The Rise of Non-Employment Among Prime-Aged Men: Trends, Household Support, and Persistence*

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Abstract

The non-employment rate of prime-aged men (ages 25-54) nearly quadrupled from 2.9% in 1965 to 11.1% in 2023. Using more than five decades of survey and Census data, we examine the nature and determinants of this rise and what it implies for welfare. The increase occurred during recessions, as non-employment rose by 11.1 percentage points during recession years and fell by only 2.8 percentage points during non-recession years. About two-thirds of the long-run increase was accommodated by support from other household members, most commonly family, and increases in household-supported non-employment persisted through expansions. Household-supported non-employed men were also more likely than other non-employed men to be out of work two years later. Most of the rise in household-supported non-employment was among men who did not report illness or disability as their reason for not working, and non-employed men spent little more time than employed men on caregiving or home production. Chinese import competition raised non-employment mainly among men not supported by their households, while oxycodone exposure raised it mainly among household-supported men, but each accounted for only a modest share of the long-run increase. The results also provide limited support for explanations in which the rise mainly reflected short-term family insurance. Instead, our evidence suggests that adverse employment and health conditions played an important role and that temporary shocks had lasting effects on employment. As a result, recessions may be more costly than their immediate effects on employment suggest, with other household members financing much of the non-employment that persists.

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1. Introduction

Prime-aged men are much less likely to work today than in the 1960s. This decline in work has important economic and social consequences. Economically, reduced market work can lower economic output, decrease individual and family resources, and strain public finances through forgone tax revenue and greater reliance on social safety net programs. Socially, employment can provide a sense of purpose, while prolonged non-employment can worsen physical and mental health and lead to greater family instability. Using the Current Population Survey, we find that the share of prime-aged men (ages 25-54) who did not work at all during the year nearly quadrupled from 2.9% in 1965 to 11.1% in 2023. A large literature has documented the decline in men's work and examined its causes, but it has paid less attention to the role of recessions in the long-run rise and to how men who are not working are supported.[1] In this paper, we show that the rise in non-employment occurred during recessions and that most of it was accommodated by support from other household members, most often family. These two facts are connected because household-supported non-employment persisted through expansions, accounting for a disproportionate share of the long-run rise. To assess what this rise implies for the welfare of men and those around them, we ask which men stopped working and when, how they get by without working, why they are not working, and what role specific shocks played.

We first examine which men stopped working, finding that those with less education were less likely to be employed. Over the time period we study, men became considerably more educated on average, a compositional change that should have brought non-employment down and therefore makes the observed large increase even more surprising. Thus, the rise occurred within demographic groups. Increases in non-employment were largest for less-educated men and for Black men. Additionally, the Black-white gap in non-employment widened sharply before 1980 and narrowed only somewhat afterward.[2]

[1] Juhn, Murphy, and Topel (1991) show that rising joblessness was concentrated among less-skilled men at the bottom of the wage distribution, whose real wages fell sharply. Binder and Bound (2019) review evidence on the declining labor market prospects of less-educated men, including the role of changes in family structure. Abraham and Kearney (2020) review explanations for the decline in the employment-to-population ratio and find the strongest evidence for labor demand factors such as import competition and automation. Reeves (2022) discusses the decline in men's prospects in relation to the broader difficulties men face in education and family life.

[2] Smith and Welch (1989) show that the wages of Black and white men who worked converged substantially between 1940 and 1980. Bayer and Charles (2018) find less convergence in earnings after 1970 when men with zero earnings are included. Our finding that the Black-white gap in non-employment widened before 1980 suggests that the extensive margin may also present a different picture of convergence during the 1960s and 1970s than wages among workers do.

We next ask when the rise in non-employment occurred, finding that it arrived in recessions and persisted after the economy recovered. Non-employment rose by 11.1 percentage points across the recession years in our sample and fell only 2.8 percentage points across the non-recession years. Using the Panel Study of Income Dynamics (PSID), we find that the share of non-employed men who had also been non-employed at earlier interviews rose over time, particularly after the Great Recession. A meaningful share of men who lost jobs during the Great Recession were repeatedly non-employed over the following decade.[3]

We then ask how men are able to get by without working. About two-thirds of the rise in non-employment was among men primarily supported by other members of their household, most often family. We classify a man as household-supported if his own income is small relative to that of the others he lives with. The largest increases were among men living with parents or other adults rather than with spouses. Others in the household therefore bear much of the cost of men's non-employment, and most of the increase in household-supported non-employment came from households whose other members had below-median incomes. Men's own disability benefits, which have received the most attention in prior work (Autor and Duggan 2003; Krueger 2017), accounted for a smaller share of the rise in non-employment.[4]

We also examine how household-supported non-employment evolved as the economy recovered after recessions. Household-supported non-employment accounted for about half of the increases during recessions but about two-thirds of the overall rise because it did not reverse on net during expansions. This pattern makes it hard to interpret household support only as short-term insurance against temporary earnings losses (Kaplan 2012; McGarry 2016). In the PSID, household support is associated with more persistent non-employment. Household-supported men were more likely both to have been non-employed two years earlier and to remain non-

[3] Jacobson, LaLonde, and Sullivan (1993) show that individuals who are displaced from high-tenure jobs experience large, lasting earnings losses. Davis and von Wachter (2011) show that these losses are larger when displacement occurs during periods of high unemployment. Yagan (2019) documents employment hysteresis following the Great Recession: workers in areas that were hit harder by the recession were less likely to be employed even well after local unemployment rates had recovered. We connect this evidence on individual and local scarring to the long-run rise in male non-employment.

[4] CEA (2016) finds that a large share of non-employed men receive disability benefits. Moffitt (2015) shows that welfare spending has shifted over time toward the elderly and disabled and away from non-elderly, non-disabled families. Eberstadt (2022) emphasizes the importance of disability insurance and other government programs in supporting non-employed men. In contrast, our long-run accounting shows that most of the rise was among men supported by other household members, with the largest increases among men living with parents or other adults.

employed two years later, though this association does not show that support causes men to remain non-employed.[5]

Next, we examine why men are not working and how they spend their time. About a third of the rise in household-supported non-employment was among men reporting illness or disability, with the remainder among men reporting other reasons for non-employment. Some men cite home or family responsibilities, but, using the American Time Use Survey (ATUS), we find that non-employed men spent much more time than employed men on leisure, socializing, personal care, and sleep, and only a small amount more on caregiving or home production.

Lastly, we examine two shocks that prior work has linked to declining male employment: Chinese import competition, which reduced local job opportunities, and the opioid epidemic, which affected men's health and potentially their decisions about work. To do so, we use the decennial Census and American Community Survey. Using the exposure measure of Autor, Dorn, and Hanson (2013), we find that greater Chinese import competition raised non-employment mainly among men who were not supported by their households. Using differences across states in the early marketing of OxyContin documented by Alpert et al. (2022), we also find that oxycodone exposure raised non-employment mainly among household-supported men. Each of these shocks accounts for only a modest share of the long-run rise, and a large share of the rise came before either shock.

A decline in market work does not necessarily translate into a decline in private welfare. A man's work decision depends on the wage he can earn, his skills and health, the resources available to him without working, and the value of time spent outside of market work. Changes in any of these factors can reduce work, and their welfare implications depend on three issues: whether his opportunities improved or worsened, whether his decision maximizes his own long-run welfare, and how his non-employment affects others. First, better options for time outside work make men better off, while a lower wage or worse health makes them worse off, even if not working is their best response to these changes. These losses can outlast a temporary shock if time out of work lowers future employability. Second, a man's work decision may not maximize

[5] Stewart (2006) shows that family members are an important source of support for non-employed men. Matsudaira (2016) provides evidence that weaker labor markets, lower wages, and higher housing costs increase co-residence with parents among young adults, and that economic conditions could account for the rise in young men's co-residence between 1970 and 2011. We show that the household-supported non-employment that rose during recessions did not reverse during subsequent expansions.

his long-run private welfare. Lack of self-control, myopia, or other internalities may lead him to place too little weight on the future consequences of remaining out of work. Third, his non-employment can impose costs on others that he does not fully take into account. It affects taxpayers through lower tax revenue and higher transfers, and it affects household members whose resources support him. The facts above speak to each of these issues.

Taken together, the facts we document are more consistent with adverse developments than with a welfare-improving decline in work. Non-employment increased particularly during downturns, rather than steadily over time, which points to worsening opportunities playing an important role. Persistent non-employment among men who lost jobs during the Great Recession is consistent with lasting losses in employability. Chinese import competition and opioid exposure, which reduced job opportunities and worsened health, respectively, also contributed to the rise. In contrast, there is little evidence that men left work for caregiving or home production. Although improvements in leisure opportunities can reduce labor supply (Aguiar et al. 2021), a steady rise in the value of leisure is unlikely on its own to explain the timing of the increases. Such improvements may still affect men's decisions to return to work after the labor market has recovered.

Since household-supported non-employment did not reverse during economic expansions, it is unlikely that household support operated solely as short-term insurance against temporary earnings losses. Support that is available when a man is not working raises his resources while he is out of work, which makes continued non-employment more affordable. This income effect of family support may lead to non-employment as a man's optimal response. Unlike prior work, which has focused primarily on government programs, we show that most of the long-run rise in non-employment was financed by other household members, not by men's own government benefits. This household support has an important tradeoff. On the one hand, it offers a man insurance against consumption losses. On the other hand, it may slow his return to work and reduce his independence in the long run. Since household-supported non-employment is often persistent, household support may last longer than families intended. This could result either from families underestimating how long non-employment will last or from families

correctly anticipating the duration but finding it hard to withdraw support. Our data cannot distinguish between these two hypotheses.[6]

To assess overall welfare, we distinguish the adverse developments that lead to non-employment from the support that follows. All else equal, worse opportunities or poorer health makes men worse off, even if not working is their optimal response. But for men making optimal, forward-looking choices, household support makes them better off than they would be without support. This support entails other household members spending resources that they could otherwise spend on themselves. Providing these resources may or may not lower household members' welfare, depending on how much they value supporting others. Regardless of who supports a non-employed man, taxpayers incur a cost from forgone tax revenue. And if men or families underweight the future effects of household support, prolonged support can lower men's long-run welfare. Because non-employment persists after recessions, recessions may be more costly than immediate job losses would suggest.[7] A full accounting of welfare depends on how men value their time and how families value helping non-employed men, but our evidence points to persistent costs for men, their families, and public finances.

The remainder of the paper is structured as follows. Section 2 presents a simple model of the work decision. Section 3 reviews the prior literature on prime-aged male non-employment. Section 4 describes our data and how we define non-employment and household support. Sections 5 through 7 present our results on the rise and persistence of non-employment, household support, and the circumstances of non-employed men. Section 8 examines the role of Chinese import competition and opioid exposure. Section 9 concludes.

[6] Card, Chetty, and Weber (2007) find that lump-sum severance payments reduce the rate of returning to work, with little to no improvement in the quality of jobs found. Chetty (2008) shows that much of the longer unemployment caused by more generous unemployment benefits reflects relief of liquidity constraints, so longer non-employment in response to household support need not represent a welfare loss. Buchanan (1975) introduces the concept of the Samaritan's dilemma, in which someone who cares about another person cannot credibly commit to withdrawing support, which reduces the incentive for the recipient to avoid relying on it. Bruce and Waldman (1990) show how this problem arises between altruistic parents and their children.

[7] Lucas (2003) argues that the potential gains from further reducing economic fluctuations are small. Finkelstein et al. (2025) find that mortality declined in areas more affected by the Great Recession, which lowers estimates of its welfare costs. We add to this work by showing that non-employment that begins during recessions often persists after the recession is over and that most of this persistent non-employment is financed by other household members, not by men's own government benefits.

2. A Simple Model of the Work Decision

In this section, we describe a simple model of a man's decision of whether to work, first in a static environment before extending to a dynamic one. The model places candidate explanations for rising non-employment in a common framework and clarifies their implications for welfare. We do not estimate the parameters of this model. Instead, the model identifies the objects that the empirical sections in the rest of the paper speak to.

2.1: The Work Decision

We start from the standard static model of labor supply, in which an individual maximizes his utility $U(c, l)$ subject to the budget constraint $c = wh + y$ and the time constraint $h + l = T$. Here c is consumption, l is nonmarket time, w is the wage, h is hours worked, y is nonlabor income, T is total time available, and the price of consumption is normalized to one (Blundell and MaCurdy 1999). Because our outcome is whether a man works at all during the year, we focus on the extensive margin, where a man chooses whether to take a job that requires a fixed number of hours, $\bar{h}$.

We specify preferences as

$$U = u(c) + \theta v(l) - \kappa E,$$

where E is 1 if employed and 0 otherwise. With diminishing marginal utility of consumption, this separable form of utility yields the standard income effect on the employment decision. We assume that u is twice differentiable, with $u'(c) > 0$ and $u''(c) < 0$, that $\theta \geq 0$ and $\kappa > 0$, and that $v(T) > v\left(T - \bar{h}\right) \geq 0$, so additional time outside work is valuable. The parameter θ scales the value of time outside work, which depends on leisure technology and opportunities for home production (Aguiar et al. 2021). We interpret an increase in θ as an improvement in feasible nonmarket activities, holding underlying preferences fixed. The parameter κ measures the direct utility cost of working, which could reflect poor health or job disamenities. Poor health can also lower a man's wage.

A man in a particular education group can earn wage w, which may depend on labor market conditions. He compares the values of working (W) and not working (N):

$$V^W = u\left(y_W + (1 - \tau)w\bar{h}\right) + \theta v\left(T - \bar{h}\right) - \kappa$$

$$V^N = u(y_N) + \theta v(T),$$

where y_W and y_N are nonlabor income available when working and not working, respectively, and τ is the tax rate on earnings.

We allow a man's nonlabor resources to depend on whether he works because both government programs and household support can depend on his employment status. For instance, government benefits can depend on employment and earnings, and co-residence with parents can also provide insurance against labor market risk (Kaplan 2012). A family might cover a son's expenses while he is not working and expect him to contribute more once he has a job. For $j \in \{W, N\}$,

$$y_j = a + g_j + f_j,$$

where a is his own nonlabor income, such as asset income, which does not depend on whether he works; g_j is government support available in state j; and f_j is household support available in state j. These terms represent resources available for his consumption, including cash and in-kind assistance.

The reservation wage w^* is the wage at which $V^W = V^N$, so it satisfies[8]

$$u\left(y_W + (1-\tau)w^*\bar{h}\right) - u(y_N) = \theta\left(v(T) - v\left(T - \bar{h}\right)\right) + \kappa. \quad (1)$$

The left-hand side is the utility gain from the extra consumption that working provides. The right-hand side is the utility cost of working: the value of the time he gives up by working plus the direct cost of working. Because the left-hand side increases with the wage, a man works if and only if his wage is at least w^*. Higher θ raises the opportunity cost of working, while higher κ raises the direct utility cost of working. Both raise the reservation wage. Higher τ or y_N also raises the reservation wage, while higher y_W lowers it.

How much an increase in y_N raises the reservation wage depends on whether the additional support is also available when he works. Support available only when he is not working raises the value of non-employment without raising the value of employment, so it raises the reservation wage for any increasing u. An equal increase in support in both states instead operates through the income effect. At the reservation wage, consumption when working is higher than consumption when not working because working requires giving up time outside of work and incurring κ. With strictly concave u, an additional dollar raises utility more in the

[8] For the comparative statics below, we assume $0 < \bar{h} < T$, $0 \leq \tau < 1$, feasible consumption in both states, and a finite, positive reservation wage.

non-employment state, reducing the utility gain from working and raising the reservation wage. Per marginal dollar, support that is available only when not working raises the reservation wage by more than support that is available in both states because taking a job entails losing that support.

2.2: What Increasing Non-Employment Implies for Welfare

We organize the welfare implications of rising non-employment around three issues: whether a man's environment improved or worsened, whether his choice maximizes his own welfare, and how his non-employment affects others.

First, we discuss how a man's environment affects welfare. At the employment threshold, a man is indifferent between working and not working in a given environment. For a small change that moves him across the threshold, the first-order effect on his welfare depends on the change in his environment. Assessing welfare therefore requires comparing his opportunities before and after that underlying change. Holding everything else fixed, an increase in θ or an equal increase in y_W and y_N, as when families become richer, makes men weakly better off and can raise non-employment. Worse opportunities, in the form of a lower wage, or an increase in κ, make men weakly worse off and can also raise non-employment, with losses concentrated among men who would otherwise have worked. Family support that begins after a man loses his job combines these cases. As an example, a man who loses his job in a recession and moves back in with his parents is worse off because of the job loss, but the support offsets some part of that loss and also raises his reservation wage. A rise in non-employment therefore does not by itself reveal whether men's welfare rose or fell. In particular, increases in θ and κ both raise the reservation wage but have opposite welfare implications.

Second, we discuss whether a man's choice maximizes his own welfare. Our model assumes that a man chooses whether to work to maximize his welfare, given the options available to him. In the dynamic setting of Section 2.3, it also requires him to account correctly for the future consequences of not working. Misperceptions about future employability, shortsightedness about how not working lowers future wages, or impaired decision-making, potentially from addiction, could lead him to choose non-employment even when working would yield higher lifetime utility. When choices fail to maximize his own long-run welfare, stopping work can itself lower his welfare, in addition to any effect of the change in his environment.

Third, we discuss how a man's non-employment affects others. Let $\Delta g = g_N - g_W$ and $\Delta f = f_N - f_W$ be the differences in government and household support between non-employment and employment. Let c_W and c_N denote his consumption when working and not working, respectively. His consumption budgets imply

$$w\bar{h} = (c_W - c_N) + \left(\tau w\bar{h} + \Delta g\right) + \Delta f. \quad (2)$$

Equation (2) splits the earnings forgone when a man stops working into the consumption difference, $c_W - c_N$, a fiscal cost of $\tau w\bar{h} + \Delta g$, and a change of Δf in what other household members provide. Household support that is the same in both employment states ($\Delta f = 0$) does not create this cost for his household.

Under the specified preferences, the man values his own consumption and nonmarket time but does not directly value changes in the resources of taxpayers or other household members. At the employment threshold, he is indifferent between working and not working, while his decision can impose fiscal and household costs that he does not internalize. These are changes in resources, not necessarily welfare losses. For a welfare analysis, we would need to know how society values the resources that taxpayers and family members give up. We would also need to know whether others would benefit from the time he spends out of work. As an example, a son who is not working may care for a sick parent. His non-employment may also affect others in ways our accounting misses, such as through crime or through encouraging non-employment by people around him.

