skilled men are likely to encourage more men in marginal health to apply for benefits.

Following 30 years of steady expansion, disability insurance enrollment started to decline in 2014, with the share of men receiving disability insurance in all three age groups lower in 2017 than seven years earlier. This decline is to some extent surprising, given the trends in mortality described above. The steadily improving economy and the tightening of the program's medical eligibility criteria appear to be the key factors driving this reduction in program enrollment (Li 2018). Related research has shown that SSDI benefit income reduces mortality among beneficiaries, suggesting that the tightening eligibility for this program may be contributing to the recent mortality increases described above (Gelber, Moore, and Strand 2018).

Enrollment in Social Security Disability Insurance and Supplemental Security Income varies substantially across and within states. Perhaps not surprisingly, disability enrollment is highly correlated with the state-level mortality rates among prime-age men mentioned above and has risen significantly more in those parts of the country hit harder by adverse economic shocks in recent decades (Autor, Dorn, and Hansen 2016). It is also substantially greater among those with less education. An examination of data from the March 2018 Current Population Survey reveals that prime-age men with only a high school degree or less are more than five times

more likely to receive SSDI or SSI disability benefits than their counterparts with a four-year college degree (7.0 percent versus 1.3 percent). Those with some college or an associate's degree are between these two extremes (at 3.4 percent).[7]

Turning to the link between economic conditions and health, recent research suggests that employment can have a substantial positive effect on men's health. Fitzpatrick and Moore (2017) show that there is a substantial increase in male mortality rates at the age of 62, when more than one-third of men claim Social Security retirement benefits and many leave the labor force. The authors conclude that the decline in employment is a key contributor to the mortality increase and note that the relationship for women is much smaller. This suggests that employment declines among low-skilled men likely contributed to the recent increases in mortality, and potentially also to the increases in health issues and disability program enrollment that emerged even earlier.

Related research has shown that income has a significant positive effect on health, and that these effects are much larger among lower-income beneficiaries. Gelber, Moore, and Strand (2018) use features of the Social Security Disability Insurance formula to estimate the elasticity of mortality with respect to income among new SSDI recipients. Their findings demonstrate that mortality rates fall substantially for lower-income individuals who receive higher SSDI benefits, but that the corresponding effects for high-income individuals are much smaller. This strongly suggests that the decline in earnings among lower-skilled men has contributed to the increases in mortality highlighted above.[8] It also suggests there is a causal connection between the well-documented rise in earnings inequality in recent decades and the rising inequality in life expectancy documented by Chetty et al. (2016).

Marital and Family Status

The marital patterns of men were remarkably stable during the century leading up to 1980 (as discussed in this journal by Stevenson and Wolfers 2007). In the decades since, however, men have been marrying later, as seen in Figure 1. While half of 25 year-old men were married in 1980, less than 20 percent of this group was married in 2017. Figure 1 reports the share of men *currently* married, which is lower than the share of men *ever* married because it excludes currently unmarried men who were previously married. However, separate tabulations of data from the Current Population Survey confirm that the share that has never been married has

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[7]Autor and Duggan (2003) demonstrate that the increase in enrollment in Social Security Disability Insurance during the 1980s and 1990s was much greater among those with only a high school degree or less.
[8]Evans and Moore (2011) find that additional income from transfer programs can actually lead to increases in mortality. However, these authors are looking at very short-term changes in income, comparing mortality changes in the days after cash benefit receipt or after receiving tax rebates. The Social Security Disability Insurance evidence is more relevant for the trends highlighted in this paper since it represents an increase in permanent income rather than simply a short-term increase in mortality in the few days after receiving a check.

Figure 1
Share of Men Married by Age and Year
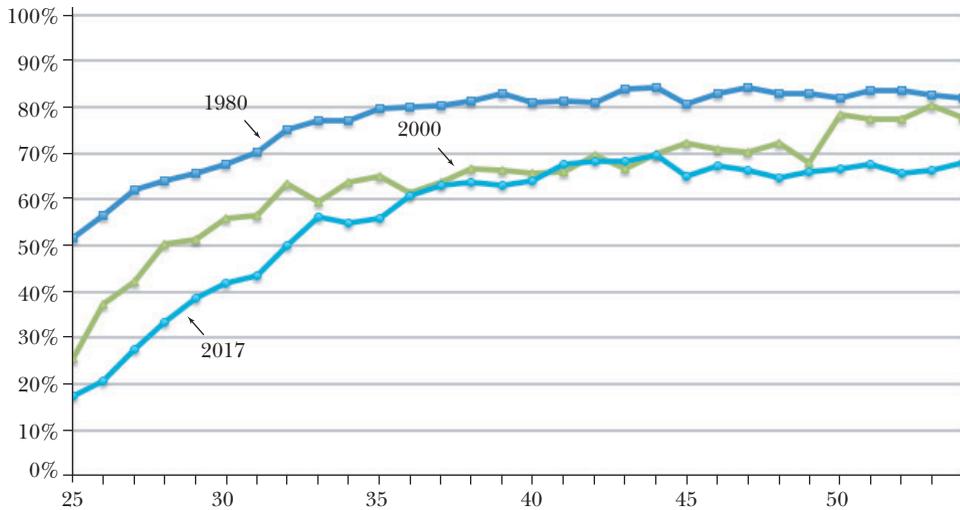
Source: Authors using data from the Current Population Survey (CPS).

