

Why Are Men Working Less These Days?

Common explanations for the drop in employment among men without college degrees invoke everything from robots to disability to working wives. But what does the evidence say?

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BY RYAN MICHAELS

Employment of men in their prime working years has fallen over the past five decades, particularly among men without college educations. This decline has alarmed policymakers. Noting that the prime working years are typically a worker's most productive, the Council of Economic Advisers in 2016 suggested that declines in employment may be dragging down economic output and diminishing family well-being. Accordingly, there have been calls for increasing investment in education and expanding tax credits for working with the hope of attracting more men to the workplace. Considering that any policy response to employment's downward slide should be informed by the reasons underlying it, we want to ask: What accounts for this downward trend?

Standard microeconomic theory says that people work if their earnings from employment are sufficiently high relative to whatever income is available to them if they're not working. Accordingly, the natural place to search for an explanation for the fall in employment is to explore whether the payoff from working has fallen relative to the payoff from not working. The usual suspects fall into one of two categories: factors that have suppressed wages among workers with no college degrees, and factors that have increased the income available to those out of work. One example of a force depressing earnings is labor-saving technology, which has reduced the demand for noncollege-educated workers. The second category of factors includes, for instance, expansions in eligibility for federal benefit programs, such as disability insurance benefits.

Standard theory thus expounds a simple narrative for the decline in male employment: The reason men today are working less than earlier generations did must be that the wages they can earn are now lower relative to other income sources, including government benefits and spousal earnings. If the theory is correct, we should observe that these other income sources replace, or make up for, an increasing share of men's forgone earnings.

To take this question of declining male employment beyond plausible narratives into quantifiable territory thus requires looking for evidence of any movement in this replacement rate, which expresses the amount of income a person can tap without working as a share of the wage the person can earn by working. To set the stage for this analysis, let us first take a closer look at the large and long decline in male employment.

See the related article in this issue, "Where Is Everybody? The Shrinking Labor Force Participation Rate."

Employment vs. Unemployment

This article is concerned with trends in the employment rate. I define an individual's employment rate as the fraction of the year he or she is employed. So, if a man works for 46 weeks of the year, his employment rate is roughly 88.5 percent. The aggregate employment rate can then be measured by averaging the employment rates of individual survey respondents.

A related concept is the unemployment rate. To be officially considered unemployed, a person has to report being currently out of work, actively looking for employment, and able and willing to start a new job if one is offered. The unemployment rate is calculated by dividing the number of people who are unemployed by the total number of people working or looking for work—the labor force.

Our measurement of the employment rate differs in two respects. First, by incorporating data on weeks worked, it captures changes in both the number of people who are working and in how much they are working per year. Second, it captures a broader sample of individuals, as it measures the time spent out of work by both the unemployed as well as by those who have left the labor force and are therefore no longer counted as unemployed.

As a result, the employment and unemployment rates can differ substantially. The unemployment rate in 2016 among prime-age men with no college experience was 6 percent. And yet, as we shall see, the employment rate indicates that almost 20 percent of these men did not work at all that year.

The Extent of the Decline

The employment rate among all prime-age men, those age 25 to 54, has fallen by more than 8 percentage points, from 93.5 percent in 1967 to 85 percent in 2015 (Figure 1).¹ Between 1967 and 1989, the employment rate fell 5 percentage points. Then after plateauing during the 1990s, it began falling again, dropping 3.5 percentage points between 2000 and 2015.²

The employment rate among prime-age men with no college experience has become particularly low, as Figure 1 also shows. In 2015, men with at most a high school degree spent on average nearly 23 percent of the year out of work. That translates into an employment rate of just 77 percent, compared with 92 percent in 1967.³

Much of the fall in employment is due to an increase in the share of men who do not work at all during the course of a year.⁴ Only 3 percent of noncollege-

educated men did not work any weeks in 1967 (Figure 2). In 2015, 18 percent of noncollege educated men worked zero weeks—a six-fold increase!

Framework for Understanding Long-Run Labor Supply

How might we understand the decline in male employment? Standard microeconomic theory takes the perspective that workers can, over the long run at least, choose how much to work—their labor supply decision. This theory identifies two key ingredients that enter into a person's decision regarding how much to work.⁵

One is the wage. If the demand for their labor declines and leads to lower wage offers, we expect men to work less. The other is nonwork income, or the income to which a man has access even if he opts not to work. Nonwork income consists mostly of government benefits and

other family members' (predominantly spousal) income.⁶

The amount of nonwork income relative to the wage, or the replacement rate, is thus a key determinant of labor supply. A change in one or the other ingredient, by itself, does not tell us all we need to know. Suppose wages fall but nonwork income drops proportionately. In this case, the reduced incentive to work implied by lower wages is offset by a greater incentive to work implied by less outside income. As a result, the number of weeks worked remains unchanged despite the changes in wages and benefits.⁷

To illustrate how one can calculate a replacement rate, suppose that a single man who had formerly worked year-round for \$40,000 per year opts to not work at all this year. Instead, he draws benefits that replace half of his forgone wage income, which leaves him with \$20,000. The replacement rate in this case is 50 percent.