2.3: Temporary Shocks and Persistent Non-Employment

Our static model explains why men might stop working, but it does not explain why non-employment that begins during a recession could persist after labor market conditions recover. To capture this, we add a second period to our model and allow wages to change over time. A man's wage depends on labor market conditions, X_t, and is lower in period 2 if he does not work in period 1:

$$w_2 = w(X_2) - \delta(1 - E_1),$$

where $w(X_2)$ is the wage he could earn under period 2 labor market conditions if he had worked in period 1, w is increasing in X, and $\delta > 0$. This decline could reflect direct skill loss, but it could also reflect employers viewing the lack of employment as a negative signal (Kroft, Lange, and Notowidigdo 2013). Period 1 is a recession in which a man may lose his job, so that $E_1 = 0$.

Period 2 is a normal period in which labor market conditions have recovered, and he chooses whether to work as in Section 2.1. We model the recession as a job loss to correspond with our empirical evidence on job losses during recessions.[9]

A man who loses his job in period 1 enters period 2 with lower employability, so his wage, $w(X_2) - \delta$, is lower than it would have been had he kept working, even though labor market conditions have recovered. If the lower wage is below his reservation wage, he stays non-employed in period 2. A temporary shock can therefore raise non-employment after the shock is over. This matches the pattern in Section 5 and evidence on job displacement (Jacobson, LaLonde, and Sullivan 1993; Davis and von Wachter 2011). Men who return to work also earn less than they would have received without the earlier loss of employability. As a consequence, the cost of a recession extends beyond the immediate rise in non-employment. Holding other determinants fixed, an increase in θ or more support available when not working can increase the share of displaced men who remain out of work. Household support can begin due to a job loss, such as when a displaced man moves back in with his parents. Because this support arrives with a job loss, it can keep him out of work after conditions have recovered even if the value of his time outside work has not changed. Family support raises the reservation wage at least through an income effect, and it raises it by more if the support would decline when he works. We refer to the first of these as the income effect of family support.

Household support also differs in how long it lasts. As in standard analyses of unemployment insurance, the insurance benefit of support comes from protecting consumption during an earnings loss (Baily 1978; Chetty 2006). Support that ends once the labor market recovers works as short-term insurance. Longer-lasting support can still act as insurance if his earnings stay low after the labor market recovers.

Our model treats household support as given, but it is actually a decision made by others in the household. Families may underestimate how long non-employment will last or correctly anticipate its duration but find support hard to withdraw. In either case, continued support makes time out of work more affordable. The difficulty of withdrawing support is a version of the

[9] One could also model the recession as a decrease in wages rather than an outright job loss. In that case, a man with wage w_1 in period 1 works if $V_1^W + \beta V_2(w(X_2)) \geq V_1^N + \beta V_2(w(X_2) - \delta)$, where $V_2(w)$ is the maximized utility in period 2 given wage w and β is his discount factor. Because V_2 weakly increases in w, he may work in period 1 even if $V_1^W < V_1^N$. A forward-looking man therefore has a reason to keep working despite the lower wage, although a large enough decline in wages can still lead him to stop working.

Samaritan's dilemma, which we discuss in Section 3.2. Our data do not show families' expectations, so we cannot test this directly.

3. Background and Related Literature

A large body of work has documented the long-run decline in employment among prime-aged men (Moffitt 2012; CEA 2016; Krueger 2017; Abraham and Kearney 2020; Eberstadt 2022). There is also a broad consensus that the least-educated men have experienced the largest declines in employment (Moffitt 2012; CEA 2016; Krueger 2017; Binder and Bound 2019; Abraham and Kearney 2020).

3.1: Recessions and Persistent Non-Employment

Earlier work found that men's unemployment did not return to its previous low after recessions. Juhn, Murphy, and Topel (1991) show that men's unemployment rate at its 1989 cyclical low was above its peak during the 1971 recession. They also find that men out of the labor force for the entire year account for all the long-run increase in non-participation. In their data for 1967-1989, however, non-participation itself varied little over the business cycle. We extend this evidence to annual non-employment for 1965-2023 and show that its long-run rise occurred during recessions and was only partly reversed during expansions.

Individuals who lose their jobs during economic downturns suffer from large and persistent earnings losses. Jacobson, LaLonde, and Sullivan (1993) find long-term earnings losses of around 25% for high-tenure workers. Davis and von Wachter (2011) likewise document large earnings losses and show that the timing of the displacement matters: present-value earnings losses are twice as large when the unemployment rate exceeds 8% as when it is below 6%. Related research examines persistent employment consequences of recessions. Yagan (2019) finds that those who lived in the areas hardest hit by the Great Recession were less likely to be employed in 2015, well after local unemployment rates had recovered. Kroft et al. (2016) show that the rise in long-term unemployment during and after the Great Recession reflected both duration dependence in job finding and flows between unemployment and non-participation in the labor force. Employers are also less likely to call back job applicants who have been unemployed for longer (Kroft, Lange, and Notowidigdo 2013).

Non-employment can involve temporary interruptions of work or sustained detachment from the labor market. Coglianese (2018) documents that temporary labor force exits, or "in-and-outs," account for about one-third of the decline in prime-aged male labor force participation between 1977 and 2015. Other research documents longer-lasting non-employment: Stewart (2006) finds that a small group of marginal workers often does not work for periods of a year or more. Our CPS ASEC measure counts men as non-employed only if they did not work at any point during the year, so it excludes most short exits between jobs and captures the more sustained component of non-employment.

3.2: Household Resources and Government Support

Prior work on how non-employed men are supported has focused mainly on government programs, especially disability benefits. Autor and Duggan (2003) show that reduced screening stringency, declining demand for less-skilled workers, and an unanticipated rise in earnings replacement rates increased Social Security Disability Insurance receipt after 1984, lowering measured unemployment. CEA (2016) and Krueger (2017) also highlight the role of disability programs, noting that a substantial share of non-employed men receive disability benefits. Family support has received comparatively less attention. Stewart (2006, 2008) shows that family members are also a major source of support for non-employed men: in 1993-1999 and 2003-2004, many non-employed men lived in households where other members provided most of the support. Juhn, Murphy, and Topel (1991) find that jobless men, especially those with long spells of non-employment, are more likely to be single and to rely on extended family for support. Our paper extends this literature by examining how the relative importance of household support, disability benefits, and other sources of support has changed over more than five decades, how each changed during recessions and expansions, and how household support is associated with persistent non-employment.

A broader literature shows how families insure against labor market shocks and the limits of this insurance. One form of insurance comes from wives increasing their labor supply after their husbands are displaced from their jobs (Stephens 2002). Other forms of insurance come from moving back in with parents or receiving transfers from them (Kaplan 2012; McGarry 2016). However, the extent of family insurance depends on relatives' resources. Parents tend to direct transfers to the children who need them most (McGarry and Schoeni 1997; McGarry

2016), but they cut transfers after negative shocks to their own wealth (Schaller and Eck 2025). Hayashi, Altonji, and Kotlikoff (1996) reject full risk sharing within extended families, indicating that family insurance is incomplete. This literature also motivates our examination of who finances non-employment and the incomes of those providing support to non-employed men.

Resources that insure against earnings losses may also affect how quickly someone returns to work. Card, Chetty, and Weber (2007) find that additional lump-sum severance payments reduce the rate of returning to work, with little to no improvement in the quality of jobs accepted. Chetty (2008) estimates that, in the context of unemployment insurance, 60% of the increase in unemployment duration caused by more generous benefits comes from reduced liquidity constraints rather than distortions to search incentives. A separate literature examines support from the perspective of the person providing it. When someone who cares about another person cannot credibly commit to withholding support, the recipient has less reason to avoid needing it, a problem known as the Samaritan's dilemma (Buchanan 1975). Bruce and Waldman (1990) show how this problem arises between altruistic parents and their children. These models suggest why family support that begins as temporary help can be hard to withdraw.

3.3: Health and the Value of Time Outside Work

Krueger (2017) documents disability and pain among prime-aged men not in the labor force. Using pooled CPS data from 2008 to 2016, he finds that 34% reported having at least one disability. He also finds that nearly half take pain medication daily, with about two-thirds of those taking prescription pain medication. We build on this literature by examining how much of the long-run rise in household-supported non-employment was among men who reported illness or disability as their main reason for not working.

Improvements in leisure opportunities may reduce labor supply by increasing the value of time outside work. Aguiar and Hurst (2007) document a general increase in leisure time among men between 1965 and 2003. Aguiar et al. (2021) examine the role of technology, particularly video games and recreational computing, and find that improvements in these leisure opportunities reduced younger men's work hours. Their focus on younger men and work hours differs from our focus on annual non-employment among men aged 25-54. Their evidence also

covers the period since 2004, while most of the rise we document occurred earlier: non-employment rose from 2.9% in 1965 to 10.0% in 2004, compared with 11.1% in 2023.

A small number of studies have examined how non-employed prime-aged men allocate their time. These studies find that non-employed men spend much of their time on leisure and personal care and relatively little on caregiving (Stewart 2008; Eberstadt 2022). We build on this literature by using more recent ATUS data to characterize how non-employed prime-aged men allocate their time relative to employed men and by using our framework to assess what these patterns imply for competing explanations of rising non-employment.

3.4: Trade and Opioid Exposure

A related literature has examined the effects of specific shocks on male employment. A prominent strand of this work focuses on Chinese import competition. U.S. local labor markets more exposed to rising Chinese imports experienced larger declines in manufacturing employment, higher unemployment, lower labor force participation and wages, and larger increases in disability and other transfer payments (Autor, Dorn, and Hanson 2013). In their review of explanations for declining employment, Abraham and Kearney (2020) estimate that increased import competition from China lowered the employment-to-population ratio of the population aged 16 and older by 0.92 percentage points between 1999 and 2018, roughly a quarter of the decline in that ratio. We extend this literature by examining whether the increase in prime-aged male non-employment associated with import competition was among men supported by other members of their households.

A second strand of this literature focuses on the opioid epidemic. Krueger (2017) documents that prime-aged male labor force participation fell more between 1999-2001 and 2014-2016 in counties with higher opioid prescribing rates. However, the direction of causality is unclear because poor labor market conditions may themselves increase opioid use. Currie, Jin, and Schnell (2019) address this concern by instrumenting opioid prescribing to younger adults with opioid prescribing to the elderly in the same area. Using this instrument and county-level data from 2006-2014, they find no statistically significant effect of opioid prescriptions on the male employment-to-population ratio.

Separately, Alpert et al. (2022) show that the 1996 introduction and marketing of OxyContin were a leading cause of the opioid crisis. Purdue Pharma marketed this drug less

aggressively in states with triplicate prescription programs, and these states experienced lower early OxyContin distribution and slower subsequent growth in overdose mortality. Their design provides variation in opioid exposure that is plausibly exogenous to contemporaneous labor market conditions. Recent work uses this variation to study labor market outcomes. Labor force participation and employment among prime-aged adults rose in triplicate states relative to other states after 1996 (Powell 2022). Unemployed and non-participating workers in triplicate states also returned to employment about 10% faster than those in other states (Mukherjee, Sacks, and Yoo 2025). We use this variation at the commuting-zone level to examine whether the increase in non-employment associated with opioid exposure was concentrated among men supported by other household members.

4. Data and Measurement

This section begins by discussing the survey data used in this paper. We then discuss how we define non-employment in each data source and how we measure household support. Additional details on the construction of our measures and empirical methods are provided in Appendix A.

4.1: Data

Our primary data come from three sources: the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), the American Time Use Survey (ATUS), and the Panel Study of Income Dynamics (PSID).

The CPS ASEC is an annual supplement to the Current Population Survey and provides a large, nationally representative sample of the civilian noninstitutional population of the United States. We use the 1966-2024 CPS ASEC, which covers reference years 1965-2023. In recent years, the survey interviews households between February and April of the survey year about their incomes in the prior (reference) year. For each year of the survey, we have detailed demographic information and self-reported income and program receipt for prime-aged men. We can also use the income information for members of the prime-aged man's household to derive measures of household support. We use the CPS ASEC to study long-run trends in prime-aged male non-employment, differences by demographic characteristics, the family structure and

sources of support of non-employed men, and the reasons that non-employed men report not working.

The ATUS is a time-diary survey in which respondents report how they allocate their time across the activities of a single day. The survey draws its sample from the CPS. We use the 2003-2023 ATUS, excluding 2020 due to data quality issues associated with the COVID-19 pandemic. We use the ATUS to study how non-employed prime-aged men allocate their time across job search, leisure, home production, caregiving, education, and personal care relative to employed men.

The PSID is a long-running longitudinal household survey in the United States, tracking the same individuals and their descendants over time. We use the cross-year individual file for 1979-2023, which includes all prime-aged men who are part of a PSID family in a given year.[10] Starting in 1997, the PSID switched from annual to biennial interviews. For our main longitudinal analyses, we use the PSID's longitudinal weights, which are designed for tracking sample members and their descendants over time. We use the PSID to study the persistence of non-employment among prime-aged men, scarring from recessionary job loss, and the relationship between household support and subsequent non-employment.

For our analyses of Chinese import competition and opioid exposure, we supplement the CPS ASEC with the decennial Census and American Community Survey (ACS). The much larger Census and ACS samples allow us to conduct these analyses at the commuting-zone level. For the China shock analysis, we use the 1990 and 2000 decennial Censuses and the 2006-2008 ACS. For the opioid analysis, we additionally use the 2009-2011 ACS as well as the 2018-2019 ACS. We describe these samples and the corresponding analyses in greater detail in Section 8 and Appendix A.

4.2: Defining Non-Employment

Our definition of non-employment differs across data sources, reflecting differences in the survey questionnaires. In the CPS ASEC, we define an individual as non-employed for a particular reference year if (1) he reports working zero weeks in the reference year and (2) he is

[10] We use the cross-year individual file rather than the family-file sample (which is available for a longer time period but restricted to heads of families and spouses of the head) because our CPS ASEC results show a rising share of prime-aged men who are dependents, so restricting the sample to heads and spouses would miss an important component of the trend in non-employment.

not an active-duty member of the armed forces. The second condition is necessary because before reference year 1989, the CPS ASEC mechanically codes individuals who are active-duty members of the armed forces as working zero weeks in the reference year.[11]

We chose to define non-employment using a measure of weeks worked instead of a measure of earnings because of classification issues with self-employed individuals. Those who are self-employed can have stretches where they work some hours but receive no (or negative) income, so an income-based classification would misclassify such individuals as non-employed.

In the ATUS, we define non-employment as being unemployed or not in the labor force at the time of the survey. This is a contemporaneous measure, in contrast to the CPS ASEC's annual measure based on the number of weeks worked. In the PSID, we similarly define non-employment as not currently working at the time of the interview. Because of these differences in measurement, we use the CPS ASEC as our primary source for the long-run trend and use the ATUS and PSID for analyses involving time use and longitudinal information, respectively.

4.3: Measuring Household Support

To examine the sources of support of non-employed men, we calculate per-adult cash income, defined as total household cash income divided by the number of adults (aged 18 and over) in the household. Total household cash income includes earnings (wages, self-employment, and farm income), government income (Social Security, public assistance/welfare, SSI, unemployment benefits, workers' compensation, and veterans' benefits), and asset and other nonlabor income (interest, dividends, rent, and retirement/pension/annuity income).

We classify a non-employed man as primarily supported by others in his household if he lives in a multi-person household with positive income and his own income is less than or equal to 50% of per-adult household income. Men who live alone, men in multi-person households whose own income is greater than 50% of per-adult household income, and men in households with zero or negative measured cash income are not classified as primarily supported by others.[12]

[11] If we only use the first condition for reference years beginning in 1989, our estimated non-employment rates are identical to what we get when using both conditions. We maintain both conditions for all reference years in order to maintain the consistency of our definition.

[12] Household cash income can be zero or negative because some income components, such as self-employment, farm, or rental income, can take negative values. In addition, our cash-income measure does not capture non-cash resources or wealth that may support consumption. We therefore retain households with zero or negative measured cash income as a separate category rather than classifying the non-employed man as primarily supported by himself or by other household members.

We use a 50% threshold because, if household income were shared equally among adults, a man at or below this threshold would receive at least half of his share of household resources from the income of other household members. As an example, in a household of two adults with $40,000 in total income, per-adult income is $20,000, and a man with own income of $10,000 or less would receive at least half of his $20,000 share from the other adult.

For some analyses, we further distinguish between household support and disability-related support. We divide non-employed men into three mutually exclusive and exhaustive groups: (1) those who are primarily supported by others in their household, as defined above; (2) those who are not primarily supported by others and receive disability program income; and (3) those who are not primarily supported by others and do not receive disability program income. Because the CPS ASEC measures disability income differently over time, we define disability program income receipt using the best available sources in each time period, as described in Appendix A.4. Throughout, we compute joint rates, which are the share of prime-aged men who are both non-employed and in a given category, so that category changes sum to the total change.

Our evidence on household support has at least two limitations. The first is selection. Men with poor wage prospects may be both more likely to get help from their household and more likely to stay out of work, even if the help does not change whether they work. The second is measurement. The CPS ASEC and PSID show only whether a man lives with people whose income supports him. We do not see how support affects his own consumption or whether it would stop if he took a job. Our results therefore show how persistent supported non-employment is, but not whether support depends on his not working. We use the term accommodation to describe support that accompanies extended non-employment without implying that the support causes it.

5. Recessions and the Rise in Male Non-Employment

This section examines which men stopped working, when the rise in non-employment occurred, and whether it persisted. Our model helps interpret these patterns. If a steady increase in the value of time outside work, θ, were driving the rise on its own, we would expect non-employment to rise during expansions as well as recessions. But if worsening employment opportunities were the main force, we would expect increases to arrive when labor market conditions deteriorate, as they do during recessions. The dynamic version of the model in Section

2.3 adds a second prediction. If time out of work lowers the wage a man can later earn, a temporary job loss can be followed by non-employment that continues after conditions recover.

This section begins by documenting the long-run increase in prime-aged male non-employment and examining which demographic groups experienced the largest increases. We then show that this increase occurred during recession years. Finally, we use longitudinal data from the PSID to examine the persistence of non-employment and the longer-run consequences of job loss during the Great Recession.

5.1: The Long-Run Increase in Non-Employment

Figure 1 shows our headline results on how prime-aged male non-employment has changed over time. We estimate annual non-employment rates using the CPS ASEC for reference years 1965-2023. Additional details on the construction of these estimates are provided in Appendix A.1.