also risen over time: for example, among men ages 45–54, this share rose from 6 percent for men in 1980 to 16 percent in 2017.

Table 6 examines how men's marital status has changed over time across race and education groups, focusing on the share married at ages 40–44. Marriage rates for whites in 1980 were much higher than for blacks, but whites experienced a somewhat larger decline over time; Hispanics had the highest marriage rates initially and also the largest drop. The differences by education are striking. Marriage rates were nearly identical across all education groups in 1980, but by 2017 had dropped by roughly 20 percentage points among all groups with less than a college education, while dropping only slightly for college graduates. Men with less education are now less likely to ever get married, more likely to get divorced, and less likely to remarry than their counterparts with more education (Aughinbaugh, Robles, and Sun 2013).

Many of the theories that have been put forth to explain the changes in marriage rates focus on women: for example, greater access to contraception, greater opportunities for women in the labor market, and a rise in welfare support for single mothers (Loughran and Zissimopoulos 2009). However, several hypotheses relate to men's economic status, including rising wage inequality (Loughran 2002) and a decline in the availability of marriageable men (Brien 1997). The latter may be important in explaining black–white differences, since black men face a higher risk of incarceration and unemployment, among other differences. Being married may also affect men's earnings (Ahituv and Lerman 2007), complicating efforts to estimate how men's economic status affects marriage decisions.

Trends in having children mirror those in marriage, with men today having children later and being less likely ever to have them as compared to earlier cohorts.

Table 6
Marriage Rates at Ages 40 to 44, 1980 to 2017

		Share of men married at ages 40 to 44			
Group	*1980*	*2000*	*2017*	*Change 1980–2000 (percentage points)*	*Change 2000–2017 (percentage points)*
By Race					
White	84%	69%	69%	−15	0
Black	63%	52%	51%	−11	−1
Hispanic	87%	74%	64%	−13	−10
By Education					
<HS	80%	65%	60%	−16	−4
HS graduate	82%	62%	59%	−19	−4
Some college	82%	67%	64%	−16	−3
College	85%	77%	79%	−8	+2

Source: Authors using data from the Current Population Survey (CPS).
Note: Changes listed may differ slightly from implied changes due to rounding.

At ages 25–34, the share of men living with children (including own and stepchildren) was about 50 percent in 1980 and 30 percent in 2017. While the difference over time is smaller at older ages—for example, about 10 percentage points for men in the 45–54 age bracket—men at every age are less likely to be living with children in 2017 than they were in 1980.

Young adults are also increasingly likely to be living with their parents, with nearly 20 percent of adults ages 25–34 doing so in 2015 (Vesta 2017). Relative to other young adults, those living at home were more likely to be male and less likely to be employed or to have a college degree. There are substantial geographic differences in living with parents that appear related at least in part to differences in cost of living, with particularly high rates of living at home in high-cost states such as New York and Connecticut.

Some recent research suggests a link between changing economic conditions and family structure. Autor, Dorn, and Hanson (2018) show that areas with trade-induced declines in manufacturing employment experienced increases in idleness among prime-age men and that these men were also less likely to marry or to have children. Correspondingly, these same areas experienced increases in the proportion of children living with just one parent and in the fraction of children living below the poverty line. Similarly, Gould (2018) finds that the decline in manufacturing employment led to lower marriage rates as well as a larger gap in marriage rates by race and education.

Incarceration

Changes in a group's incarceration rate are likely to have current and future effects on their earnings, health, education, and family formation. After all, a person

in jail or prison is typically unable to have a job, to pursue educational opportunities, or to spend time with family members or friends. Even after release from prison or jail, there may be long-term effects that reduce earnings potential or health.