The notion of the replacement rate can easily incorporate other sources of nonwork income, such as spousal income. Suppose the man is married and that his spouse earns \$20,000 per year. The man's withdrawal of labor supply reduces his total household income—work plus nonwork income—from \$60,000 to \$40,000. In other words, the household retains, or replaces, two-thirds of its original income, for a replacement rate of 67 percent.

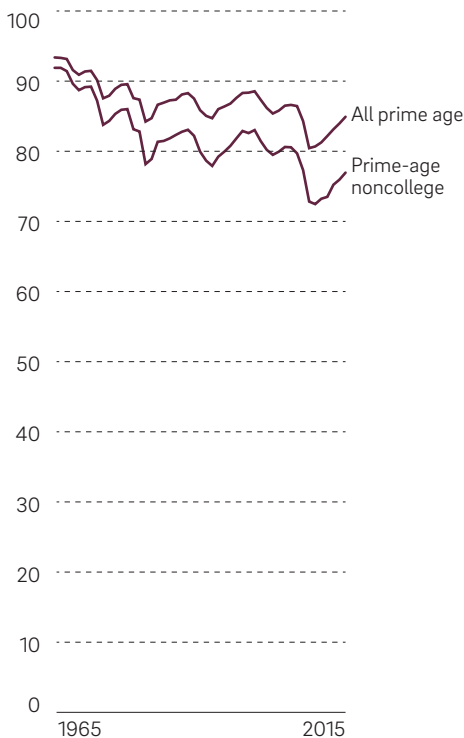
According to standard theory, the steep declines that we have observed in employment have a likely culprit: significant increases in the replacement rate. If the replacement rate rises, a man can maintain an even higher share of his former standard of living without having to work. Not surprisingly, this would reduce his motivation for working.⁸

Though not often couched in these terms, many narratives surrounding the fall in employment boil down to a claim that the replacement rate has risen. Arguments emphasizing factors including a greater generosity of public benefit programs,⁹ lower real wages,¹⁰ or higher spousal income all identify a particular component of the replacement rate, with the implication being that the rate has increased. So the question is, how do we go about finding evidence that the replacement rate has changed?

FIGURE 1

Employment Particularly Low for Men With No Degree

Percentage of each year that men age 25–54 worked on average, 1967–2015.



Source: Census Bureau and Bureau of Labor Statistics Current Population Survey Annual Social and Economic Supplement.

FIGURE 2

More Men Not Working All Year Long

Percentage of noncollege-educated men age 25–54 who did not work at all in a year.



Source: Census Bureau and Bureau of Labor Statistics Current Population Survey Annual Social and Economic Supplement.

What Has Happened to the Replacement Rate? A First Look at the Data

If a man's decision to quit working ends up substantially reducing his household's income, we can infer that his household has few resources that can plug the hole left by his earnings. Accordingly, the replacement rate is likely to be low. But if his household income falls little when he works fewer weeks, the replacement rate is likely to be high. These observations suggest a way of inferring changes in the replacement rate: We need to measure how household income reacts to differences in men's weeks of work and see how this sensitivity of household income has evolved over the past several decades.¹¹

Fortunately, data on both household income—which is composed of earnings from employment as well as spousal income and public benefits—and weeks of work are readily available from the Current Population Survey's Annual Social and Economic Supplement. These data enable us to estimate the relationship between the number of weeks worked by prime-age men and their household income.

Restricting our attention (for now) to benefits that can be measured consistently during the period 1967–2015—which include, critically, unemployment and Social Security disability insurance, among other sources¹²—we can see in Figure 3 how household income varies according to the number of weeks worked by prime-age noncollege-educated male heads of household.¹³ Among those who worked fewer than 13 weeks, their household income during the years 1967 to 2015 averaged around \$30,000, measured in 2015 dollars. Virtually all of this income came from either government benefit programs or other household members' income, in particular, the man's spouse. In contrast, the income of households whose noncollege-educated prime-age male heads worked year-round averaged more than \$70,000, with the men's earnings making up a much larger share and benefits contributing very little.