Beginning with the unadjusted estimates, we see a large and persistent increase in the rate of non-employment, from 2.9% in 1965 to 11.1% in 2023, an increase of 291%.[13] The net increases over 1965-1985 and 1985-2005 were similar in magnitude, while the net increase since 2005 has been smaller. Between 1965 and 1985, the non-employment rate increased from 2.9% to 6.3%; between 1985 and 2005, it increased from 6.3% to 9.6%; and between 2005 and 2023, it increased from 9.6% to 11.1%.[14]

Figure 1 also shows the trend in non-employment after adjusting for changes in age, education, region, and race. The adjusted increase is even larger than the unadjusted increase, from 2.9% in 1965 to 14.3% in 2023, though the two series move closely together. The fact that this increase is larger after controlling for demographic characteristics implies that the composition of prime-aged men shifted toward groups with lower non-employment rates. In particular, rising educational attainment should have reduced non-employment over this period. Appendix Figure A1 shows estimates adjusting separately for each set of demographic characteristics and confirms that education drove the larger increase after demographic adjustments. This means that the increase in non-employment would have been even larger had

[13] The rise in the share of men not working would be even larger if we included men who are incarcerated, who are excluded from the CPS ASEC's civilian noninstitutional population.
[14] All of these endpoint years are non-recession years, reducing concerns that these comparisons are driven by the business cycle.

the composition of prime-aged men remained the same and the relationship between education and employment also remained the same.

To assess how much of the change in non-employment is attributable to shifts in demographic composition, we use the Oaxaca-Blinder decomposition described in Appendix A.2. Appendix Table A1 shows that demographic changes alone would have predicted a decline in non-employment between 1965 and 2023 when evaluated at 2023 coefficients and almost no change when evaluated at 1965 coefficients. Thus, changes in the demographic composition of prime-aged men do not explain the long-run increase. In our model, rising educational attainment raised the wage that the average prime-aged man could earn, which by itself would have lowered non-employment. The rise instead reflects changes within demographic groups in the determinants of the work decision in Equation (1): the wage a man can earn, the direct cost of working, the value of time outside work, and the resources available to him. The adjusted series does not tell us which of these determinants changed, so it does not indicate by itself whether men's welfare rose or fell.

5.2: Who Has Been Most Affected?

We next examine how the rise in non-employment differs across demographic groups. The largest differences were by education and race. Differences across age groups and regions were considerably smaller: the percentage point increases over the full period were similar across age groups, and both the levels and trends in non-employment were very similar across Census regions (Appendix Figures A2 and A3).

There were much larger differences by education. Panel A of Figure 2 shows that men with lower levels of education had higher levels of non-employment throughout the period. Those with less than a high school degree had the highest rates, followed by high school graduates, those with some college, and those with at least a college degree, in that order. While all education groups experienced increases in non-employment, the increases were substantially larger in both percentage and percentage point terms among men with less education. Within each education group, increases were concentrated during and shortly after recessions, and the gaps between education levels widened substantially after the Great Recession.

In our model, the wage a man can earn depends on his education group. The larger increases among less-educated men are consistent with evidence that their labor market prospects

deteriorated over this period (Juhn, Murphy, and Topel 1991; Binder and Bound 2019). If so, the larger employment declines among less-educated men would reflect private welfare losses from worsening wage opportunities. However, the education gradient alone does not establish this, for two reasons. First, the employment response depends on how many men have wages just above their reservation wages. A rise in the value of time outside work could therefore produce larger employment declines among less-educated men if more of the wages they can earn lie near the employment threshold. Lower average wages alone do not establish this because reservation wages can also differ across education groups. For this reason, the timing of increases within each education group is more informative than the education gradient itself. Second, as educational attainment rose, men with less than a high school degree became a smaller and likely more negatively selected group. Thus, increases in non-employment within this group may partly reflect changes in the unobserved characteristics of its members rather than changes in their opportunities.

Panel B of Figure 2 shows similarly large differences by race. Black prime-aged men had higher rates of non-employment than white men throughout the 1965-2023 period. The period before 1980 is particularly striking: the Black-white gap in non-employment widened from 2.8 percentage points in 1965 to 10.8 percentage points in 1980, with Black men's non-employment rate rising much more rapidly than that of white men during this period. Starting in the 1980s, however, the rates evolved very similarly for Black and white men, with the gap narrowing somewhat but remaining large.

This timing contrasts with evidence of Black-white convergence in other labor market outcomes, such as wages and occupation, during the 1960s and 1970s (Smith and Welch 1977, 1989; Freeman 1981; Brown 1984; Heckman and Payner 1989; Donohue III and Heckman 1991). These findings are not necessarily inconsistent with ours. Convergence in outcomes measured among employed men can occur, and may even be accelerated, if lower-earning men are the ones leaving employment. As a result, wage convergence among workers can be an incomplete measure of convergence in the opportunities available to Black and white men. Studies that include men with zero earnings in comparisons of Black and white men's earnings find less convergence after 1970 than studies of workers alone (Bayer and Charles 2018). The widening Black-white gap in non-employment before 1980 suggests that the extensive margin

may present a different picture of Black-white labor market convergence than wages and occupations among workers.

The aggregate trend documented in Section 5.1 combines variation across ages, calendar years, and birth cohorts. Later cohorts experienced higher non-employment at comparable ages, and the increase was nearly monotonic across cohorts (Appendix Figure A4).

5.3: Recessions and the Timing of the Rise

To quantify the role of recessions in the long-run increase, we classify years according to NBER recession dates, calculate the annual change in the non-employment rate, and separately sum these changes across recession and non-recession years. We classify a year as a recession year if any month of that year falls within an NBER recession. The shaded recession indicators in Figure 1 show that the increase was concentrated during periods of recession. During the 15 recession years in our sample, non-employment rose by a cumulative 11.1 percentage points, while during the 43 non-recession years it fell by only 2.8 percentage points. Of particular note is the Great Recession: non-employment rose precipitously during this recession and was very slow to recover, never again reaching its pre-recession level. Thus, the long-run rise does not look like a smooth secular increase. Instead, non-employment repeatedly rose during periods of economic downturn, and those increases were only partially reversed during subsequent expansions.

In our model, a recession lowers the wage a man can earn and causes some men to lose their jobs, while there is no reason to expect the value of time outside work to rise sharply at the same time as the recession. The concentration of increases during recessions therefore points toward worsening employment opportunities initiating most of the rise. Support from family members may increase when men lose their jobs, but this support responds to the job loss rather than initiating it.

The recession pattern does not imply that recessions alone are responsible for the rise. Gradual changes in labor market opportunities can be realized during downturns. For example, employment in routine occupations declined mainly during recessions and did not recover afterward (Jaimovich and Siu 2020). Similarly, employers in areas hit harder by the Great Recession raised the skill requirements in their job postings (Hershbein and Kahn 2018). Some candidate explanations also operated over only part of our sample period. The rise in non-employment began decades before the increases in Chinese import competition and opioid

exposure that we study, so neither can explain the origins of the long-run trend. We estimate their contributions in Section 8.

The timing evidence does not establish why men fail to return once aggregate labor market conditions recover. Persistent non-employment could reflect lower subsequent wages because time out of work reduced employability, or a higher reservation wage due to greater θ or resources available when not working, y_N, such as family support that began after the job loss. Section 5.4 examines persistence, while Sections 6 and 7 examine resources and nonmarket activities that help assess these interpretations.

5.4: Persistence and Recessionary Job Loss

The incomplete recovery of non-employment following recessions raises the possibility that economic downturns have persistent effects on employment. The dynamic version of our model provides one reason this could happen. If time out of work lowers the wage a man can later earn, a man who loses his job in a recession may remain out of work after labor market conditions recover, and a man who returns earns less than he would have without the earlier job loss (Jacobson, LaLonde, and Sullivan 1993; Davis and von Wachter 2011). We use the PSID for 1979-2023 to describe how the prevalence of persistent non-employment changed over time and to examine whether job losses during the Great Recession were followed by repeated non-employment after conditions recovered. Before examining the persistence of non-employment, we compare non-employment rates in the PSID and CPS ASEC in Appendix Figure A7. Non-employment was consistently higher in the PSID, but the trends were similar across the two data sources.

Because the PSID switched from annual to biennial interviews beginning in 1997, we measure persistence in two-year increments to maintain comparability over time. For a given interview year, we examine whether a man is non-employed in that year and whether he was also non-employed two, four, or six years prior. Additional details are provided in Appendix A.7.

Panel A of Figure 3 shows the composition of non-employed men by persistence across interview waves. The share of non-employed men who were non-employed at four observations spaced two years apart rose from 8.8% in 1985 to 18.4% in 1989, remained between 14.7% and 18.9% through 2009, and rose again after the Great Recession, reaching 26.8% in 2017 before declining to 21.3% in 2023. Because 1985 is an unusually low year, we also compare decade

averages for men aged 31-54, who are old enough to be observed at all four interviews. Among these men, the share rose from 20.4% in 1985-1995 to 29.5% in 2013-2023, and about three-quarters of this increase was among men who did not report being disabled.[15] Over the full period, the share of non-employed men who were newly non-employed (non-employed in t but not in $t-2$) fell from 55.2% to 49.5%. Thus, persistence rose most after recessions and only partly declined during the subsequent recoveries, which matches the aggregate pattern in Section 5.3.

To investigate whether recessionary job loss is one source of this persistence, we use the Great Recession as a case study. Workers in areas hit harder by the Great Recession still had lower employment rates in 2015 (Yagan 2019). We complement this evidence by following individual men who lost jobs during the recession. As described in Appendix A.8, we classify a man as experiencing a Great Recession job loss if he transitioned from employment in 2007 to non-employment in 2009 or from employment in 2009 to non-employment in 2011. We then examine these men's employment status in subsequent PSID interviews.

Among those men who experienced a Great Recession job loss, 12.5% were non-employed in at least 3 of the next 5 interviews (spanning 10 years) and 18.9% were non-employed in at least 2 of the next 3 interviews (spanning 6 years). Panel B of Figure 3 provides another way of showing the persistence of the Great Recession shock. In 2011, 66.2% of non-employed men had experienced a Great Recession job loss. This share declined in subsequent years, but even by 2023, 21.7% of non-employed men had experienced a Great Recession job loss more than a decade earlier.

These persistence rates do not by themselves show that the job loss caused the later non-employment, however. Men who lost their jobs during the Great Recession may have had lower wage prospects before the recession. Lower prospects would make them more likely both to lose a job and to remain out of work afterward, even if the job loss itself did not lower their future wages.

[15] The 1985 value is low because it requires non-employment back to 1979, a business-cycle peak. Among all non-employed men aged 25-54, the share rose from 15.1% to 22.7% between 1985-1995 and 2013-2023, and among men observed at all four interviews it rose from 22.9% to 36.2%. All three increases are statistically significant at the 1% level. Of the 20.4% in 1985-1995, 12.7 percentage points were men who reported being disabled and 7.7 points were men who reported other statuses. By 2013-2023, these were 14.8 and 14.7 percentage points, respectively.

Taken together, these results suggest that recessionary job loss is one mechanism through which economic downturns can have lasting effects on prime-aged male non-employment. Recessions sharply increased the number of men who were non-employed, and for a meaningful share of those men, non-employment persisted well beyond the recession itself. If this persistence reflects lower employability, as in the dynamic version of our model, the cost of a recession extends beyond the downturn in two ways. Men who remain out of work are worse off than they would have been without the job loss, and men who return earn less than they otherwise would have. Persistence can also extend the resource cost borne by others. In Equation (2), each additional period of non-employment can entail forgone tax revenue and additional government support, $\tau w\bar{h} + \Delta g$, and additional household support, Δf. These costs accumulate when they recur across periods. Policies that prevent job loss or speed up re-employment can therefore have value beyond their immediate effects on employment and earnings.

However, lower employability is not the only reason non-employment could persist. In our model, a higher value of time outside work or more support available when not working can also keep displaced men out of work after conditions recover. Persistence could also reflect choices that do not fully account for how time out of work lowers future wages. In Section 6, we examine whether the non-employment that persists is concentrated among men supported by other household members.

Overall, the evidence in this section points to a rise in non-employment that was neither the result of demographic composition nor a smooth secular trend. Increases arrived during recessions, when the wages men could earn fell and some men lost their jobs, and only part of each increase reversed during the subsequent expansion. At the individual level, persistence rose most after recessions, and a meaningful share of men who lost jobs during the Great Recession were repeatedly non-employed over the following decade. In our model, these patterns suggest that worsening employment opportunities initiated most of the rise and made men worse off, all else equal.

6. Household Support and the Persistent Rise in Non-Employment

This section examines how non-employed men are supported and how this support relates to the persistence we documented in Section 5. In our model, the resources available to a man

when he is not working are $y_N = a + g_N + f_N$. Household support can protect a man's consumption when he is not employed, and it can also raise his reservation wage. The model points to a few possibilities, which need not be mutually exclusive. If household support mainly insures temporary earnings losses, household-supported non-employment should decrease as the labor market improves. But if household support continues after the labor market recovers, the support could be acting as insurance for men whose employment prospects were hurt over the long term, or it could keep men out of work by raising their reservation wages through the income effect of family support. This does not require families to have become richer, because support that is available when a man is not working raises his resources while he is out of work. Lastly, if families became richer over time, an equal increase in support in both employment states would raise the reservation wage through an income effect while making men weakly better off.

This section begins by examining the family structure and sources of support of non-employed prime-aged men and how they have changed over time. We then examine the incomes of the household members who support them. Next, we examine how non-employment by source of support changes during recession and non-recession years. Finally, we use longitudinal data from the PSID to examine whether non-employed men who are supported by other household members are more likely to remain non-employed.

6.1: Family Structure and Sources of Support

Non-employed men may be sustained by several different kinds of resources, including their own nonlabor income, government programs, and income received by other members of their household. We begin by examining family structure before turning directly to these sources of economic support. As described in Section 4.3, we report joint rates, so that changes across categories sum to the total change in non-employment.

Panel A of Figure 4 plots the joint rates of non-employment and family structure over time.[16] We classify men into five mutually exclusive and exhaustive categories: married; unmarried and living with their own child aged 18 or under; living alone; unmarried and living

[16] Because the family-structure measures cannot be constructed consistently in the 2024 CPS ASEC, this analysis ends in reference year 2022.

with their parents; and unmarried and living with other adults and no own children.[17] The two largest increases in joint rates were for living with parents and living with other adults. The joint rate of being non-employed and living with parents rose from 0.56% in 1967 to 3.45% in 2022, and the joint rate of being non-employed and living with other adults rose from 0.34% to 2.77% over the same period. In total, 82% of the increase in non-employment between 1967 and 2022 (7.56 percentage points) was among men who lived with at least one other adult (i.e., married, living with parents, or living with other adults), while 18% of the increase (1.66 percentage points) was among men who lived alone or were unmarried and living with their own children. Thus, most of the long-run rise in non-employment was among men living in households containing other adults who could provide economic support.

These increases outside of marriage partly reflect the decline in marriage among men over our time period (Autor, Dorn, and Hanson 2019; Kearney 2023). This pattern limits how much specialization between spouses can explain the rise. In our model, married men who contribute to home production while their spouses work could have a higher value of time outside work, θ, and this use of time could benefit others in their households. A similar dynamic could occur with parents or other adults, which motivates our analysis of time use in Section 7.2.

We next examine whether other household members or the non-employed man's own resources provide the primary source of support. Panel B of Figure 4 divides non-employed men into the three mutually exclusive and exhaustive categories defined in Section 4.3: household-supported, disability-supported, and supported by other means. The largest increase over time was among those who were primarily supported by others in their household. Overall, 66% of the increase in non-employment since 1967 (5.81 percentage points) was among men primarily supported by those with whom they lived, most commonly family. By contrast, 25% of the increase (2.17 percentage points) was among men who were not household-supported and received disability program income, and 10% of the increase (0.87 percentage points) was among those supported by other means. Thus, the long-run rise in non-employment has been accommodated in large part by resources from other household members rather than by the non-employed man's own disability benefits. Appendix Figure A8 shows the more detailed within-household income classification underlying this measure.

[17] The married category includes men with and without children, while the "living with other adults" category can include unmarried partners.

One reason that household support is so important to non-employed men is that men without dependent children or a qualifying disability have very little access to government cash programs unless they have worked recently.[18] These categories classify each man's primary source of support, not his only source: household-supported men may themselves receive disability benefits, and the income of others in their household could come from government programs, such as Social Security. In Equation (2), the cost of non-employment borne by others depends on forgone tax revenue and on Δf and Δg, the additional household and government support received when non-employed, respectively. As an example, if a household provides housing to a man regardless of his employment status, $\Delta f = 0$ for that support even though he is classified as household-supported. Lastly, our support measure does not show whether the support available to a given man has become more generous over time. More men may have been classified as household-supported because their employment opportunities worsened or because more men lived with parents or other adults.

6.2: The Incomes of Supporting Households

One explanation for the rise in household-supported non-employment is that rising family incomes have allowed more men to remain out of work. If rising family incomes were important for this phenomenon, one natural expectation is that the rise in household-supported non-employment would be concentrated among men whose other household members have high incomes. To examine this, we rank prime-aged men who live with at least one other adult by the income of their other household members per other adult. As described in Appendix A.4, we compute quartiles of this measure in each year and decompose the 1967-2023 increase in household-supported non-employment by quartile of others' income.

Of the 5.81 percentage point increase in household-supported non-employment, 61% came from men in the bottom two quartiles of other household members' income, while 19% came from men in the top quartile (Appendix Table A2). Thus, the rise in household-supported non-employment was not concentrated among men whose potential supporters had high incomes. However, this is not a direct test of whether rising family incomes increased non-employment. Quartiles are recalculated every year, so this exercise shows where in the relative ranking the

[18] As an example, TANF requires dependent children, SSI and SSDI require a qualifying disability, and unemployment insurance requires recent work.

increase occurred. It does not show how rising family income affected employment. It also does not rule out the income effect of family support, because support from a household with modest income still raises the resources available to a man when he is not working.

A large portion of the increase in household-supported non-employment came from households with lower incomes, which is important for understanding the burden on other household members. For a lower-income family, the same amount of support represents a larger share of its overall resources than it does for a higher-income family. Thus, if supporting a non-employed man takes resources from others, the burden of a man's non-employment is larger for poorer households.

Differences in family resources also mean that household support is not equally available to all men. Families differ in income, housing space, and the number of people they already support. As an example, consider two men who lose the same job at the same time. The first lives near his parents, who have an extra bedroom and enough income to support another adult, while the second's parents are struggling financially. The first man can stay housed and keep consuming at levels similar to before despite having no income, while the second has no such option. The household support that we observe should therefore not be assumed to be available to all men. Some of the men with the least access to such support may be missing from our data, which is important for interpreting our results. The CPS ASEC covers the civilian noninstitutional population and thus excludes incarcerated men by design, while those experiencing homelessness are difficult to measure in household surveys (Meyer, Wyse, and Corinth 2023).