The US incarcerated population grew rapidly in the 1980s and 1990s, with the number of people in federal or state prison or in county or city jails jumping from about 500,000 in 1980 to nearly 2 million in 2000 (US Bureau of Justice Statistics 2018). Many factors contributed to the increase, including rising crime rates. However, rising arrest rates (especially for drug-related crimes), increased probabilities of incarceration conditional on arrest, and longer sentence lengths were far more important than the rise in crime (National Research Council 2014). Additionally the reduction in the capacity of institutions for those with mental illness explained 4 to 7 percent of the increase in the prison population from 1980 to 2000 (Raphael and Stoll 2013).

Prime-age men accounted for more than 70 percent of all incarcerated individuals during this period. In general, prime-age men account for a larger share of the incarcerated population than of all criminals, because those who commit crimes in their late teens or early 20s may remain incarcerated for many years after that. For example, while men 25–54 accounted for 74 percent of male prisoners in 2000, they accounted for just 46 percent of males arrested for murder and 55 percent of male murder victims (Beck and Karberg 2001; FBI 2001). In contrast, males 18–24 accounted for 37 percent of murder offenders in that same year but just 19 percent of incarcerated males.

As shown in Table 7, the rise in the incarceration rate was especially high among younger men from 1980 to 2000, with the fraction of men aged 25–34 in prison or jail rising from 1.3 percent in 1980 to 3.5 percent by 2000. Men in the 35–44 and 45–54 age ranges also became much more likely to be incarcerated during this same 20-year period. Weighting each of the three age groups equally (to avoid any effects from a shifting age distribution), the incarceration rate of prime-age men increased by approximately 160 percent over 1980 to 2000, from 0.9 percent to 2.3 percent.

Following this period of rapid growth, the incarcerated population grew much more slowly starting in the late 1990s, peaked in 2008, and has declined modestly over the past decade. This changing trend was primarily driven by the decline in crime that began in the mid-1990s and continued through 2014: for example, the nation's violent crime rate fell by almost 50 percent (from 714 to 362 violent crimes per 100,000 residents) over this period (FBI 2015). The resulting decline in incarceration was concentrated among younger adults. The fraction of men aged 25–34 in prison or jail fell from 3.5 percent in 2000 to 2.8 percent by 2016 (Table 7). In contrast, incarceration rates continued to increase for older men in the 35–44 and 45–54 age ranges. This difference likely reflects the fact that prisoners in their 40s and early 50s were more likely to have committed their crimes as young adults, before crime rates started to fall.

The importance of recent changes in the incarceration rate differed substantially by race. Most notably, black men in the 25–34 age-range saw their incarceration rate fall from 12.8 percent in 2000 to 7.4 percent by 2016, following

Table 7
Male Incarceration Rate by Race and Ethnicity, Ages 25 to 54, 1980 to 2016

Race/ Ethnicity	Age group	Incarceration rate per 100,000 men				
		1980	2000	2016	Change 1980–2000 (percentage points)	Change 2000–2016 (percentage points)
All	25–34	1.3%	3.5%	2.8%	2.2	–0.7
	35–44	0.9%	2.3%	2.6%	1.4	0.4
	45–54	0.4%	1.0%	1.8%	0.6	0.8
	25–54[a]	0.9%	2.3%	2.4%	1.4	0.1
White	25–34	0.7%	1.7%	1.6%	1.0	–0.2
	35–44	0.5%	1.3%	1.6%	0.7	0.3
	45–54	0.3%	0.6%	1.1%	0.4	0.5
	25–54[a]	0.5%	1.2%	1.4%	0.7	0.2
Black	25–34	5.5%	12.8%	7.4%	7.2	–5.4
	35–44	3.7%	8.6%	7.4%	4.9	–1.2
	45–54	1.6%	3.7%	5.0%	2.1	1.3
	25–54[a]	3.6%	8.4%	6.6%	4.7	–1.8
Hispanic	25–34	–	3.9%	3.1%	–	–0.9
	35–44	–	2.9%	2.8%	–	–0.1
	45–54	–	1.6%	1.9%	–	0.3
	25–54[a]	–	2.8%	2.6%	–	–0.2

Source: Authors using data from Bureau of Justice Statistics and US Bureau of the Census. See Data Appendix for details.
Note: Changes listed may differ slightly from implied changes due to rounding.
[a] The incarceration rate for men ages 25–54 is computed as a simple average of the rate for men ages 25–34, 35–44, and 45–54, in order to minimize the effect of changing age distribution of the population over time.

an even larger (in magnitude) increase from 1980 to 2000. The corresponding reduction from 2000 to 2016 among young white men was minimal. Incarceration rates also fell for black men ages 35–44, while rising for older black men. As was the case for falling HIV/AIDS mortality, black men stood to gain more from the declining incarceration rate in recent years because of their higher baseline rate of incarceration. Finally, while data for Hispanic men are not available for 1980, the incarceration rates for this group followed a generally similar pattern, with large reductions for younger men and increases for older men since 2000.