The change in income that occurs as the number of weeks worked changes is indicative of the replacement rate. For instance, we can compare a household whose male head worked half the year and had an annual income averaging roughly

\$40,000 and a household whose head did not work and had an income of \$30,000 (Figure 3). The household of the man who did not work can be said to have replaced just over 70 percent of the income of the household whose male head worked 26 weeks. By the same token, the household in which the man did not work replaced just under 40 percent of the income of a household whose male head worked year-round.¹⁴

The key question is whether the replacement rate has changed between 1967 and 2015. As a first step, I divide this time span into two periods—1967–1990 and 1991–2015—and inspect how household income varied with the prime-age noncollege-educated male head's weeks of work in each period (Figure 4). Though household income in the latter period was higher for any number of weeks worked,

it appears that income increased across weeks of work at nearly the same rate in both periods. Likewise, if the male head worked relatively little, his household replaced roughly the same percentage of forgone income in both periods. Yet, employment was substantially lower post-1990, an initial indication that changes in replacement rates are unlikely to account for the decline in employment.

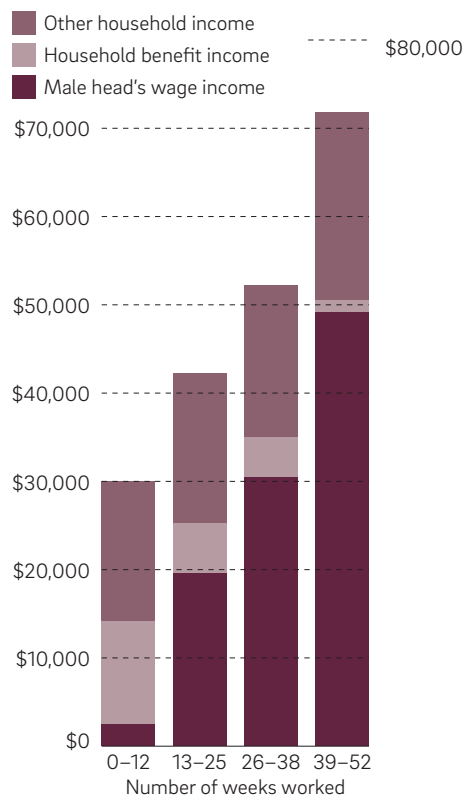
Figure 4 has the virtue of simplicity, but it compares just two periods and, more importantly, papers over important differences in the attributes of men who work different numbers of weeks. Nonetheless, as we shall see, its basic message holds up after several refinements.

A key idea underlying Figure 4 is that we can infer what a nonemployed man's household income would be if he chose to work by looking at the household

FIGURE 3

Household Income Much Lower if Male Head Doesn't Work

Components of real income by weeks worked per year by prime-age noncollege-educated male household head, 1967–2015.

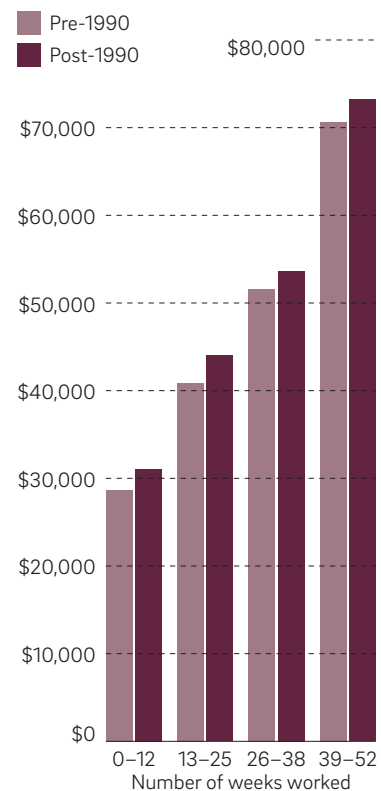


Source: Elsby et al. (2017), based on Census Bureau and Bureau of Labor Statistics cps Annual Social and Economic Supplement.

FIGURE 4

Working More Yields Same Rise in Income

Real household income by weeks worked by noncollege-educated prime-age male head of household, pre- and post-1990.



Source: Elsby et al. (2017), based on Census Bureau and Bureau of Labor Statistics cps Annual Social and Economic Supplement.