6.3: Recessions and Sources of Support

We have found that most of the rise in non-employment occurred during recessions and that household-supported men accounted for most of the long-run rise in non-employment. However, these two findings do not necessarily mean that household-supported non-employment responds especially strongly to recessions. An alternative possibility is that recessions generate increases across several types of non-employment, but that the household-supported component is less likely to reverse during subsequent expansions. This distinction matters because, as described at the start of this section, short-term insurance implies that household-supported non-employment should fall during expansions. To distinguish between these possibilities, we apply

the recession decomposition from Section 5.3 separately to household-supported, disability-supported, and other non-employment.

Table 1 reports the cumulative changes for each source of support during recession and non-recession years between 1967 and 2023. Recessions generated increases in non-employment across all sources of support. Household-supported non-employment rose by 5.01 percentage points during recession years, while disability-supported and other non-employment rose by 2.04 and 3.53 percentage points, respectively. Thus, household-supported non-employment accounted for about half of the 10.58 percentage point cumulative increase during recession years.[19]

The components behaved very differently during non-recession years. Household-supported non-employment rose by an additional 0.80 percentage points during non-recession years, and disability-supported non-employment rose by 0.14 percentage points. In contrast, other non-employment fell by 2.67 percentage points during non-recession years, reversing about three-quarters of its cumulative recession-year increase.

Household-supported non-employment therefore accounted for about 47% of the increase during recession years but 66% of the overall increase since 1967. This is because it did not reverse on net during non-recession years, rather than because it responded especially strongly to recessions. By comparison, much of the increase in other non-employment during recessions was reversed during subsequent non-recession years.

In our model, a temporary decline in the wage a man can earn raises non-employment during recessions, and the recovery of wages during expansions brings non-employment back down afterward. The reversal of the recessionary increase in other non-employment is consistent with this mechanism. The lack of reversal in household-supported non-employment, on the other hand, provides limited support for interpreting household support mainly as insurance against temporary earnings losses. In our dynamic model, this lack of reversal is consistent with support continuing because men's employment prospects are still low enough that $w(X_2) - \delta$ is below their reservation wage. But it is also consistent with support keeping men out of work by raising their reservation wages through the income effect of family support or because support would decline if they worked. These two forces can operate at the same time, and our aggregate data cannot separate them. The net rise in household-supported non-employment outside of recessions

[19] This total differs from the 11.1 percentage points in Section 5.3 because Table 1 uses the IPUMS version of the CPS ASEC files. See the notes to Table 1.

could also reflect gradual forces, such as an increase in the value of time outside work. Finally, disability-supported non-employment also rose on net outside of recessions, which is consistent with disability benefits being tied to health conditions and generally requiring limited earnings.

6.4: Household Support and Persistence

The aggregate results in Table 1 suggest that household-supported non-employment is particularly persistent across the business cycle. However, they do not show whether the same men remain out of work, which is the margin the dynamic model in Section 2.3 describes. We next use the longitudinal structure of the PSID to examine the association between household support and persistence at the individual level. As described in Appendix A.9, we construct a measure of household support beginning in 2005 that is similar to our CPS ASEC measure and examine whether a man who is non-employed and household-supported at one interview remains non-employed at the next interview two years later.

There are important differences between the PSID and CPS ASEC measures. In the CPS ASEC, both non-employment and income refer to the prior calendar year. In the PSID, non-employment is based on employment status at the time of the interview while income refers to the prior calendar year. As a result, recently non-employed men may still have substantial prior-year own income, which tends to decrease measured household support in the PSID. Appendix Table A3 compares non-employment and household-supported non-employment in the two data sources in 2005 and 2023. Levels differ between the surveys, and total non-employment rose more in the PSID than in the CPS ASEC over this period, but household-supported non-employment rose in both.

Table 2 reports linear probability model estimates of the association between household support and non-employment at the next PSID interview. Among men who are non-employed at the baseline interview, household-supported men are 8.6 percentage points more likely to remain non-employed at the next interview two years later than non-household-supported men.[20] For comparison, 59.4% of non-household-supported men are non-employed at the next interview. Including age and survey year fixed effects increases this difference to 11.2 percentage points. Both of these estimates are statistically significant at the 1% level.

[20] We restrict to men aged 25-52 at the baseline interview so that their next interview is still within prime age.

These estimates are descriptive and should not be interpreted as identifying a causal effect of household support on subsequent non-employment. As an example, households may provide support precisely because they expect a man's non-employment to last for a long time.

The timing difference between the PSID income and employment measures noted above may also contribute to this association, because men who have been non-employed longer are more likely to be classified as household-supported. To investigate this, column (3) of Table 2 controls for whether a man was also non-employed at the interview two years before the baseline. With this control, the difference falls to 2.7 percentage points and is not statistically significant, compared with 10.9 percentage points on the same sample without the control. Panel B of Table 2 shows why the difference falls. Among men who were non-employed two years before the baseline, about 80% are non-employed two years after the baseline whether or not they are household-supported. But among men who were employed two years before the baseline, 50% of household-supported men are non-employed two years after the baseline, compared with 41% of other men.

Thus, household support is associated with more persistent non-employment: household-supported men were more likely both to have already been out of work two years before the baseline and to remain out of work two years after it. In our model, the high persistence among men who were already out of work, regardless of household support, is consistent with lasting losses in their employment opportunities. Among men who were employed two years before the baseline, household support is associated with a higher chance of remaining non-employed, which may reflect support raising reservation wages early in the spell, selection of men with poor prospects into household support, or the timing of the income measure.

Taken together, the evidence in this section shows that household support is closely associated with the part of the rise in male non-employment that persists, and at the individual level, household-supported men were more likely to be non-employed repeatedly. Most of the long-run rise in non-employment was among men supported by other household members, most often men living with parents or other adults rather than with spouses, and the rise was not concentrated among men whose potential supporters had high incomes. In our model, these patterns provide limited support for explanations in which the rise mainly reflected short-term insurance or specialization between spouses. Instead, they are consistent with household support for men whose employability fell, with support that raises reservation wages, or with both.

These mechanisms have different welfare implications for the men. Support protects a man's consumption while his earnings are low, which has insurance value. For a man making optimal, forward-looking choices, support raises his welfare relative to receiving no support. But if support also raises his reservation wage, it can lengthen his spell of non-employment, which entails forgone tax revenue and potentially additional resources from other household members. It can also lower his long-run welfare if he does not fully account for how current non-employment affects his future wage offers. Our data cannot separate these mechanisms or show whether the insurance value of support outweighs its costs to other household members. They do show that the resources accommodating the non-employment that persists after recessions come mostly from other household members rather than from the men's own government benefits, so analyses that focus on those benefits miss this important role.

7. The Circumstances of Non-Employed Men

This section examines the reasons why non-employed men do not work and how they spend their time. In our model, this evidence helps us distinguish between changes that reduce work but have very different welfare implications. Poor health can increase the direct cost of working, κ, or lower the wage a man can earn, both of which reduce his welfare, all else equal. On the other hand, an increase in the value of time outside work, θ, weakly increases his welfare. How men spend their time out of work can also affect others in the household. If they spend that time providing care for others or engaging in home production, other household members can benefit. Men can also improve their future wage prospects by spending time out of work on education. If household-supported non-employed men mostly report not working due to illness or disability, this would be consistent with household support acting as insurance against long-lasting employment losses.

This section begins by examining the reasons that household-supported non-employed men report for not working and whether they report having a work-limiting disability. We then use the ATUS to examine how non-employed men allocate their time relative to employed men.

7.1: Reasons for Not Working and Work Limitations

The fact that household-supported men account for most of the long-run rise in non-employment raises the question of why these men are not working. One possibility is that other

household members are supporting men who are unable to work because of illness or disability. To examine this possibility, we use the CPS ASEC question asking individuals who worked zero weeks during the reference year to report their main reason for not working. We then supplement this measure with a separate question asking whether an individual has a disability that limits his ability to work. Additional details on both measures are provided in Appendix A.5.

Table 3 divides household-supported non-employed men into those who report illness or disability as their main reason for not working and those who report another reason. In 1967, 0.6% of all prime-aged men were household-supported and reported illness or disability as their main reason for not working, while 0.3% were household-supported and reported another reason. By 2023, these rates had risen to 2.5% and 4.2%, respectively. Thus, of the 5.8 percentage point increase in household-supported non-employment, 1.9 percentage points, or 32.5%, came from men who reported illness or disability, while 3.9 percentage points, or 67.5%, came from men who reported another reason. Most of the increase in household-supported non-employment therefore came from men who did not report illness or disability as their main reason for not working.

Among the other reasons reported for not working, the largest contributions to the overall increase came from home or family responsibilities, which accounted for 25.0% of the total increase in household-supported non-employment, followed by school at 15.6%, inability to find work at 11.9%, and the residual "other" category at 11.1%. Appendix Table A4 provides the complete breakdown.

A respondent's main reason for not working may not fully capture whether a health condition limits his ability to work. We therefore also examine a separate CPS ASEC measure of whether an individual reports a work-limiting disability. This measure is available starting in reference year 1987, but there is a structural break in its coding in 2014. For this reason, we use this measure to characterize household-supported non-employed men in recent years rather than to examine a consistent long-run trend.

The work limitation measure gives a similar picture. In 2023, 30.2% of household-supported non-employed men reported a work limitation while 69.8% did not. As a share of all prime-aged men, 2.0% were household-supported and non-employed with a work limitation, compared with 4.7% who were household-supported and non-employed without one. One reason the share with a work limitation may be relatively low is that some work-limited men may

receive enough disability income of their own that they are not classified as household-supported.

Taken together, these measures suggest that illness and disability are important for understanding the non-employment of some household-supported men, but most of the rise was among men reporting other reasons for not working. The other reasons for not working have different welfare implications. Reports of being unable to find work are consistent with the worsening opportunities that we documented in Section 5. Men who are out of work to attend school are investing in higher future wages. Men who report being out of work for home or family responsibilities may have a high value of time outside work, θ, and their time out of work may benefit others in their household. Reported reasons for not working are an imperfect proxy for these determinants, however, because they are self-reported and the survey records only the main reason. For example, a man who reports illness or disability may also be out of work because the wage he can earn is too low.

7.2: How Do Non-Employed Men Allocate Their Time?

We next examine how non-employed men allocate their time using the ATUS for 2003-2023, excluding 2020. Before examining time use, we compare the non-employment rates in the ATUS to those in the CPS ASEC in Appendix Figure A9. In most years, non-employment rates were slightly higher in the ATUS than in the CPS ASEC, which is expected given the difference in definitions: the ATUS classifies men as non-employed based on their labor force status in a single week, whereas the CPS ASEC definition requires non-employment for an entire calendar year. Despite this difference in levels, the trends in non-employment were similar across the two data sources, giving us confidence that the ATUS is a useful source for examining the time use of non-employed men.

As described in Appendix A.6, we compare the average time spent per day by employed and non-employed men across mutually exclusive and exhaustive categories of time use. Appendix Figure A10 shows the full allocation of the 24-hour day for each group. The main difference between the two groups was time spent working and searching for work: employed men spent about 5.4 more hours per day on these activities than non-employed men. This difference is smaller than a typical eight-hour workday because the ATUS includes weekends as well as weekdays.

Figure 5 focuses on how this difference in work time corresponds to differences in other activities. The largest share of this difference went to socializing, leisure, and related activities: non-employed men spent 3.39 additional hours per day on these activities, or 63% of the difference in work time. They also spent 1.08 additional hours per day on personal care and sleep, accounting for another 20%. Very little of the additional time went to activities that could build skills or substitute for market work. Non-employed men spent 0.41 additional hours per day on education, 0.35 hours on home production and errands, and 0.17 hours on caregiving, accounting for 8%, 6%, and 3% of the difference, respectively.

Caregiving and home production are ways that a man's time out of work can benefit other household members. But non-employed men spent only 0.52 more hours per day on these activities than employed men did, which is less than 10% of the difference in time spent on work and job search. Additionally, even though 25% of the rise in household-supported non-employment came from men who reported not working due to home or family responsibilities, non-employed men more broadly spent little more time than employed men on these activities. This is not a perfect comparison, though, because our ATUS data are only available for 2003-2023 and we cannot identify household-supported non-employed men in the ATUS. Still, the evidence provides limited support for explanations in which the rise mainly reflected a shift from market work to caregiving or home production.

Non-employed men spent most of their additional time on leisure, socializing, personal care, and sleep. This is consistent with a high value of time outside work, but it does not show that this value has risen. Non-employed men whose wages declined or whose health worsened would also spend more time on leisure, even if θ remained the same. A simple comparison of time use between employed and non-employed men cannot separate these two explanations.

Overall, the evidence in this section suggests that most of the rise in household-supported non-employment was not among men who reported illness or disability as their reason for not working, and that non-employed men spent little more time than employed men on caregiving, home production, or education. In our model, these patterns have different welfare implications for different men. Men who report illness or disability are worse off than they would be in good health, but household support protects their consumption. The welfare effect for other household members depends on any additional resources they provide during non-employment, Δf, the

value of any additional caregiving or home production they receive, and how much they value supporting the man.

8. Chinese Import Competition and Opioid Exposure

We next examine two prominent explanations for the rise in prime-aged male non-employment: Chinese import competition and opioid exposure. In our model, increased import competition lowers the wage men can earn, while opioid exposure could lead to an increased direct cost of working, κ, a lower wage, or impaired decisions about work. In addition to asking whether these forces contributed to the overall rise in non-employment, we examine whether the associated increases were concentrated among men supported by other household members. This distinction is particularly relevant given the results in Section 6 showing that household-supported non-employment accounts for most of the long-run increase in non-employment. The distinction also matters for who bears the cost of men's non-employment.

8.1: Chinese Import Competition

A natural question is whether the rise in Chinese import competition during the 1990s and 2000s contributed to the increase in prime-aged male non-employment. If manufacturing job losses in more exposed local labor markets translated into persistent non-employment among prime-aged men, Chinese import competition could account for part of the increase documented in this paper (Autor, Dorn, and Hanson 2013). Additionally, if import competition displaced prime-aged men who were then accommodated by other members of their household, it could account for part of the rise in household-supported non-employment.

We examine these possibilities using the 1990 and 2000 Censuses and the 2006-2008 ACS combined with the commuting-zone-level measures of import exposure from Autor, Dorn, and Hanson (2013). We estimate a stacked first-difference model for 1990-2000 and 2000-2007, examining changes in total, household-supported, and non-household-supported non-employment. The much larger Census and ACS samples allow us to construct these outcomes directly at the commuting-zone level over periods that correspond closely to the import exposure measures. Additional details on the sample, construction of import exposure, and empirical specification are provided in Appendix A.10.

Before presenting the main results, we conduct two validation exercises. First, non-employment rates in the Census and CPS ASEC rose by similar amounts between 1989 and 1999, but the ACS rate did not rise between 1999 and 2005-2007, when the CPS ASEC rate rose by about 2 percentage points.[21] Second, we replicate the central Autor, Dorn, and Hanson finding within our sample: commuting zones with $1,000 more predicted Chinese import growth per baseline worker experienced a 0.40 percentage point larger ten-year-equivalent decline in prime-aged male manufacturing employment (Appendix Table A5).

Panel A of Table 4 presents our main results. Commuting zones whose baseline industry composition predicted $1,000 more Chinese import growth per baseline worker experienced a 0.165 percentage point larger ten-year-equivalent increase in prime-aged male non-employment, and this estimate is statistically significant at the 5% level. Breaking this increase down into its components, the corresponding estimate is 0.054 percentage points for household-supported non-employment (not statistically significant at any conventional significance level) and 0.112 percentage points for non-household-supported non-employment (statistically significant at the 1% level). Thus, greater import exposure was associated with rising male non-employment, but most of the association occurred among men who were not primarily supported by other household members.

Panel B of Table 4 translates these estimates into implied contributions to the national increase in non-employment. Applying our coefficients to the mean predicted Chinese import growth, we estimate a 0.50 percentage point contribution of the China shock from 1990 to 2007. Prime-aged male non-employment in the CPS ASEC increased by 3.37 percentage points over this period, which implies that Chinese import competition accounts for 14.8% of the observed increase. The 95% confidence interval rules out contributions larger than 26.2% of the observed increase, so Chinese import competition was not the dominant explanation for the increase over this period. Relative to the full 8.3 percentage point increase from 1965 to 2023, the implied contribution is 6.0%. Even the upper endpoint of the 95% confidence interval implies that the China shock explains no more than 10.6% of the long-run increase.

Chinese import competition accounts for 7.3% of the 1990-2007 increase in household-supported non-employment, compared with 29.3% of the increase in non-household-supported

[21] The non-employment rates in the Census/ACS are 6.70%, 8.28%, and 8.17% in 1989, 1999, and 2005-2007, respectively. The corresponding non-employment rates in the CPS ASEC are 5.95%, 7.60%, and 9.61%.

non-employment. Thus, there is little evidence that the expansion of household-supported non-employment was primarily an accommodation to import-driven employment losses.

Most of the associated increase was among men not supported by other household members, so household resources played a smaller role in supporting this non-employment than in supporting the overall rise. Government programs may have played a larger role instead, which is consistent with evidence showing that areas more affected by Chinese import competition experienced larger increases in disability and other transfer payments (Autor, Dorn, and Hanson 2013).

8.2: Opioid Exposure

To examine the role of opioid exposure, we use the 1996 introduction of OxyContin as an early opioid supply shock whose intensity varied geographically. Our primary exposure measure is average annual oxycodone MME per capita from 2006-2009, before OxyContin was reformulated in 2010. Because geographic differences in opioid use may themselves reflect local economic conditions, our preferred specification uses the share of the commuting-zone population living in states without triplicate prescription programs when OxyContin was introduced as an instrument for oxycodone exposure. These programs increased the administrative burden of prescribing controlled substances, and Purdue Pharma marketed OxyContin less heavily in states that had them.[22] Additional details on the empirical design are provided in Appendix A.11.

We estimate effects separately for 1990-2000, 2000-2010, and 2010-2019. The three periods capture different stages of the opioid epidemic. OxyContin was introduced in 1996, so cumulative exposure over 1990-2000 was limited, and we expect little effect on non-employment. Most of the growth in prescription opioid use occurred between 2000 and 2010, so this is the decade in which early exposure should be most important. In 2010, OxyContin was reformulated and use shifted toward heroin and fentanyl. The effect of differential early exposure on post-2010 non-employment depends on what produced the gap in non-employment before 2010. If the employment effects of early exposure are temporary, the gap between more and less exposed areas should narrow after 2010. But if addiction, poor health, or loss of employability from earlier exposure persists after 2010, the gap should not narrow.

[22] The five states with triplicate prescription programs are California, Idaho, Illinois, New York, and Texas.