The connection between economic factors and incarceration is not simple. On the one hand, neither the rise nor the drop in incarceration rate appears to be primarily driven by economic factors. As noted, the rise in incarceration was largely due to changes in criminal justice policy and the fall to declining crime rates. Levitt (2004) does not point to economic conditions as a key factor in explaining the decline in crime, though this does not rule out the possibility of some relationship—for example, Raphael and Winter-Ember (2001) find a link between unemployment and property crime. But falling incarceration rates may affect men's future economic outcomes.

Kling (2006) leverages plausibly exogenous variation across judges in the stringency of their sentencing and—perhaps surprisingly—finds no substantial evidence that longer prison sentences have a negative effect on employment or earnings after release. More recent evidence using a similar methodology, however, suggests that there is a significant negative effect of incarceration on future employment (Dobbie, Golden, and Yang 2018). Furthermore, Doleac and Hanson (2016) find that "ban the box" policies, which limit employers' ability to ask about criminal background checks in the hiring process, decrease employment for young, low-skilled black and Hispanic men, suggesting that employers may prefer not to hire ex-offenders (who are disproportionately represented among these groups). As young black and Hispanic men have historically experienced higher incarceration rates, they face larger potential employment gains from the recent decline in incarceration; by contrast, effects for white men would be expected to be smaller.

Discussion

The lives of prime-age men have changed in important ways in recent decades. A number of explanations have been put forward to explain the declining labor force participation and wages of men, trends that are much stronger among those with less education (Council of Economic Advisors 2016). Possible causes include demand-side factors like skill-biased technological change (Acemoglu and Autor 2010) and globalization (Autor, Dorn, and Hanson 2013), as well as supply-side factors such as rising spousal employment, greater use of the Social Security Disability Insurance program (Autor and Duggan 2003), and rising utility of leisure due to improvements in video game technology (Aguiar, Bils, Charles, and Hurst 2017).

In this essay, we have focused on a number of dimensions that affect the well-being of prime-age males in a direct sense—mortality and morbidity, marriage and children, education, and incarceration rates. The labor market has not been kind to low-skilled men in the last few decades, and patterns in the outcome measures that we examine suggest that these men have suffered from a cluster of other problems as well.

We document slowing mortality gains and rising morbidity and disability program enrollment that are stronger for less-educated males and in states with lower levels of education. Declines in marriage are also concentrated among non-college-educated men. Examining differences by race, we find bigger declines in both mortality and incarceration since 2000 for blacks and Hispanics, groups that have also experienced more rapid educational gains. The narrowing racial gap in outcomes—for example, the fact that blacks did not experience the same increase in suicides and overdose deaths as whites—is consistent with a beneficial effect of education in a weakening economic climate, although these trends also reflect the effect of other factors (such as advancements in HIV treatment and declining crime rates) that disproportionately benefitted these groups. Importantly, a growing number of studies offer compelling evidence that rising import competition and

other economic events that reduced opportunities for low-skilled men had direct adverse effects on their health and well-being.

As researchers continue to explore the causes and consequences of the trends highlighted in this paper, we call attention to perhaps the most significant change among prime-age men in recent decades. In 1980, fully 45 percent of prime-age men reported in the Bureau of Labor Statistics' monthly Current Population Survey said that they had previously served in the military. This number steadily declined during the next 36 years and stood at just 10 percent by 2016 in this same survey. Much of the economics literature has examined the effect of military service by using plausibly exogenous variation in the likelihood of service driven by one's draft lottery number (Angrist 1990). This research has tended to find quite modest long-term effects of military service on employment, earnings, and health status (for example, Angrist, Chen, and Frandsen 2010; Angrist, Chen, and Song 2011).[9] However, these studies are unable to capture the peer effects or general equilibrium effects of military service. Recent research has suggested substantial gains to cognitive and noncognitive skills stemming from military service (Spiro, Stetterson, and Aldwin 2015) and associated benefits such as the GI bill. Overall, we see a strong need for further work to investigate how changing economic opportunities, declines in military service, and other factors are contributing to or cushioning the problems of low-skilled prime-age men.

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[9]While Angrist (1990) finds that Vietnam-era service has a negative effect on the earnings of white veterans in the short-to-medium term post-service, Angrist (1998) finds a positive effect of post-Vietnam service on black veterans over a comparable time period.

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