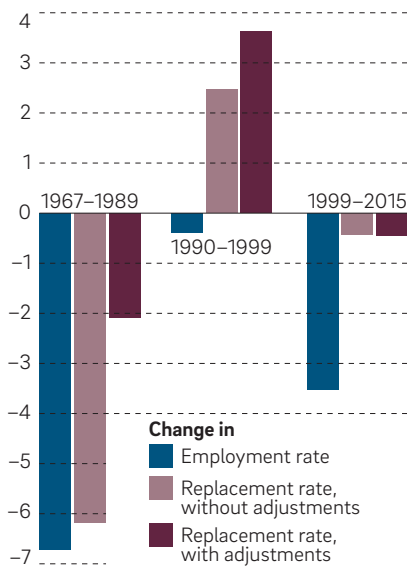
incomes of working men. In so doing, we can calculate the replacement rate facing the nonemployed man. But employed and nonemployed men are surely different in many other ways. How can we sensibly compare the two?

As a first step, we can account for the role of differences in certain attributes, such as age and family size. Standard statistical techniques enable us to adjust for the role that these differences play in Figure 4, helping to isolate the relationship between weeks worked and total income for a typical household. When we carry out this analysis on each year of data, the replacement rate—measured, again, as the household income of a noncollege-educated prime-age man who does not work relative to that of a man who works year-round—fluctuates between 30 and 40 percent, with no pronounced upward trend. Furthermore, there is little evidence that the fluctuations in the replacement rate are associated with opposing movements in the employment rate of noncollege prime-age men

FIGURE 5

Employment, Replacement Rate Show No Evident Link

Changes in employment and replacement rates for noncollege-educated prime-age male household head across three periods, percentage points.



Source: Elsby et al. (2017).

Note: Adjusted rates incorporate imputations of benefit income based on the TRIM program and on administrative data on medical care spending under Medicare and Medicaid.

(Figure 5). The employment rate fell over 6 percentage points between 1967 and 1990 and has fallen nearly 4 more percentage points since 2000. Yet, the replacement rate declined from 36 to 30 percent in the former period and was virtually unchanged at 32 percent in the latter period. When the replacement rate did rise between 1990 and 2000, there was hardly any change in employment.

One lingering concern with this analysis is that employed and nonemployed men with otherwise similar attributes may still not be able to earn the same wage. Nonemployed men may not be working because they face lower wage offers, and higher replacement rates, than implied by our measurements. One way to address this concern is to compare the nonemployed’s household incomes only with those of men who work no more than either 13 or 26 weeks, with the idea being that the nonemployed could plausibly earn at least as much as those men who spend much of the year not working. Yet, when Elsby and his coauthors do this, the replacement rate still looks roughly stable during the past five decades.¹⁵

A final set of concerns relates to data quality. The estimates of benefit income underlying Figures 3-5 suffer from two shortcomings. First, recall that we have thus far used only the benefit income available from the CPS in all years. The survey has been asking households whether they participate in certain benefit programs—the Supplemental Nutrition Assistance Program (SNAP), better known as food stamps; Medicaid; and Medicare (for which many Social Security disability recipients are eligible)—only since 1980.¹⁶ So, we need to re-estimate the replacement rate starting in 1980 to incorporate these benefits. Second, households tend to under-report their benefit income.¹⁷ To correct for this error, we can identify benefit-eligible households and impute benefit income to them so that it matches the total amount of money that these programs report paying out in benefits.¹⁸ Although these additions to and refinements of our measures of benefit income result in smaller estimated declines in the replacement rate (Figure 5), they still provide no strong evidence that declines in employment correspond to increases in the replacement rate.

Reconsidering a Few Popular Hypotheses

The long-run stability of the replacement rate may be surprising. The demand for lower-skilled work has diminished over recent decades, and there are well-known examples of increases in the sources of income available to out-of-work male household heads. One might expect these trends to result in a higher replacement rate. How can we reconcile these narratives to our results?

Consider first the implications of declines in wages.¹⁹ Real (inflation-adjusted) hourly earnings of noncollege-educated prime-age men have fallen almost 15 percent over the past 40 years. These declines would presumably reduce the return from working relative to the income that can be accessed while not working, leading to a higher replacement rate.