Appendix Table A6 reports the first-stage relationship between triplicate program status and oxycodone exposure. Commuting zones located in non-triplicate states had substantially greater oxycodone exposure: moving from a commuting zone entirely in triplicate states to one entirely in non-triplicate states is associated with an additional 144 MME per capita annually, relative to a baseline of 111 MME per capita. Appendix Figure A11 presents the corresponding raw reduced-form trends, while Appendix Table A7 reports the complete OLS and 2SLS estimates for all three periods.

The estimated relationship between oxycodone exposure and non-employment is concentrated in 2000-2010, the period of rapid growth in prescription opioid use before OxyContin was reformulated. Panel A of Table 5 reports our preferred 2SLS estimates for this period. An additional 100 MME per capita is associated with a 0.683 percentage point increase in total non-employment between 2000 and 2010, which is statistically significant at the 10% level. Breaking this estimate down into components, the corresponding increase is 0.537 percentage points for household-supported non-employment and 0.146 percentage points for non-household-supported non-employment. The household-supported estimate is statistically significant at the 5% level, while the non-household-supported estimate is not statistically significant at any conventional significance level. Thus, about 80% of the estimated increase in non-employment associated with oxycodone exposure occurred among men supported by other household members.

Panel B of Table 5 uses these estimates to gauge the aggregate importance of oxycodone exposure. This calculation compares predicted non-employment at the population-weighted mean exposure with predicted non-employment at zero oxycodone exposure. Our preferred 2SLS estimate implies a 1.42 percentage point contribution to the increase in prime-aged male non-employment between 2000 and 2010. The CPS ASEC non-employment rate increased by 5.95 percentage points over this period, so the point estimate corresponds to 23.9% of the observed increase. Relative to the full 8.3 percentage point increase in non-employment between 1965 and 2023, the estimated contribution of oxycodone exposure is 17.2%. Thus, our estimates suggest that oxycodone exposure was an important contributor to the rise during the 2000s. Even the upper endpoint of the 95% confidence interval implies that oxycodone exposure explains no more than 35.1% of the long-run increase.

The implied contribution is larger for household-supported non-employment: oxycodone exposure accounts for 34.1% of the increase in household-supported non-employment between 2000 and 2010, compared with 11.5% of the increase in non-household-supported non-employment.

The estimates for the other two periods from Appendix Table A7 are also informative. The 2SLS estimate for 1990-2000 is close to zero and not statistically significant at any conventional significance level, consistent with the relatively limited cumulative exposure to OxyContin during its early rollout. The estimate for 2010-2019 is also close to zero and not statistically significant, which suggests that the gap that opened between 2000 and 2010 neither widened nor narrowed afterward. This is consistent with addiction or poor health from earlier prescriptions outlasting the prescriptions themselves. It is also not evidence that opioid use stopped affecting employment after 2010, since heroin and fentanyl arrived later and in different places, including many with little early OxyContin exposure.

Our estimates are smaller than Krueger's (2017) calculation that opioid prescribing could account for 43% of the decline in prime-aged male labor force participation. These estimates are not directly comparable, however. Krueger examines a different period, measures labor force participation rather than annual non-employment, and identifies the relationship from cross-county variation in prescribing rates rather than from an instrument. Our estimates also differ from Currie, Jin, and Schnell (2019), who find no statistically significant relationship between opioid prescribing and male employment. Their panel covers 2006-2014, which largely postdates the expansion in prescription opioid use that drives our 2000-2010 estimates. Their instrument also isolates variation in current prescribing practices, whereas ours captures a marketing decision in 1996. Thus, our results do not necessarily contradict theirs given differences in design and sample period.

Most of the associated increase was among household-supported men, which suggests that other household members accommodated much of the non-employment associated with opioid exposure. Since our estimates suggest that the difference in non-employment did not narrow after OxyContin was reformulated, these results are consistent with temporary shocks leading to lasting employment losses, as with the recessions we examined in Section 5.

Taken together, these two analyses suggest that different forces contributing to male non-employment can have very different relationships with household support, and hence different

implications for who bears the costs of non-employment. Household resources played a much larger role in accommodating the non-employment associated with opioid exposure than the non-employment associated with Chinese import competition. But each of these shocks accounts for only a modest share of the long-run rise.

9. Conclusion

In this paper, we use more than five decades of data to examine the rise in prime-aged male non-employment and how non-employed men have been supported. The non-employment rate of prime-aged men nearly quadrupled from 2.9% in 1965 to 11.1% in 2023, and the increase occurred mainly during recessions and was only partly reversed during expansions. About two-thirds of the long-run increase was among men primarily supported by other household members, most often family. Household-supported non-employment accounted for about half of the increase during recessions but a larger share of the overall rise because it did not reverse on net during expansions, while much of the recessionary increase in other non-employment did.

Several other results help interpret this pattern. A meaningful share of men who lost their jobs during the Great Recession were repeatedly non-employed over the following decade. Household-supported non-employed men were more likely than other non-employed men to be non-employed two years later. Most of the rise in household-supported non-employment did not come from men who reported illness or disability as their main reason for not working. In addition, non-employed men spent little more time than employed men on education, caregiving, or home production. Chinese import competition and opioid exposure played a role in the rise during particular periods, but each accounted for only a modest share of the long-run increase. The two shocks were also accommodated differently: import competition raised non-employment mostly among men who were not primarily supported by their households, while opioid exposure raised it mostly among men who were.

These results bear on the welfare effects of rising male non-employment. The timing of the rise and the effects of import competition and opioid exposure point to worsening employment opportunities and health as important contributors. The time-use evidence provides limited support for explanations centered on a shift from market work to caregiving or home production. The persistence of non-employment after recessions implies that recessions may be more costly than their immediate employment losses would indicate. In addition, much of this

persistent non-employment was accommodated by support from other household members rather than by men's own government benefits. Because household-supported non-employment did not reverse during expansions, it is unlikely that this support operated only as short-term insurance against temporary earnings losses. This kind of support protects a man's consumption but is associated with longer time out of work. For a man making optimal, forward-looking choices, support improves welfare relative to having no support. If he underweights the future consequences of remaining out of work, however, household support can decrease his long-run welfare. The effects on other household members depend on the additional resources they provide, how much they value supporting him, and any caregiving or home production they receive from him. But regardless of who supports him, taxpayers incur a cost from forgone tax revenue. And since families differ in their ability to provide this support, the consequences of non-employment depend on the resources of the households that men can rely on.

Several limitations of our analysis suggest directions for future work. First, our measures of employment rely on survey reports, and prior work has documented large differences between survey and administrative measures of employment, particularly for marginal workers (Abraham et al. 2013). Second, government transfer receipt is substantially underreported in household surveys (Meyer, Mok, and Sullivan 2015; Meyer and Mittag 2019). As a result, our survey-based estimates may overstate the importance of household support relative to government support if some of the non-employed men who appear to be household-supported also receive unreported government benefits. In subsequent work, we will link the CPS ASEC to longitudinal tax and administrative program records to compare survey and administrative measures of employment, more accurately measure government support, and follow employment outcomes over longer periods. These data will allow us to assess how such measurement issues affect our conclusions about the sources and persistence of prime-aged male non-employment. Third, our measure of household support is based on the cash incomes of household members. It does not measure in-kind support such as housing or food, how resources are shared within the household, or how support would change if a man returned to work. Thus, we cannot definitively answer how household support affects the welfare of a man and his family. To answer this question, we would need to know how support affects how long men remain out of work, how much support protects against consumption losses, and how much extra support households give to a man when he is not working.

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Tables and Figures

Table 1. Cumulative Changes in Non-Employment of Men Aged 25-54 by Source of Support and Recession Status, 1967-2023

Source of Support	Net Change	Recession Years	Non-Recession Years	Share of Recession Increase Reversed
Household-supported	+5.81	+5.01	+0.80	0%
Disability-supported	+2.17	+2.04	+0.14	0%
Supported by other means	+0.87	+3.53	-2.67	75%
Total non-employment	+8.84	+10.58	-1.73	16%

Data: 1968-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Table reports the cumulative change in non-employment during recession and non-recession years from 1967-2023, in percentage points. Recession years are 1969-1970, 1973-1975, 1980-1982, 1990-1991, 2001, 2007-2009, and 2020. Household-supported means the man lives in a multi-person household with positive income and his income is less than or equal to 50% of per-adult household income. Disability-supported means the man is not primarily supported by others and receives disability program income. Supported by other means includes all remaining non-employed men. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Estimates are weighted by survey weights. Components may not sum to the net change because of rounding. The recession-year total differs slightly from the 11.1 percentage points reported in Section 5.3 because this table uses the IPUMS CPS ASEC files, which differ from the original Census Bureau files in sample or weights for reference years 2000, 2009-2010, 2013, and 2019-2020.

Table 2. Household Support and Subsequent Non-Employment of Non-Employed Men

Panel A. Linear Regressions of Subsequent Non-Employment on Household Support

	Non-Employed at Next PSID Interview (1)	Non-Employed at Next PSID Interview (2)	Non-Employed at Next PSID Interview (3)
Household-supported	0.086*** (0.027)	0.112*** (0.027)	0.027 (0.026)
Non-employed at prior interview			0.351*** (0.026)
Mean among non-household-supported	0.594	0.594	0.607
Age and year fixed effects	No	Yes	Yes
Observations	3,566	3,566	2,910

Panel B. Share Non-Employed at Next Interview, by Employment Status at Prior Interview

	Not household-supported	Household-supported
Employed at prior interview	0.414	0.503
Non-employed at prior interview	0.800	0.773

Data: 2003-2023 Panel Study of Income Dynamics.

Notes: Panel A reports linear probability model estimates of the association between household support and subsequent non-employment. The sample consists of men who are non-employed at the baseline PSID interview and are observed again at the next interview two years later. Columns (1) and (2) include men aged 25-52 at the baseline interview. Column (3) and Panel B restrict the sample to men aged 27-52 who are also observed at the interview two years before the baseline. The dependent variable is an indicator for whether the individual is non-employed at the next interview. Household-supported is an indicator equal to one if the individual lives with at least one other individual, the household has positive income, and the individual's own income is less than or equal to 50% of per-adult household income. Non-employed at prior interview is an indicator for being non-employed at the interview two years before the baseline. Column (1) reports the unadjusted difference in persistence between household-supported and other non-employed men, column (2) adds age and survey year fixed effects, and column (3) additionally controls for non-employment at the prior interview. Without the control for prior non-employment, the estimate on the column (3) sample is 0.109 (0.030). Panel B reports the share of men who are non-employed at the next interview by household support and employment status at the prior interview. All estimates are weighted using PSID longitudinal weights. Standard errors clustered at the individual level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3. Reasons for Not Working Among Household-Supported Non-Employed Men, 1967 and 2023

Reason for not working	1967	2023	Change	Share of Increase
Ill or disabled	0.6%	2.5%	+1.9 p.p.	32.5%
Other reason	0.3%	4.2%	+3.9 p.p.	67.5%
Total household-supported non-employment	0.9%	6.7%	+5.8 p.p.	100%

Data: 1968, 2024 CPS ASEC.

Notes: Sample consists of men aged 25-54. Household-supported non-employment is defined as working zero weeks in the prior calendar year, living in a multi-person household with positive income, and having own income less than or equal to 50% of per-adult household income. Reason for not working is based on the respondent's reported main reason for not working during the prior calendar year. "Ill or disabled" includes respondents who report illness or disability as their main reason for not working; "Other reason" includes all other reported reasons. Entries in the first two columns are percentages of the prime-aged male population. The final column reports each category's share of the 1967-2023 increase in household-supported non-employment.

Table 4. Chinese Import Competition and Non-Employment of Men Aged 25-54 by Household Support

	Total Non-Employment	Household-Supported Non-Employment	Not Household-Supported Non-Employment
	(1)	(2)	(3)
Panel A. Effect of Import Exposure			
Import Exposure Per Worker	0.1654**	0.0538	0.1116***
	(0.0650)	(0.0345)	(0.0352)
Observations	1,444	1,444	1,444
Panel B. Implied Contribution, 1990-2007			
Predicted Contribution (p.p.)	0.500	0.162	0.337
CPS ASEC Observed Change (p.p.)	3.374	2.223	1.152
Share of Observed Change Explained	14.8%	7.3%	29.3%
95% Upper Bound Share Explained	26.2%	16.5%	47.4%

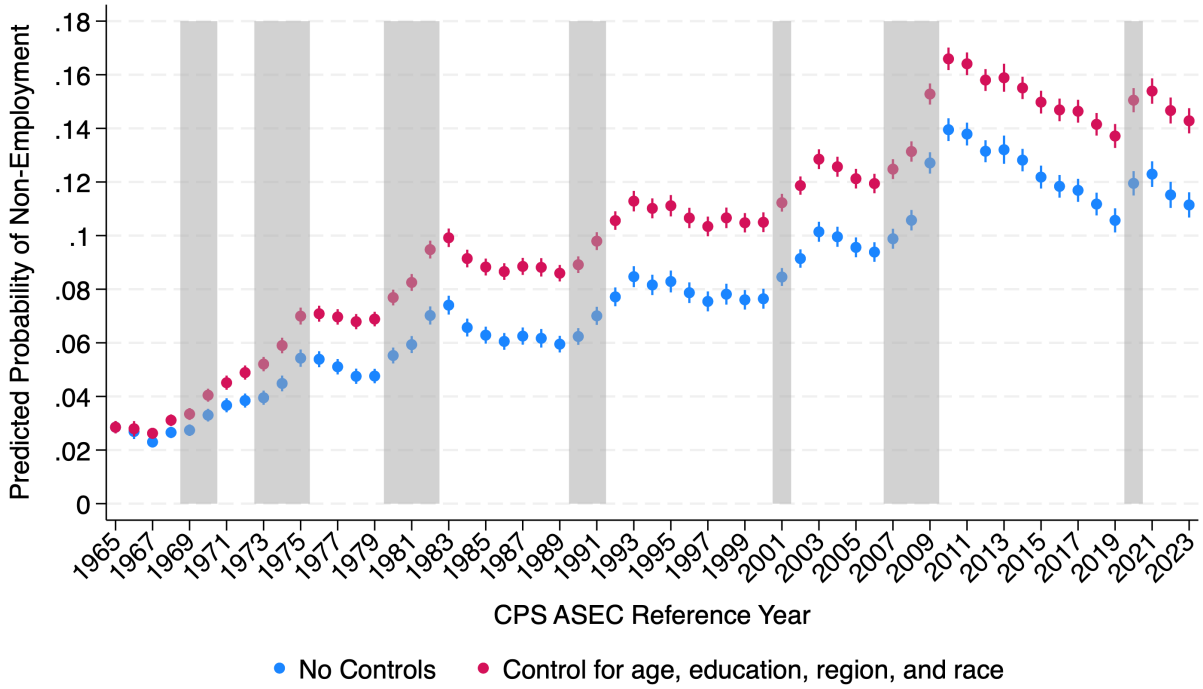
Data: 1990 and 2000 5% Census samples; 2006-2008 ACS; Autor, Dorn, and Hanson 2013; 1991-2008 CPS ASEC. Notes: Panel A reports estimates from the stacked first-difference specification described in Appendix A.10. The dependent variables are the ten-year-equivalent percentage-point changes in total, household-supported, and non-household-supported non-employment of men aged 25-54. Import exposure is measured in thousands of dollars per worker, so coefficients report the change in each outcome associated with $1,000 of additional predicted Chinese import growth per baseline worker. Regressions include period fixed effects and are weighted by the baseline prime-aged male population in each commuting zone. Standard errors are clustered at the commuting-zone level. Panel B uses the estimates in Panel A to calculate the implied contribution of Chinese import competition to the corresponding CPS ASEC increase from 1990-2007. Household-supported non-employment is defined as in Section 4.3. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5. Oxycodone Exposure and Non-Employment of Men Aged 25-54 by Household Support

	Total Non-Employment	Household-Supported Non-Employment	Not Household-Supported Non-Employment
	(1)	(2)	(3)
Panel A. 2SLS Estimates, 2000-2010			
Oxycodone Exposure	0.683* (0.365)	0.537** (0.216)	0.146 (0.177)
First-Stage F Statistic	13.83	13.83	13.83
Observations	722	722	722
Panel B. Implied Contribution, 2000-2010			
Predicted Contribution (p.p.)	1.424	1.119	0.305
CPS ASEC Observed Change (p.p.)	5.947	3.285	2.662
Share of Observed Change Explained	23.9%	34.1%	11.5%
95% Upper Bound Share Explained	49.0%	60.9%	38.6%

Data: 1990 and 2000 Census; 2009-2011 ACS; DEA ARCOS transaction data; 2001-2011 CPS ASEC.
Notes: Panel A reports the preferred 2SLS estimates for the 2000-2010 period described in Appendix A.11. The dependent variables are the ten-year-equivalent percentage-point changes in total, household-supported, and non-household-supported annual non-employment of men aged 25-54. Oxycodone exposure is average annual oxycodone MME per capita during 2006-2009 and the population-weighted mean oxycodone exposure is 208.5 MME per capita. Coefficients report the change in each outcome associated with an additional 100 MME per capita. Oxycodone exposure is instrumented with the share of the commuting-zone population located in a state without a triplicate prescription program. Regressions include controls for age, education, and race/ethnicity measured in 1990 and are weighted by the baseline prime-aged male population. Standard errors are clustered by the commuting zone's dominant state. Panel B uses the estimates in Panel A to calculate the implied contribution of oxycodone exposure to the corresponding CPS ASEC increase from 2000-2010. Household-supported non-employment is defined as in Section 4.3. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

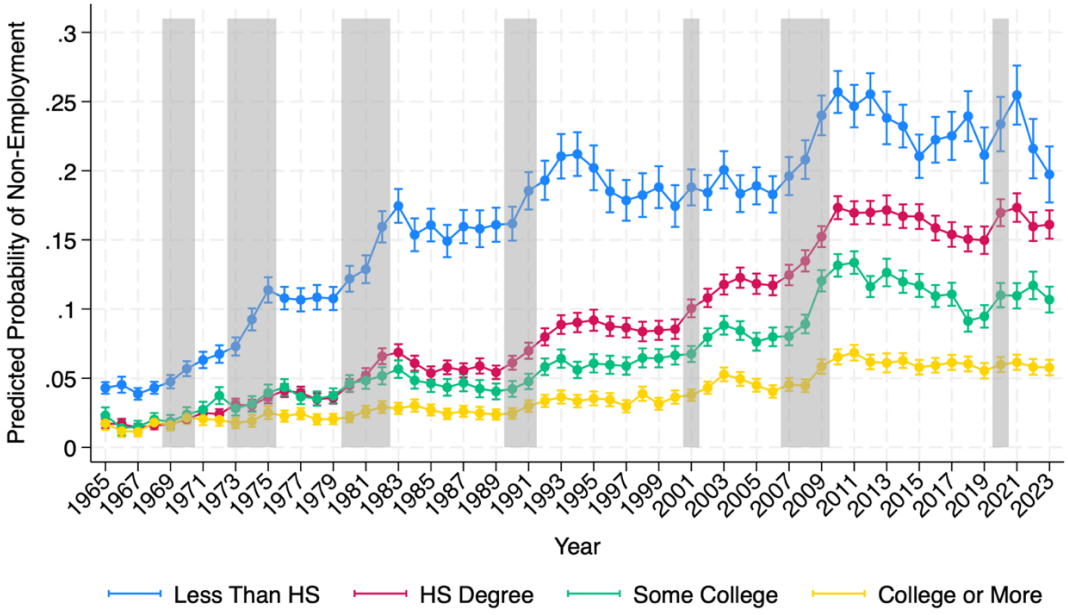
Figure 1. Overall Change in Non-Employment of Men Aged 25-54, With and Without Demographic Controls



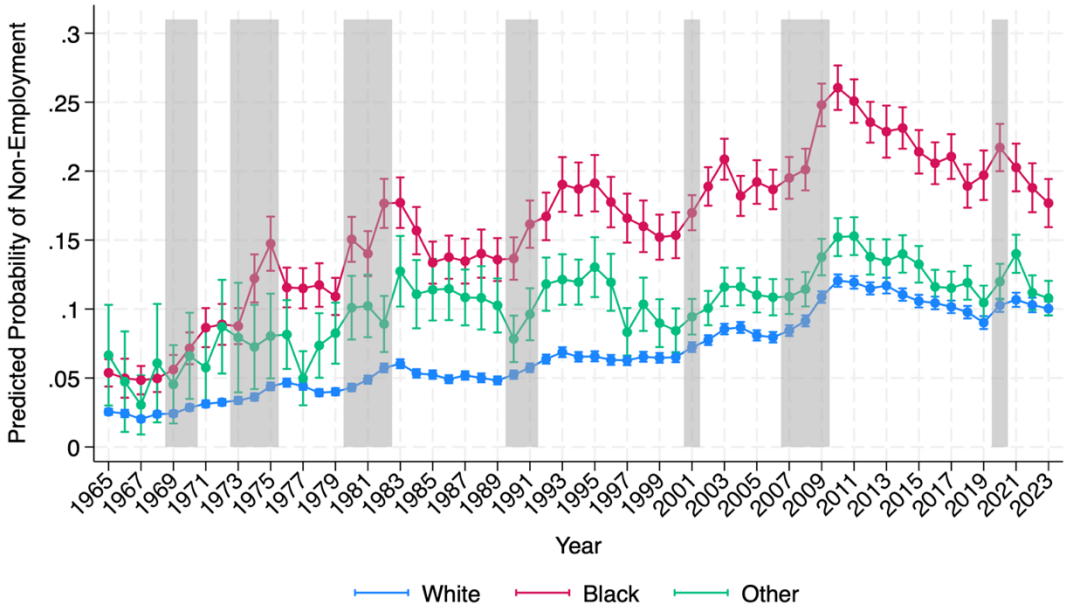
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Blue points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies without a constant. Red points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies, education (dummies for high school graduate, some college, and college or higher), age (dummies for 30-34, 35-39, 40-44, 45-49, and 50-54), region (dummies for Midwest, South, and West), and race/ethnicity (dummies for Black and another race) without a constant. All controls were demeaned using the weighted mean in 1965 to ensure that the 1965 points are equal. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Regressions are weighted by survey weights and use robust standard errors. Grey regions are recessions, as defined by the NBER.

Figure 2. Non-Employment of Men Aged 25-54 by Education and Race

Panel A. Education



Panel B. Race

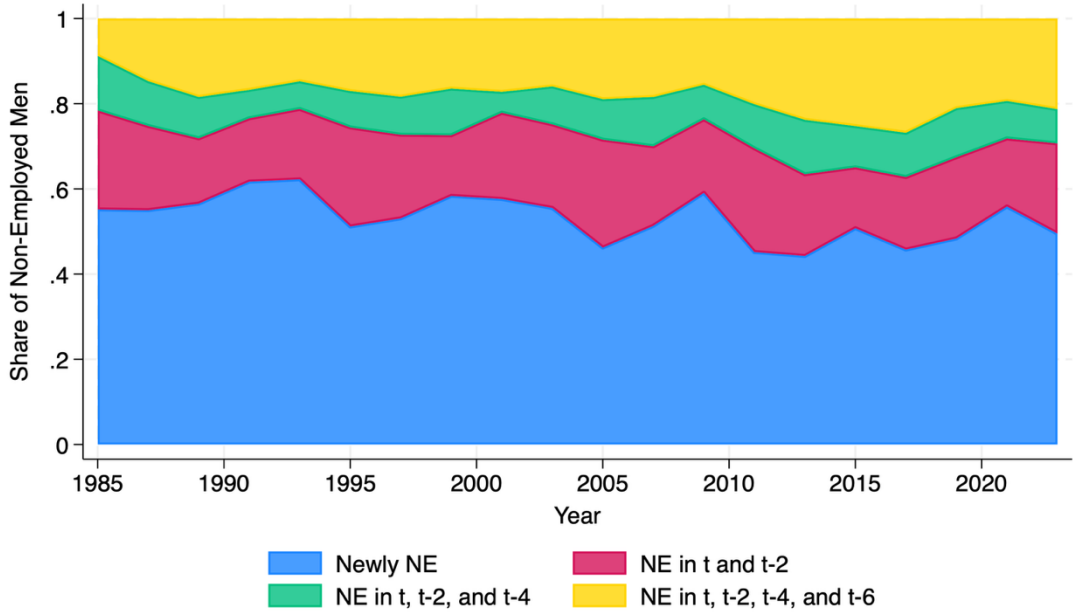


Data: 1966-2024 CPS ASEC.

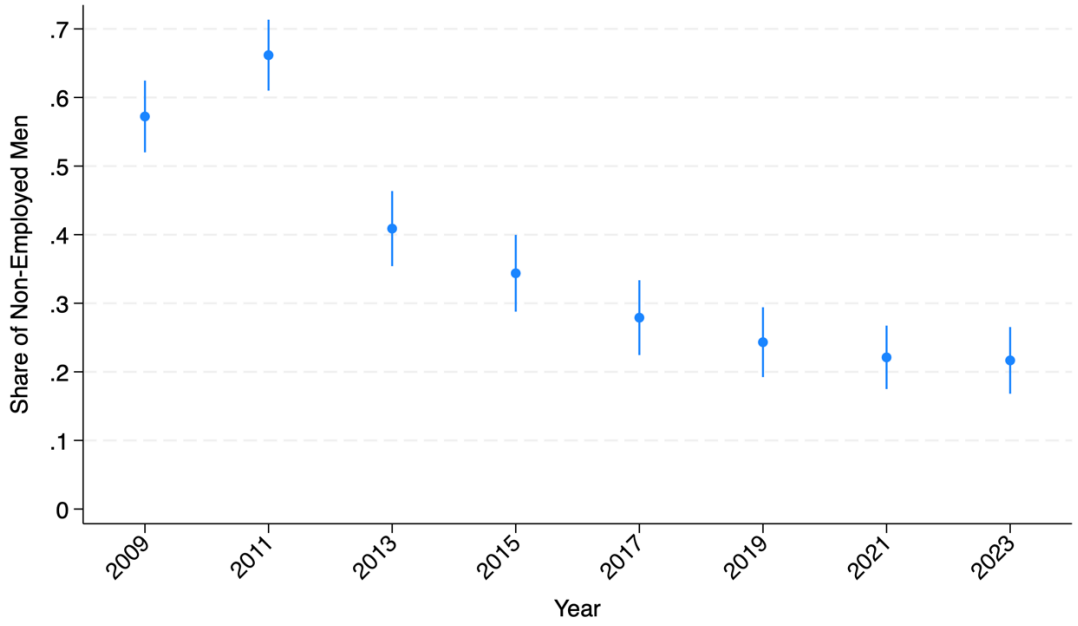
Notes: Sample is men aged 25-54. Points and bars represent predicted non-employment rates and 95% confidence intervals by year. Panel A shows estimates by education level, derived from a linear regression of non-employment on year dummies interacted with indicators for having a high school degree, having some college, and having a college degree or more; less than high school is the omitted group. Panel B shows estimates by race, derived from a linear regression of non-employment on year dummies interacted with indicators for being Black and being another race; white individuals are the omitted group. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Regressions are weighted by survey weights and use robust standard errors. Grey regions are recessions, as defined by the NBER.

Figure 3. Persistence of Non-Employment Among Men Aged 25-54

Panel A. Non-Employed Men Aged 25-54 by Persistence Across PSID Interviews



Panel B. Share of Non-Employed Men Aged 25-54 Who Experienced a Great Recession Job Loss

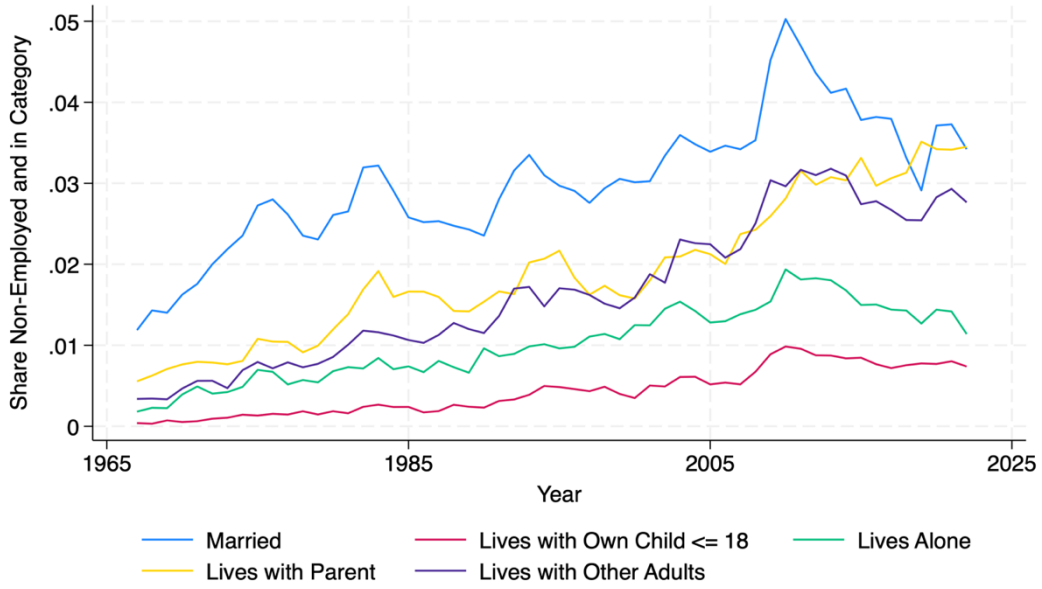


Data: 1979-2023 Panel Study of Income Dynamics.

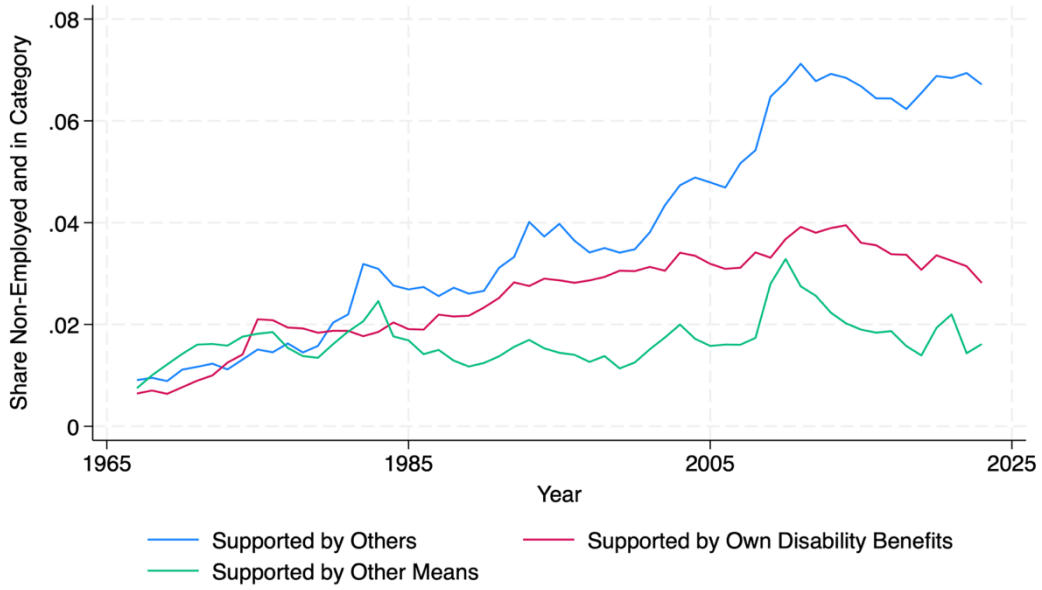
Notes: Sample is men aged 25-54 who are non-employed in the indicated interview year. In Panel A, newly non-employed men are non-employed in year t but employed in t−2; the remaining categories indicate non-employment at two, three, or four observations spaced two years apart (t and t−2; t through t−4; t through t−6). Because observations are two years apart, these measures do not imply continuous non-employment between them. Panel B reports the share of non-employed men who experienced a Great Recession job loss, defined as transitioning from employment in 2007 to non-employment in 2009 or from employment in 2009 to non-employment in 2011. Non-employment is defined as not currently working. Vertical bars represent 95% confidence intervals. Estimates are weighted using PSID longitudinal weights.

Figure 4. Family Structure and Sources of Support of Non-Employed Men Aged 25-54

Panel A. Family Structure

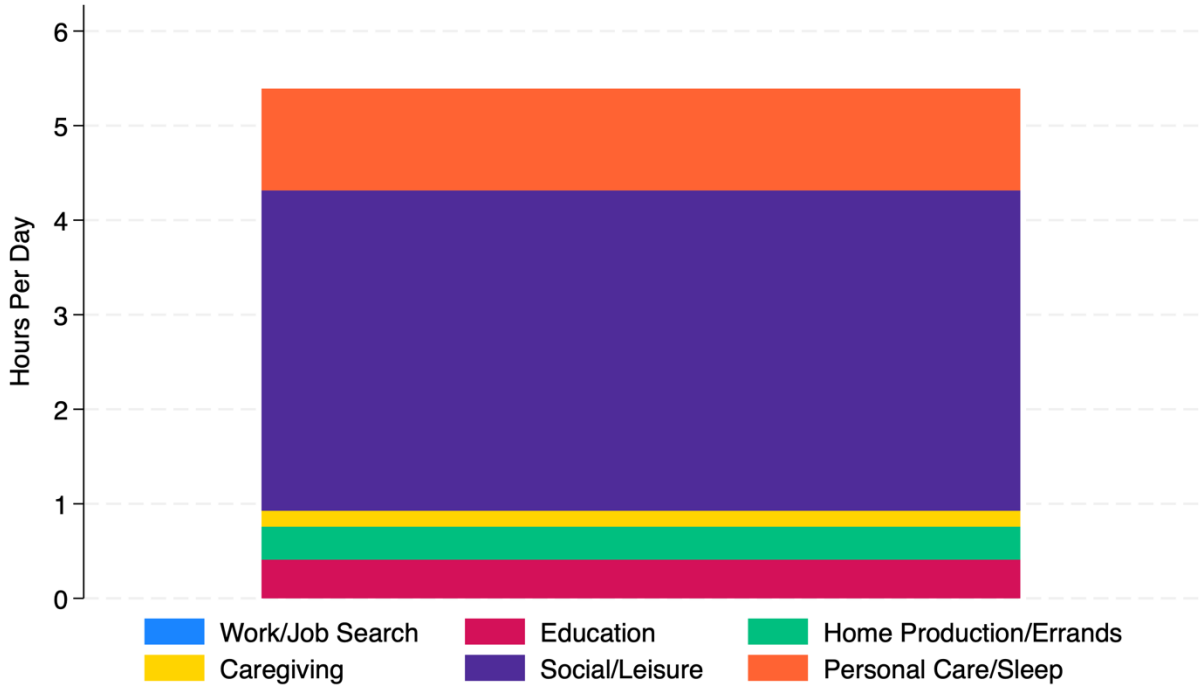


Panel B. Sources of Support



Data: 1968-2023 CPS ASEC for Panel A; 1968-2024 CPS ASEC for Panel B.
Notes: Sample is men aged 25-54. Each line reports the share of all men aged 25-54 who are non-employed and in the indicated category. In Panel A, men are classified as married; unmarried and living with their own child aged 18 or under; living alone; unmarried and living with their parents; or unmarried and living with other adults and no own children. The married category includes married men both with and without children. The living with other adults category can include unmarried partners. In Panel B, men are classified as primarily supported by others in their household if they live in a multi-person household with positive income and their own income is less than or equal to 50% of per-adult household income; as supported by their own disability benefits if they are not primarily supported by others and receive any disability program income; or as supported by other means if they are in neither of the previous two categories. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Proportions are weighted using survey weights.

Figure 5. Extra Time Use for Non-Employed Men Aged 25-54 Relative to the Employed (2003-2023, Excluding 2020)



Data: 2003-2023 American Time Use Survey. 2020 is excluded due to data quality issues.
Notes: Sample is men aged 25-54. This figure shows the activities for which, on average, non-employed men spent more time than employed men. In particular, for each category of time use, we take the maximum of 0 and the difference between the time use of non-employed and employed men. Non-employment is defined as being not in the labor force or being unemployed. Means are weighted by survey weights.

Online Appendix to "The Rise of Non-Employment Among Prime-Aged Men: Trends, Household Support, and Persistence"

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First Version: March 2026
This Version: November 2, 2026

Appendix A. Additional Data and Methods

This appendix begins by providing additional details on the construction of the measures used in the CPS ASEC analyses. We then describe the methods used for the cohort, household support, reasons for not working, time-use, persistence, Chinese import competition, and opioid analyses.

A.1: CPS ASEC Long-Run Trends

Unconditional Trend in Non-Employment

When we are interested in finding the unconditional trend in non-employment over time, we estimate a regression of the following form:

$$NE_{it} = \sum_{\tau=1965}^{2023} \beta_\tau D_{it}^\tau + \varepsilon_{it}, \tag{A1}$$

where NE_{it} is an indicator for whether person i is non-employed in year t and $D_{it}^\tau = 1\{t = \tau\}$, i.e., an indicator for whether the year t is τ. We estimate the regression using survey weights and heteroskedasticity-robust standard errors. Our objects of interest are the set of β_τ, which gives us the estimated non-employment rate in reference year τ.