This narrative is initially compelling but ultimately incomplete. One reason is that several public benefit programs tie the size of payments to earnings. As a result, changes in benefits can partly offset the effect of changes in earnings, blunting any change in the replacement rate and, thus, in the incentive to work. Perhaps the program that best illustrates this feature is unemployment insurance. Though state laws differ somewhat, a claimant’s weekly unemployment insurance payment generally scales with his average weekly earnings, replacing nearly 50 cents of every dollar of earnings. Thus, if earnings fall, benefits dip roughly proportionately, leaving the incentive to work unchanged.²⁰ There is no evidence of a long-term rise in the share of earnings replaced by unemployment insurance.²¹

The benefit formula used to allot food stamps is also responsive to earnings, though it works in a slightly different fashion. For each additional week that an individual works, his household’s food stamp allotment is reduced by 30 percent of his weekly earnings.²² Therefore, the lower the man’s weekly earnings, the less his family’s allotment is reduced in dollar terms. In other words, the disincentive to work implied by low wages is partly offset by the fact that his household loses less of its food stamps if he works.²³

A second explanation for the fall in employment stresses the role of expansions in benefit eligibility. The idea here is that,

even if the eligibility formulas did not change dramatically, the programs now accept more recipients. Hence, the typical male head of household faces a higher replacement rate.

Social Security disability insurance has drawn considerable attention because of the rise in the disability rolls, which reflects, in part, legislative actions to expand eligibility.²⁴ Yet, it is unlikely that changes in Social Security policy significantly raised the overall replacement rate facing prime-age men. Whereas the share of older men (age 55–64) receiving federal disability benefits increased by nearly 8.5 percentage points during the past 50 years,²⁵ prime-age men (age 25–54) have had much less contact with the program. The share of prime-age men receiving disability benefits increased by just 2 percentage points, which accounts for only about one-quarter of the rise in the share not working during a year.²⁶

Another program that has drawn substantial interest is food stamps. Between 1979 and 2007, however, participation hardly budged on net, whereas the employment rate of all prime-age men fell 3 percentage points.²⁷ The only meaningful increase in prime-age male SNAP participation occurred during the Great Recession, with the participation rate rising from 4 percent in 2007 to 8.5 percent by 2015.²⁸ The generosity of SNAP payments also increased during this time. Even so, SNAP is just one source of nonwork income, even in households whose male heads are essentially out of work. Among prime-age men who work fewer than 13 weeks out of the year, increases in SNAP payouts implied an increase in annual nonwork income of at most 3 percent in 2015.²⁹

A third hypothesis looks at the rise in women’s labor force participation, which has increased the spousal income available to married men. However, marriage has become far less common than it used to be among noncollege-educated prime-age men. Even after accounting for the increase in cohabitation, the share of these men living with a spouse or female partner has declined from 84 percent in the late 1960s to 60 percent today.³⁰ As a result, despite the enormous increase in female labor force participation, noncollege-educated prime-age men are now only slightly more likely to live with a working woman. In fact, among men who work less than half the year, 21 percent live with a female spouse or partner who works more than half the year—a state of affairs essentially no different than what had prevailed in the late 1960s.³¹ The second challenge to this narrative is that, in married-couple households, other sources of income are partly displaced by the rising incomes of working wives. For instance, spousal income can disqualify a family from income-tested benefits such as SNAP and Temporary Assistance for Needy Families (TANF).

Why Has Employment Fallen Amid a Stable Replacement Rate?

Recall that our framework for labor supply presumes that men can, at least over the longer run, choose how much to work. However, some men may be unable to find work at any wage because of a criminal record or poor health. Ex-offenders are legally barred from many jobs in the health care and security services industries. The increase in the number of ex-offenders could, therefore, lead to lower employment. In addition, the

number of men who report work-limiting impairments has increased, suggesting that poor health may have a bigger role than suggested by the change in the disability rolls.

Incarceration

The number of ex-offenders has risen over the past 30 years, especially among black men. Ex-offenders are nonincarcerated individuals who were previously incarcerated in a state or federal prison. The share of ex-offenders among black men with no college experience rose nearly 12 percentage points between 1980 and 2010.³²

An increase in the ex-offender share is expected to depress employment.³³ Prior incarceration has been found to reduce the probability of employment among young men, though there is considerable disagreement as to the exact size of the effect—with estimates of the reduction ranging from 24 percentage points³⁴ to no more than 7.5 percentage points.³⁵

And yet, the fall in employment among prime-age noncollege-educated black men has been so substantial that the rise in the ex-offender share probably accounts for only a modest portion of it. To see why, suppose incarceration reduces the probability of future employment by 24 percentage points, and note that 12 percent more of the population consists of ex-offenders. Then, the employment rate among black men would be expected to fall only about 2.8 percentage points (0.24×0.12) as a result of incarceration. Meanwhile, the share of prime-age noncollege-educated black men who do not work at all in a year has increased 24 percentage points in the past 50 years.³⁶