To quantify the role of recessions in the long-run increase, we classify years according to NBER recession dates and calculate the annual change in the non-employment rate. We classify a year as a recession year if any month of that year falls within an NBER recession. We then separately sum these annual changes across recession and non-recession years. This

decomposition allows us to compare the cumulative change in non-employment occurring during these two types of years.

Conditional Trend in Non-Employment

Beyond the raw trend in non-employment, we are also interested in the trend in non-employment over time controlling for demographic characteristics such as age, education, region, and race. To begin, for each control dummy X_{kit}, we subtract the weighted mean in reference year 1965 as follows: $\tilde{X}_{kit} = X_{kit} - \bar{X}_{k,1965}$. Then we estimate a regression of the following form:

$$NE_{it} = \sum_{\tau=1965}^{2023} \gamma_\tau D_{it}^\tau + \sum_{k \in \{Controls\}} \theta_k \tilde{X}_{kit} + \eta_{it}, \qquad (A2)$$

where NE_{it} and D_{it}^τ are defined as in equation (A1). The regression is estimated using survey weights and robust standard errors.

When estimating equation (A2), we control for age, education, region, and race. We discretize each type of control and include mutually exclusive and exhaustive dummy variables (omitting one) for each type of control. For age, we include dummies for being aged 30-34, being aged 35-39, being aged 40-44, being aged 45-49, and being aged 50-54, so the omitted group is those aged 25-29. For education, we include dummies for having a high school degree, having some college, and having college or more, so the omitted group is those with less than a high school degree. For region, we include dummies for living in the Midwest, living in the South, and living in the West, meaning the omitted group is those who live in the Northeast. Lastly, for race, we include dummies for being Black and being another race, so the omitted group is white men.

Our objects of interest are the set of γ_τ, which gives us the estimated non-employment rate in reference year τ after adjusting for age, education, region, and race. We subtract the 1965 weighted mean to ensure that the estimated β_{1965} from equation (A1) is equal to the estimated γ_{1965} from equation (A2).

Heterogeneity of Trend in Non-Employment

We are also interested in calculating the trends in non-employment for different categories of a categorical variable. As an example, we want to see the trend in non-employment over time for those with less than a high school degree as well as for those with college or more. To do so, let our categorical control be called G (age, education, etc.) with categories g. Let G_i^g be an indicator for person i belonging to category g. We can then estimate a regression of the following form:

$$NE_{it} = \sum_{\tau=1965}^{2023} \sum_{g} \theta_{\tau g}\left(D_{it}^{\tau} \cdot G_i^g\right) + \varepsilon_{it}. \qquad (A3)$$

The regression is again estimated using survey weights and heteroskedasticity-robust standard errors. The objects of interest are $\theta_{\tau g}$, where the estimated values of $\theta_{\tau g}$ give us predicted non-employment for group g in reference year τ.

A.2: Decomposition of the Trend in Non-Employment

We want to quantify how much of the change in non-employment can be explained by demographic characteristics. To do this, we implement an Oaxaca-Blinder decomposition. Let τ denote the initial year, 1965, and let τ' denote the final year, 2023. Let NE_{it} be an indicator for person i being non-employed in year t and let X_{it} be a vector of demographic characteristics (i.e., age, education, region, and race) for person i in year t. Finally, let $\overline{NE}_t$ be the weighted mean of non-employment in year t and $\bar{X}_t$ be the weighted mean of the controls in year t.

We estimate the following linear probability model separately in each of the two endpoint years $t \in \{\tau, \tau'\}$:

$$NE_{it} = \alpha_t + X_{it}'\beta_t + \varepsilon_{it}.$$

If we anchor the coefficients on demographic characteristics at their τ levels, we can decompose the change in mean non-employment between τ and τ' as follows:

$$\overline{NE}_{\tau'} - \overline{NE}_{\tau} = (\bar{X}_{\tau'} - \bar{X}_{\tau})'\hat{\beta}_{\tau} + \bar{X}_{\tau'}'\left(\hat{\beta}_{\tau'} - \hat{\beta}_{\tau}\right) + (\hat{\alpha}_{\tau'} - \hat{\alpha}_{\tau}).$$

The first term on the right-hand side represents the effect of the change in mean characteristics. The second term represents the effect of the change in non-constant coefficients, or the effect of the change in the return to demographic characteristics. The third and final term represents the effect of the change in the constant.

Alternatively, we can anchor the coefficients on demographic characteristics at their τ' levels:

$$\overline{NE}_{\tau\prime} - \overline{NE}_{\tau} = (\bar{X}_{\tau\prime} - \bar{X}_{\tau})'\hat{\beta}_{\tau\prime} + \bar{X}'_{\tau}(\hat{\beta}_{\tau\prime} - \hat{\beta}_{\tau}) + (\hat{\alpha}_{\tau\prime} - \hat{\alpha}_{\tau}).$$

A.3: Cohort Analysis

To examine how non-employment has evolved across birth cohorts, we again use the CPS ASEC for reference years 1965-2023. We assign each man a birth year equal to the survey year minus his age and group men into ten-year birth cohorts, such as the 1930s, 1940s, and so on. Within each cohort, we compute the weighted mean non-employment rate at each age and plot non-employment by age across cohorts. To summarize the joint role of age, calendar time, and birth cohort, we also present a heat map of the weighted mean non-employment rate by age and birth year. These figures are descriptive and are intended to summarize how non-employment varies across ages and birth cohorts over time. Because age, calendar year, and birth cohort are linearly related, we do not attempt to separately identify age, period, and cohort effects.

We use the survey year rather than the reference year because the CPS ASEC records age as of the interview date, which is in February through April of the survey year. We observe age in completed years at the interview but not the respondent's date of birth, so the implied birth year may be off by one year depending on whether the respondent's birthday falls before or after the interview.

Appendix Figure A4 plots the non-employment rate by age for successive birth decades. Later cohorts experienced higher non-employment at comparable ages, and the increase was nearly monotonic across cohorts. At ages 30-34, non-employment rose from 1.2% for men born in the 1930s to 10.7% for men born in the 1990s. At ages 50-54, non-employment rose from 5.1% for men born in the 1910s to 13.4% for men born in the 1970s.

The relationship between age and non-employment also changed across cohorts. Among earlier-born cohorts, non-employment was lowest at the beginning of prime age and increased as men aged. Among later-born cohorts, particularly those born in the 1980s and 1990s, the opposite pattern appeared: non-employment was highest at younger ages and declined as men moved through prime age. Thus, the age gradient in non-employment reversed across cohorts, from increasing with age among earlier cohorts to decreasing with age among the most recent cohorts. Because we cannot separate age from calendar year, part of this reversal likely reflects

the timing of recessions. As an example, a man born in 1985 was 25 in 2010, when non-employment peaked, and 34 in 2019, after most of the recovery. If time out of work lowers future wages, high non-employment early in prime age may also reduce employment among these cohorts at later ages.

Appendix Figure A5 presents a heat map of non-employment by age and birth year. The heat map reinforces the importance of both cohort and period variation. Later-born cohorts had higher non-employment at the same ages, while recessions raised non-employment across several cohorts at once. The Great Recession stands out especially clearly in this representation. The fact that recessions raised non-employment across several cohorts at once is consistent with the evidence in Section 5.3 that worsening labor market conditions initiated most increases.

The cohort patterns documented above are even more pronounced for household-supported non-employment. Appendix Figure A6 plots household-supported non-employment by age for successive birth decades. At ages 30-34, household-supported non-employment rose from 0.3% for men born in the 1930s to 6.9% for men born in the 1990s, compared with the increase from 1.2% to 10.7% in total non-employment for these same cohorts. A substantial share of the cohort-level rise in non-employment was therefore concentrated among men supported by others in their household.

A.4: Family Structure and Sources of Support

To examine the family structure and sources of support of non-employed men, we use the CPS ASEC and compute joint rates, i.e., the share of all prime-aged men who are both non-employed and in a given category, so that the changes across categories sum to the total change in non-employment.

We classify men into five mutually exclusive and exhaustive family structure categories: married; unmarried and living with own child aged 18 or under; living alone; unmarried and living with parents; and unmarried and living with other adults (and no own children). The married category includes married men both with and without children. For some analyses, we combine married men, unmarried men living with parents, and unmarried men living with other adults into a broader category of men living with at least one other adult.

To measure within-household economic support, we calculate per-adult cash income, defined as total household cash income divided by the number of adults (aged 18 and over) in the

household. Total household cash income includes earnings (wages, self-employment, and farm income), government income (Social Security, public assistance/welfare, SSI, unemployment benefits, workers' compensation, and veterans' benefits), and asset and other nonlabor income (interest, dividends, rent, and retirement/pension/annuity income). The ASEC also considers education benefits as part of cash income, but we exclude such benefits when calculating cash income because these benefits are non-fungible.

We then classify non-employed men into four mutually exclusive and exhaustive groups: (1) single-person households with positive household income; (2) multi-person households with positive income where the man's income is less than or equal to 50% of per-adult household income; (3) multi-person households with positive income where the man's income is greater than 50% of per-adult household income; and (4) households with zero or negative measured cash income.

Next, to distinguish between disability-related and family-based support, we identify non-employed men who receive any disability program income. Because the CPS ASEC measures disability income differently over time, we define disability program receipt using the best available sources in each time period: SSDI for reference years 1967-1974; SSDI, SSI, or workers' compensation for 1975-1986; and SSDI, SSI, workers' compensation, veterans' disability, or other disability insurance for 1987-2023.

Finally, to examine how the rise in household-supported non-employment varies with the resources of other household members, we calculate their combined income by subtracting the man's own income from total household income. We divide this amount by the number of other adults aged 18 and over in the household. In each reference year, we calculate survey-weighted quartiles of this measure among all prime-aged men living with at least one other adult and with positive combined income from other household members. We then classify household-supported non-employed men using these cutoffs, leaving those who are household-supported living without another adult as a separate category. Because the cutoffs are recalculated each year, the categories represent relative income positions rather than fixed levels of real income.

A.5: Reason for Not Working and Work Limitation

To examine the reasons that household-supported men report not working, we use the CPS ASEC question asking individuals who worked zero weeks during the reference year to

report their main reason for not working. We divide household-supported non-employed men into those who report illness or disability as their main reason for not working and those who report another reason. We then compute the joint rate for each group in 1967 and 2023 and calculate each group's contribution to the overall increase in household-supported non-employment.

We also examine whether household-supported non-employed men report having a disability that limits their ability to work. The work-limitation measure is available beginning in 1987, but there is a structural break in the coding of the question in 2014. We therefore use this measure to characterize household-supported non-employed men in recent years rather than to examine a consistent long-run trend.

A.6: Time Use Analysis

To examine how non-employed men allocate their time, we use the ATUS for 2003-2023, excluding 2020. Our sample consists of men aged 25-54. We first classify each respondent as employed or non-employed based on their current labor force status and then compare the average time spent per day across six mutually exclusive and exhaustive categories of time use: work and job search; education; home production and errands (including maintaining the household and purchasing goods and services); caregiving (including caring for household members and non-household members); socializing, leisure, and recreation (including relaxation, sports, religious activities, and volunteering); and personal care and sleep (including eating and professional appointments). We compute weighted means using the ATUS survey weights and report the difference in time allocation between employed and non-employed men.

A.7: Persistence of Non-Employment

To study the persistence of non-employment, we use the PSID's cross-year individual file for 1979-2023. Because the PSID switched from annual to biennial interviews in 1997, we measure persistence in two-year steps to maintain comparability over time, focusing on odd-numbered years. For a given year t, we identify whether a man is non-employed in t and whether he was also non-employed in $t-2$ (the previous interview), $t-4$, and $t-6$. We then decompose the non-employed population in each year into mutually exclusive duration bins based on how many consecutive interviews they have been non-employed.

Each measure is restricted to men aged 25-54 present in the PSID in every year it requires, so the two-wave measure requires presence in t and $t-2$, and the four-wave measure requires presence in $t, t-2, t-4$, and $t-6$. Someone could be employed at some point in the two years between interviews and still be considered persistently non-employed due to the structure of the data.

A.8: Scarring from Recessionary Job Loss

To examine whether recessionary job loss leads to persistent non-employment, we use the Great Recession as a case study. We define Great Recession job loss as transitioning from employed in $t-2$ to non-employed in t, where t is either 2009 or 2011. That is, a man is classified as experiencing a Great Recession job loss if he was employed in 2007 and non-employed in 2009 or employed in 2009 and non-employed in 2011. We then examine the subsequent labor market outcomes of these men, measuring scarring using two definitions: being non-employed in at least three of the next five interviews (spanning ten years) or being non-employed in at least two of the next three interviews (spanning six years).

A.9: Household Support and Persistence

To examine the association between household support and persistence at the individual level, we use the PSID to test whether non-employed men who are supported by other household members are more likely to remain non-employed at the next interview. We construct a household support measure that is similar to the CPS measure: someone is household-supported if he lives with at least one other individual, his household has positive income, and his own income is less than or equal to 50% of per-adult household income. We can only define this measure starting in 2005 because this is the first wave for which we can construct own income for every family member.

The PSID measure is not directly comparable to the CPS ASEC measure. CPS non-employment and income are both based on the prior calendar year, whereas PSID non-employment is based on employment status at the time of the interview while income is based on the prior calendar year. As a result, recently non-employed men may still have substantial prior-year own income, which will tend to decrease measured household support in the PSID. We

construct household resources from all observed PSID family units residing in the same housing unit and exclude housing units containing residents whose income is not observed.

Our sample consists of men aged 25-52 who are non-employed at the baseline PSID interview and are observed again at the next interview two years later. The dependent variable is an indicator for whether the individual is non-employed at the next interview. We first estimate the unadjusted difference in persistence between supported and non-supported men and then control for age and survey-year fixed effects. Estimates are weighted using PSID longitudinal weights and standard errors are clustered at the individual level.

A.10: Exposure to Chinese Import Competition

To examine whether Chinese import competition contributed to the rise in non-employment, we combine Census and ACS data with commuting-zone-level measures of import exposure. Our sample consists of men aged 25-54, excluding those who live in group quarters and those living in Alaska or Hawaii. Alaska and Hawaii are excluded because the import exposure measure is not defined for commuting zones in those states. In each Census or ACS endpoint, we define a man as non-employed if he did not work during the prior year and we define household-supported non-employment in the same way as we do in the CPS ASEC: a non-employed man is classified as primarily supported by others if he lives in a multi-person household with positive income and his personal income is less than or equal to 50% of per-adult household income.

We measure import exposure using the Autor, Dorn, and Hanson (2013) change in import exposure per worker, which captures the national growth in Chinese imports across industries weighted by each commuting zone's initial industry employment composition. Intuitively, the measure asks how much additional Chinese import competition the average worker in a commuting zone would face if the commuting zone's initial industry mix were exposed to the national rise in Chinese imports in each industry. We use separate exposure measures for 1990-2000 and 2000-2007, accounting for the second period being shorter than a decade. The unit of this exposure measure is $1,000 of predicted Chinese import growth over a decade per worker in the commuting zone at the beginning of the period.

We estimate a stacked first-difference specification using the 1990-2000 and 2000-2007 periods:

$$\Delta \bar{Y}_{zp} = \alpha_p + \beta \cdot \Delta IE_{zp} + \varepsilon_{zp}. \quad (A4)$$

Here z indexes commuting zones and p indexes the two periods (1990-2000 and 2000-2007). $\Delta \bar{Y}_{zp}$ is the change in the outcome rate in commuting zone z over period p, where the outcome is total non-employment or its household-supported and non-household-supported components, ΔIE_{zp} is the change in import exposure per worker over the period, and α_p are period fixed effects. To make the two periods comparable in length, we express the 2000-2007 changes as ten-year equivalents by multiplying the changes by (10/7). Regressions are weighted by the baseline prime-aged male population in the commuting zone and standard errors are clustered at the commuting-zone level. Our coefficient of interest is β: commuting zones whose initial industry mix predicted $1,000 more Chinese import growth per commuting zone worker at the start of the period experienced a β percentage-point larger ten-year equivalent change in the outcome.

We then translate the estimated coefficient into an implied contribution to the national rise in non-employment. For 1990-2000, we multiply the coefficient by mean predicted import growth over this period. For 2000-2007, we multiply the coefficient by mean ten-year-equivalent import growth and then multiply by (7/10) to translate the estimate back into the actual seven-year change. We sum these two contributions and compare them with the observed increase in the corresponding CPS ASEC outcome over 1990-2007. We use the CPS ASEC for this comparison because it is our primary source for the national long-run trend.

A.11: Exposure to Opioids

To examine whether opioid exposure contributed to the rise in non-employment, we use the 1996 introduction of OxyContin as an early opioid supply shock whose intensity varied geographically. A simple comparison between opioid use and employment is potentially subject to reverse causality: opioid use may reduce an individual's ability to work, but economic distress and non-employment may also increase opioid use.

Our primary exposure measure is average annual oxycodone MME per capita in each commuting zone from 2006-2009, before OxyContin was reformulated in 2010. The original version of OxyContin could be crushed or dissolved to bypass its extended-release mechanism, so Purdue reformulated it to be more resistant to these forms of misuse. The measure equals total

oxycodone shipments to retail outlets, converted into morphine milligram equivalents and divided by total population person-years for that commuting zone from 2006-2009.

Although ARCOS data are unavailable for the initial years after OxyContin's introduction, geographic differences in opioid exposure were highly persistent over this period. We therefore use the 2006-2009 measure as a proxy for the relative intensity of exposure during the earlier rollout of OxyContin. MME provides a common measure of opioid dose and therefore captures variation in the quantity and potency of oxycodone distributed rather than simply the number of prescriptions.

We divide the analysis into three long-difference intervals: 1990-2000, 2000-2010, and 2010-2019. Let $\tau \in \{1, 2, 3\}$ index these three intervals. The 1990-2000 interval covers the introduction and early rollout of OxyContin, when we expect any effect on non-employment to be small. The 2000-2010 interval captures the period of rapid growth in prescription opioid use before the reformulation of OxyContin. The 2010-2019 interval allows us to examine whether areas with greater early OxyContin exposure continued to experience larger increases in non-employment after the reformulation, when misuse of OxyContin may have fallen and opioid use increasingly shifted toward heroin and fentanyl.

For each interval $\tau \in \{1, 2, 3\}$, we estimate an interval-specific regression as follows:

$$\Delta NE_{z\tau} = \alpha_\tau + \beta_\tau OpioidExposure_z + \gamma_\tau \cdot X_z + \varepsilon_{z\tau}, \qquad (A5)$$

where $\Delta NE_{z\tau}$ is the change in the prime-aged male non-employment rate in commuting zone z over interval τ, $OpioidExposure_z$ is average annual oxycodone MME per capita in the commuting zone from 2006 to 2009, and X_z includes commuting-zone demographic characteristics measured in 1990, including age, education, and race/ethnicity composition. We estimate the same specification for total, household-supported, and non-household-supported non-employment. Each β_τ measures whether commuting zones with greater pre-reformulation oxycodone exposure experienced larger changes in the outcome during interval τ.