Health Limitations

The number of men who report having a health condition that limits their ability to work is considerably greater than the number who receive Social Security disability benefits. Whereas 3 percent of prime-age men receive disability benefits, twice as many men reported having difficulty working because of a physical, mental, or emotional condition lasting six months or longer. Among the noncollege-educated, 9 percent report a work limitation.³⁷ The men who report a health condition that limits their ability to work appear to suffer from chronic pain that requires medication.³⁸

But has the change in employment been driven by a change in the number of men with work limitations? If an increasing prevalence of poor health is driving down employment of noncollege men, we should observe an increase in the share of the nonemployed who report a disability. According to CPS data, however, the disabled share of the nonemployed has not risen during the past 40 years. This finding strongly suggests that the ranks of the nonemployed have expanded for many reasons other than disability.³⁹

Final Thoughts

Standard microeconomic theory points to the role of the replacement rate in understanding movements in employment. Yet, it is surprisingly hard to uncover evidence of a significant

rise in the replacement rate. What other economic mechanisms might lie behind the declining trend in male employment?

One point of departure is the rather narrow view of nonwork time embedded in the replacement rate. The replacement rate values nonwork time only in terms of current nonwork income. However, if we take a broader view of nonwork time, it becomes clear that its value can increase even if current nonwork income—and the replacement rate—does not. At least two forces may have contributed to an increase in the value of nonwork time, and in turn to a fall in employment.

The first is an increase in the quality of leisure activities. Recent research has pointed, for instance, to technological advances in recreational computer activities, such as video gaming, that enhance the value of leisure time.⁴⁰

However, this argument applies in particular to men younger than 30 over the past 15 years. It remains to be seen whether changes in the quality of leisure time can account more broadly for the fall in employment.


A second reason that time off the clock may be considered more valuable has to do with the rise in wage inequality over the past several decades.⁴¹ When wage inequality rises, nonwork time can be more valuable because it can be used to search for high-wage positions. This higher value of time spent job-hunting implies lower current employment even if current nonwork income—and our measure of the replacement rate—does not increase.⁴² One shortcoming of this argument, though, is suggested by Figure 2: The fall in employment has been concentrated

What other economic mechanisms might lie behind the declining trend in male employment?

among men who do not work at all, rather than men who simply wait longer to return to work.

To conclude, let me highlight two other strands of research that can broaden our view on long-run labor supply and potentially shed light on the causes of the decline in employment among noncollege-educated men. One suggests that barriers to re-employment among out-of-work men may be more widespread than previously thought. The fall in employment has occurred during a period of declining demand for manufacturing workers and, more generally, for workers doing manual tasks.⁴³ The coincidence of these two trends suggests that men may face far more substantial impediments to changing careers. Yet critical

questions remain: What are these barriers? Why do they have such seemingly long-lasting effects?

A second, burgeoning literature on social interactions questions the assumption in standard theory that one's preferences are formed independently of others' actions. Some phenomena can be better understood as a result the dependence of individual preferences on the choices of others.⁴⁴ In the context of labor markets, perhaps the value of an individual's nonwork time depends on the labor supply choices of others. For instance, an individual will enjoy additional nonwork time more if his peers have increased their nonwork time. This holds out the intriguing possibility that declines in employment can snowball even in the absence of large changes in the replacement rate, though further research is needed. 

Notes

1 Recent declines in overall labor force participation stem to a considerable extent from aging. Our focus on prime-age men helps de-emphasize the effect of aging on employment trends. For a thorough assessment of recent trends in participation across demographic groups, see the 2014 paper by Stephanie Aaronson and her coauthors.

2 These data come from the Census Bureau and Bureau of Labor Statistics' Current Population Survey's (CPS) Annual Social and Economic Supplement. Our sample of noninstitutionalized prime-age men excludes retirees as well as men who are in school or in the military. We also drop the self-employed, since self-employment may reflect a lack of wage and salary employment opportunities, which we want to focus on. The definition of the employment rate follows influential papers by Chinhui Juhn in 1992 and by Juhn, Kevin Murphy, and Robert Topel in 1991 and 2002.

3 The share of men with no college was 75 percent in 1967 and is less than 40 percent today. This decline suggests that many of the most

highly skilled high school graduates who would not have gone to college five decades ago are now more likely to enroll. This shift in composition of the noncollege group can account for 3 to 4 percentage points of the 15 percentage point fall in their employment rate. See the 2017 analysis by Mike Elsby, Ryan Michaels, David Ratner, and Matthew Shapiro.

4 See also Juhn, Murphy, and Topel's 2002 work.

5 See, for example, the 1999 work by Richard Blundell and Thomas MaCurdy and Robert Moffitt's 2002 work. In the short run, there may be reasons why a worker is unable to work as much as he or she wants. See the forthcoming paper by Per Krusell and his coauthors.

6 Although the wife's income may include wages, it is treated as nonwork income from the man's perspective. Nonwork income also includes interest and dividends as well as alimony and child support, though these sources make up a small share of income in households with noncollege-educated prime-age men.

7 The balancing of these two effects reflects standard assumptions about household preferences regarding consumption and labor supply. See Timo Boppart and Per Krusell's paper for an alternative theory of (very) long-run labor supply in which increases in average wages do permanently lower the number of weeks worked.

8 Changes in replacement rates should also affect female labor supply. So, why the focus on men? One answer is that the increase in female labor force participation appears to be stem in part from other reasons specific to women, such as advances in and wider use of birth control. See the papers by Claudia Goldin and Lawrence Katz in 2002 and Martha Baily in 2006. Francine Blau and Lawrence Kahn's 2007 work also found that higher female participation largely reflects a shift in women's willingness to work that is unexplained by changes in wages or family circumstances.

9 See Nicholas Eberstadt's 2016 work.

10 See the Council of Economic Advisers' 2016 report.

11 In a standard theory of labor supply, Elsby and his coauthors illustrate algebraically that a change in the replacement rate is always manifest as a change in the sensitivity of household income.

12 Other sources of benefit income include Supplemental Security Income (SSI), workers' compensation, and Temporary Assistance for Needy Families (TANF), the successor to Aid to Families with Dependent Children. SSI income has been reported in the CPS since the program was founded in the mid-1970s. SSI income before then is treated as zero. As for compensation, the CPS measure includes only cash earnings. Though it asks whether respondents have employer-provided insurance, it does not consistently include a measure of its value. Later (as part of Figure 5), we incorporate data from the National Compensation Survey to impute a value of private insurance to respondents.

13 For the analysis of replacement rates, we use weeks of work for the male head of household, our definition of which is more encompassing than the CPS definition. In the CPS, one respondent per household identifies himself or herself as the head. We instead include all self-declared male heads, as well as spouses, partners, and housemates of female heads. This definition enlarges the sample of heads in the CPS and still retains the advantage of focusing on weeks of work for one male in each household. Accordingly, we exclude children and other male relatives who live in the household. See the analysis of Elsby and his coauthors for details on males who are not in our sample of male heads of household. The employment rate of male heads increases by 10.5 percentage points between 1967 and 2015.

14 The most common choices are not working any weeks and working essentially year-round, or 50 to 52 weeks. Accordingly, the association between household income and weeks of work can be understood very simply by looking at the difference in annual income between households whose male heads work zero weeks and those who work year-round.

15 It still could be that men who work zero weeks receive lower wage offers than men who work at least a few weeks. In a separate exercise, Elsby and his coauthors look at how the household income of a given

male head changes when his weeks of work change. This strategy avoids comparing outcomes across different households but is inapplicable for men who work zero weeks in consecutive years. This approach also reveals no upward trend in the replacement rate.

16 Whereas the CPS measures the dollar value of food stamp benefits, it asks respondents only whether they participated in Medicare or Medicaid. Elsby and his coauthors combine these responses with administrative estimates of medical care expenditures per beneficiary under Medicare and Medicaid to impute dollar values for these benefits. To incorporate these programs into the replacement rate series prior to 1980, I assume that each program's effect on the replacement rate increased linearly between its founding date and 1980.

17 See the 2015 work of Bruce Meyer, Wallace Mok, and James Sullivan.

18 Following Elsby and his coauthors, I implement an algorithm developed by the Urban Institute, the Transfer Income Model, or TRIM. It can be used to impute SSI, TANF, food stamps, and federal housing benefits such as Section 8 vouchers for nearly every year since 1995. Correcting for Medicare, Medicaid, and Social Security disability underreporting is an aim of ongoing research. The replacement rate series is carried forward from 1990 by increasing the original series at the pace implied by the TRIM-based estimates of benefit income.

19 See Juhn's 1992 article, and her 1991 and 2002 articles with Murphy and Topel. See also Moffitt's 2012 piece. Juhn argues that declines in wages were especially critical after 1972, whereas declines in employment between 1967 and 1972 were attributed to other factors that shifted labor supply.

20 One caveat is that states cap the weekly benefit amount. However, earnings data from the CPS show that nearly three-quarters of noncollege-educated men with weekly earnings in 2015 would have received less than the maximum benefit if they had become unemployed.

21 See Wayne Vroman's 2002 work. This replacement rate rose temporarily in the Great Recession when Congress extended the duration of unemployment benefits from the usual 26 weeks to up to 99 weeks. See Jesse Rothstein's 2011 work and the 2016 work of Marcus Hagedorn and his coauthors.

22 The 30 percent rate was codified in the Food Stamp Act of 1977, though it had been in effect since at least 1971. See the Congressional Budget Office's 1977 report.

23 On the other hand, the maximum food stamp allotment, which is awarded if the household reports no earnings, has risen in real (inflation-adjusted) terms by 13 percent since the Food Stamp Act of 1977 took effect in 1979.

24 David Autor and Mark Duggan provide their findings in a nontechnical 2006 article in the *Journal of Economic Perspectives*. Burcu Eyigungor's 2014 article in the Philadelphia Fed *Business Review* provides an accessible overview.

25 Data are from the Social Security Administration and show the number of male beneficiaries under 54. There are virtually no recipients under age 25. Note that these calculations, as well as subsequent ones regarding SNAP benefits, rely on records that do not specify beneficiaries' education level, so they refer to all prime-age men.

26 The progressive structure of the benefit formula has also meant that the share of earnings replaced by disability income has increased (even if the overall replacement rate, factoring in all nonwork income, has not). See Scott Muller's 2008 work, and Autor and Duggan's 2003 article.

27 Data are from the Department of Agriculture and are available for ages 18–59, which we treat as "prime age" for these purposes. Estimates prior to 1979 are not comparable.

28 In 2009, the Department of Agriculture encouraged states to expand eligibility by lifting income and asset limits on SNAP applicants. By 2011, roughly 40 states had done so. See Peter Ganong and Jeffrey Liebman's 2013 article and Casey Mulligan's 2012 book.

29 This is calculated by comparing actual average food stamp benefits per household with what would have been observed assuming the 2007 participation rate prevailed in all future years.

30 The data underlying the calculations in this paragraph are from the CPS.

31 See also the Council of Economic Advisers' 2016 report.

32 These calculations (available upon request) build off a forthcoming article by Sarah Shannon and her coauthors. Estimates derived from Thomas Bonczar's 2003 work imply a slightly higher ex-offender share (16.2 percent in 2001) but a slightly smaller increase over time (9.4 percentage points between 1974 and 2001).

33 In contrast, an increase in the number of current inmates implies a higher employment rate, because incarceration excludes from the labor force men who would have faced a low probability of employment. See Katz and Alan Krueger's 1999 work.

34 See Richard Freeman's 1992 article and a 2005 paper by Harry Holzer and his coauthors. Both papers look at men younger than 34. In the calculations to follow, we assume that the effect of past incarceration is the same for older men.

35 See Jeffrey Grogger's 1995 paper.

36 There is another point of intersection between crime and employment: If wages from criminal activity rise relative to wages from legal work, young men may choose the former over the latter. This substitution of illegal for legal work surely went on in the 1980s amid the growing drug trade. See Freeman's 1992 discussion. For further analysis of black male employment, see also John Bound and Freeman's 1992 article and Holzer's 2009 survey.

37 As self-reported in the Census Bureau's 2007 American Community Survey (ACS), which offers a much larger sample than the CPS. The disability-related questions on the ACS changed after 2007 (see <https://www.census.gov/people/disability/methodology/acs.html>), so this is the last year of data I use.

38 Krueger's 2016 article finds that among prime-age men out of the labor force who report having a disability, over two-thirds report that they spend at least some of the day in pain.

39 The nonemployed refer to noncollege-educated prime-age men who work fewer than 26 weeks in a year. A disabled worker is one who reports being "ill or disabled and unable to work." Note that the disabled share of the nonemployed is distinct from the nonemployed share of the disabled. Even though the latter has steadily risen (see the article by Bound and Timothy Waidmann), the disabled share of the nonemployed does not have to increase if many men are out of work for other reasons. Juhn's 1992 paper also found no evidence of an increase in the disabled share of the nonemployed.

40 See the 2017 study by Mark Aguiar and others.

41 Read Daron Acemoglu and David Autor's chapter in the 2011 *Handbook of Labor Economics*.

42 See Lawrence Summers's 1986 piece.

43 These declines were documented in 2016 by Guido Matias Cortes and others and in 2017 by Kerwin Kofi Charles and his coauthors. For an early analysis of the long-term implications of job displacement, see Lars Ljungqvist and Thomas Sargent's 1998 paper.

44 See Gary Becker and Kevin Murphy's book.

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