Because geographic differences in opioid exposure may themselves reflect local economic conditions, our preferred specification uses state triplicate prescription programs at the time OxyContin was introduced as an instrument for oxycodone exposure. Five states – California, Idaho, Illinois, New York, and Texas – required special triplicate forms for regulated prescriptions in 1996. These regulations increased the administrative burden of prescribing controlled substances, and Purdue Pharma marketed OxyContin less heavily in these states.

Areas without triplicate programs subsequently experienced greater OxyContin distribution and mortality from opioids. Following Alpert et al. (2022), we therefore use the share of each commuting zone's population in non-triplicate states as an instrument for oxycodone exposure. In the first stage, pre-reformulation exposure is regressed on this instrument, and in the second stage, changes in non-employment are regressed on predicted oxycodone exposure, with separate coefficients for each of our three intervals. We also estimate the corresponding reduced-form relationship between non-triplicate status and changes in non-employment. Standard errors are clustered at the commuting zone's dominant state level, which is the level at which the triplicate prescription programs varied.

Appendix B. Additional Tables and Figures

Appendix Table A1. Oaxaca-Blinder Decomposition of Non-Employment by Demographic Controls

	Anchor Returns at 1965 Levels	Anchor Returns at 2023 Levels
Overall Difference in Non-Employment (p.p.)	8.29	
Effect of Change in Mean Characteristics (p.p.)	0.06	-3.63
Effect of Change in Non-Constant Coefficients (p.p.)	-2.19	1.50
Effect of Change in Constant (p.p.)	10.42	10.42
% Due to Change in Mean Characteristics	0.75%	-43.80%
% Due to Change in Non-Constant Coefficients	-26.45%	18.10%
% Due to Change in Constant	125.70%	125.70%

Data: 1966 and 2024 CPS ASEC.
Notes: Sample is men aged 25-54. This table shows the results of an Oaxaca-Blinder decomposition, breaking the rise in non-employment into the component that comes from a change in mean characteristics, the component that comes from a change in coefficients on the characteristics, and the component that comes from a change in the constant (i.e., the pure effect of time). The characteristics considered are age, education, region, and race. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. The decomposition is weighted using survey weights.

Appendix Table A2. Household-Supported Non-Employment of Men Aged 25-54 by Income of Other Household Members, 1967 and 2023

Income of other household members	1967	2023	Change	Share of Increase
Bottom quartile	0.05%	1.75%	+1.70 p.p.	29.2%
Second quartile	0.26%	2.07%	+1.82 p.p.	31.3%
Third quartile	0.26%	1.45%	+1.19 p.p.	20.6%
Top quartile	0.34%	1.43%	+1.08 p.p.	18.7%
No other adult in household	0.00%	0.01%	+0.01 p.p.	0.2%
Total household-supported non-employment	0.91%	6.71%	+5.81 p.p.	100%

Data: 1968, 2024 CPS ASEC.

Notes: Sample consists of men aged 25-54. Household-supported non-employment is defined as working zero weeks in the prior calendar year, living in a multi-person household with positive income, and having own income less than or equal to 50% of per-adult household income. Income of other household members is total household income minus the man's own income, divided by the number of other adults aged 18 and over in the household. Quartiles are calculated separately in each year using survey weights among all prime-aged men who live with at least one other adult and whose other household members have positive combined income. Household-supported men who do not live with another adult are shown separately. Entries in the first two columns are percentages of the prime-aged male population. The final column reports each category's share of the 1967-2023 increase in household-supported non-employment. Changes and shares may not sum to totals because of rounding.

Appendix Table A3. Non-Employment of Men Aged 25-54 in CPS ASEC and PSID

Outcome	CPS 2005	CPS 2023	CPS Change	PSID 2005	PSID 2023	PSID Change
Non-employment rate	10.0%	11.5%	+1.6 p.p.	10.7%	15.9%	+5.2 p.p.
Household-supported non-employment rate	4.9%	6.9%	+2.1 p.p.	3.5%	6.0%	+2.5 p.p.
Non-household-supported non-employment rate	5.1%	4.6%	-0.5 p.p.	7.1%	9.9%	+2.7 p.p.

Data: 2005, 2023 CPS ASEC; 2005, 2023 PSID.

Notes: CPS non-employment is defined as working zero weeks during the preceding calendar year, while PSID non-employment is defined as not currently working. Household-supported non-employment denotes non-employed men who live with at least one other individual and whose own income is less than or equal to 50% of total household income per adult. Individuals in households with zero or negative total income are classified as non-household-supported. In the PSID, household resources are constructed by combining all observed PSID family units residing in the same housing unit; housing units containing residents whose income is not observed are excluded. CPS estimates are weighted using ASEC weights and PSID estimates use cross-sectional weights. CPS columns refer to the 2005 and 2023 survey years, which cover reference years 2004 and 2022. All entries are percentages.

Appendix Table A4. Detailed Reasons for Not Working Among Household-Supported Non-Employed Men, 1967 and 2023

Reason for not working	1967	2023	Change	Share of Increase
Could not find work	0.08%	0.77%	+0.69 p.p.	11.9%
Ill or disabled	0.59%	2.48%	+1.89 p.p.	32.5%
Home or family responsibilities	0.02%	1.47%	+1.45 p.p.	25.0%
School	0.08%	0.98%	+0.90 p.p.	15.6%
Retired	0.03%	0.28%	+0.25 p.p.	4.3%
Armed forces	0.02%	0.00%	-0.02 p.p.	-0.4%
Other	0.09%	0.74%	+0.65 p.p.	11.1%
Total household-supported non-employment	0.91%	6.71%	+5.81 p.p.	100%

Data: 1968, 2024 CPS ASEC.

Notes: Sample consists of men aged 25-54. Household-supported non-employment is defined as working zero weeks in the prior calendar year, living in a multi-person household with positive income, and having own income less than or equal to 50% of per-adult household income. Reason for not working is based on the respondent's reported main reason for not working during the prior calendar year. Entries in the first two columns are percentages of the prime-aged male population. The final column reports each category's share of the 1967-2023 increase in household-supported non-employment.

Appendix Table A5. Chinese Import Exposure and Changes in Male Manufacturing Employment

	Manufacturing Employment
	(1)
Import Exposure Per Worker	-0.395***
	(0.070)
Observations	1,444
Period Fixed Effects	Yes
Demographic Controls	No

Data: 1990 and 2000 5% Census samples; 2006-2008 ACS; Autor, Dorn, and Hanson 2013.
Notes: Sample is men aged 25-54, excluding group quarters, Alaska and Hawaii. Each observation is a commuting zone by period. The regressions stack two first differences: the 1990-2000 change in the manufacturing employment rate paired with 1990-2000 import exposure and the 2000-2007 change in the manufacturing employment rate paired with 2000-2007 import exposure. The dependent variable is the change in the manufacturing employment rate, expressed in percentage points and scaled to a ten-year equivalent. Import exposure is measured in thousands of dollars per worker. Regressions are weighted by the baseline Census/ACS-weighted prime-aged male population in each commuting zone. Standard errors are clustered by commuting zone.

Appendix Table A6. First-Stage Regressions of Oxycodone Exposure on Non-Triplicate State Status

	2006-2009 Oxycodone MME Per Capita (1)	2006-2009 Oxycodone MME Per Capita (2)
Share in non-triplicate states	144.4*** (33.5)	144.4*** (38.3)
Constant	110.9*** (22.6)	112.9*** (28.9)
Observations	741	710
F statistic	18.62	14.23
All CZs	Yes	No
CZs entirely in triplicate or non-triplicate states	No	Yes

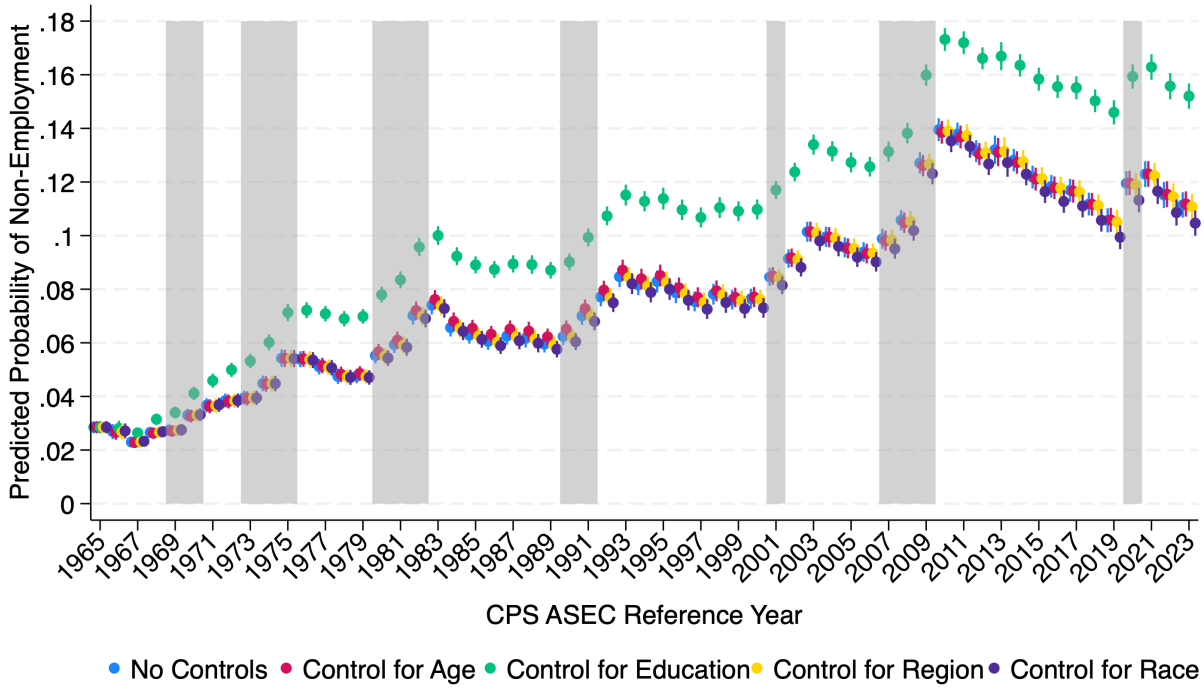
Data: DEA ARCOS transaction data, 2006-2009; Census Bureau population estimates.
Notes: Each observation is a commuting zone. The dependent variable in both regressions is average annual oxycodone MME per capita from 2006-2009, calculated as total oxycodone shipments converted to morphine milligram equivalents and divided by total population person-years from 2006-2009. Column (1) includes all commuting zones and the explanatory variable is the share of the CZ population located in a state without a triplicate prescription program. Column (2) restricts the sample to commuting zones located entirely within a non-triplicate or triplicate state, so the explanatory variable is binary. Triplicate states are California, Idaho, Illinois, New York, and Texas. Regressions are weighted by average CZ population from 2006-2009. Standard errors (shown in parentheses) are clustered by the commuting zone's dominant state (i.e., the one in which the plurality of individuals in that CZ live). The F statistic tests the significance of the triplicate program instrument. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix Table A7. OLS and 2SLS Regressions of Changes in Non-Employment on Oxycodone Exposure

	1990-2000 (1)	2000-2010 (2)	2010-2019 (3)
A. OLS			
Total Non-Employment	0.099* (0.051)	0.224** (0.109)	-0.179 (0.122)
Household-Supported Non-Employment	0.026 (0.030)	0.259*** (0.059)	-0.121 (0.080)
Not Household-Supported Non-Employment	0.073** (0.033)	-0.036 (0.062)	-0.058 (0.066)
B. 2SLS			
Total Non-Employment	0.007 (0.219)	0.683* (0.365)	-0.030 (0.358)
Household-Supported Non-Employment	0.055 (0.093)	0.537** (0.216)	-0.143 (0.173)
Not Household-Supported Non-Employment	-0.048 (0.150)	0.146 (0.177)	0.113 (0.220)
First-stage F statistic	13.60	13.83	14.60
Observations	722	722	722

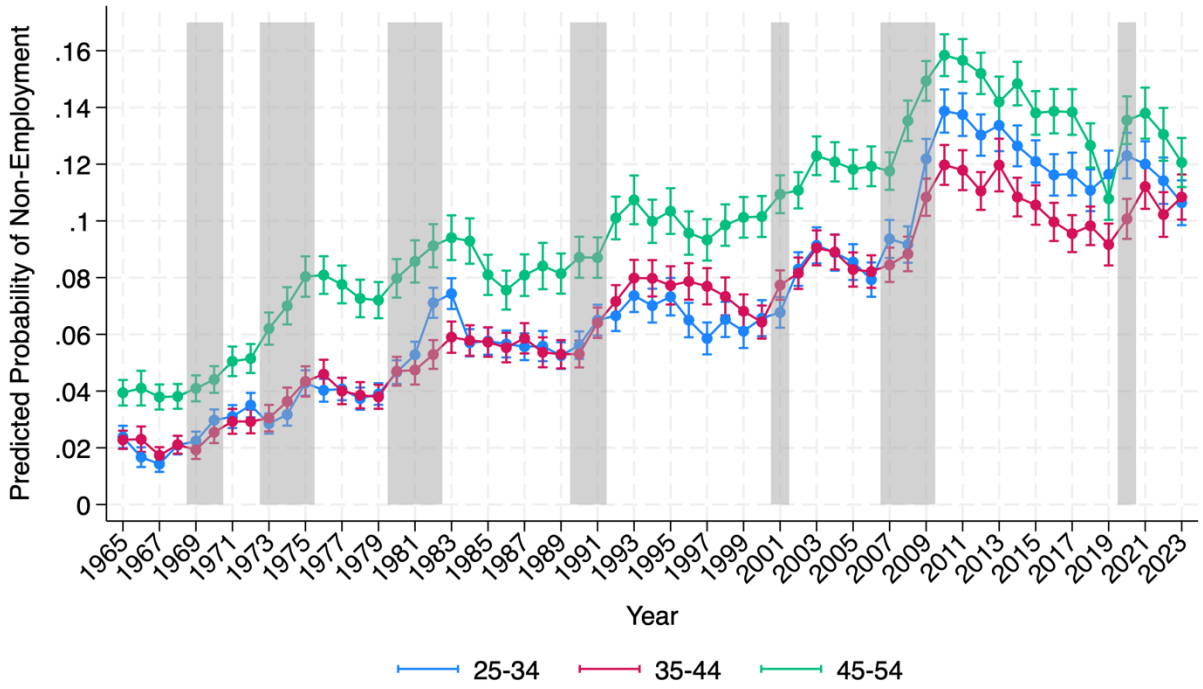
Data: 1990 and 2000 Census; 2009-2011 and 2018-2019 ACS; DEA ARCOS transaction data.
Notes: Each observation is a commuting zone. The dependent variables are the ten-year-equivalent percentage-point changes in total, household-supported, and non-household-supported annual non-employment of men aged 25-54 over the period shown. Non-employment is defined as having worked zero weeks during the previous 12 months. Oxycodone exposure is average annual oxycodone MME per capita during 2006-2009; coefficients report the change in each outcome associated with an additional 100 MME per capita. Panel A estimates OLS regressions, while Panel B estimates 2SLS regressions in which oxycodone exposure is instrumented with the share of the commuting-zone population located in a state without a triplicate prescription program. All regressions include controls for age, education, and race/ethnicity measured in 1990. Regressions are weighted by the prime-aged male population at the beginning of each period. Standard errors in parentheses are clustered by the commuting zone's dominant state. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix Figure A1. Trends in Non-Employment of Men Aged 25-54, One Demographic Control at a Time



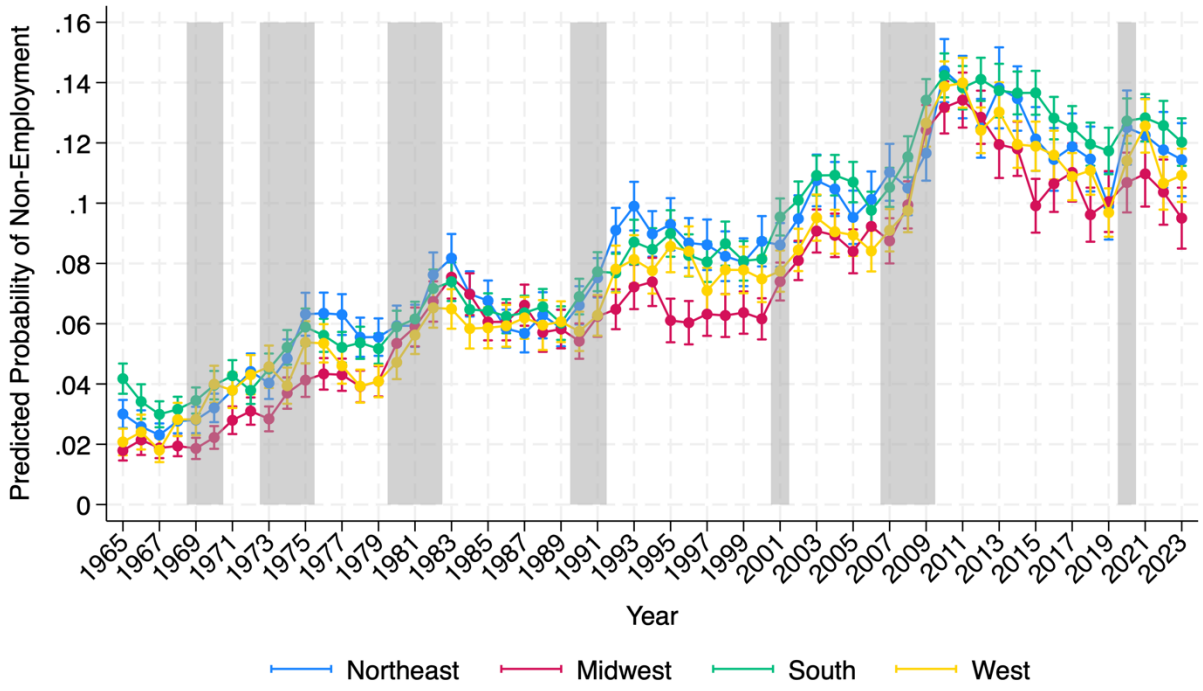
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Blue points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies without a constant. All other points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies and just the control listed without a constant. All controls are defined as in Figure 1. All controls were demeaned using the weighted mean in 1965 to ensure that the 1965 points are equal. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Regressions are weighted by survey weights and use robust standard errors. Grey regions are recessions, as defined by the NBER.

Appendix Figure A2. Heterogeneity of Non-Employment of Men Aged 25-54 by Age



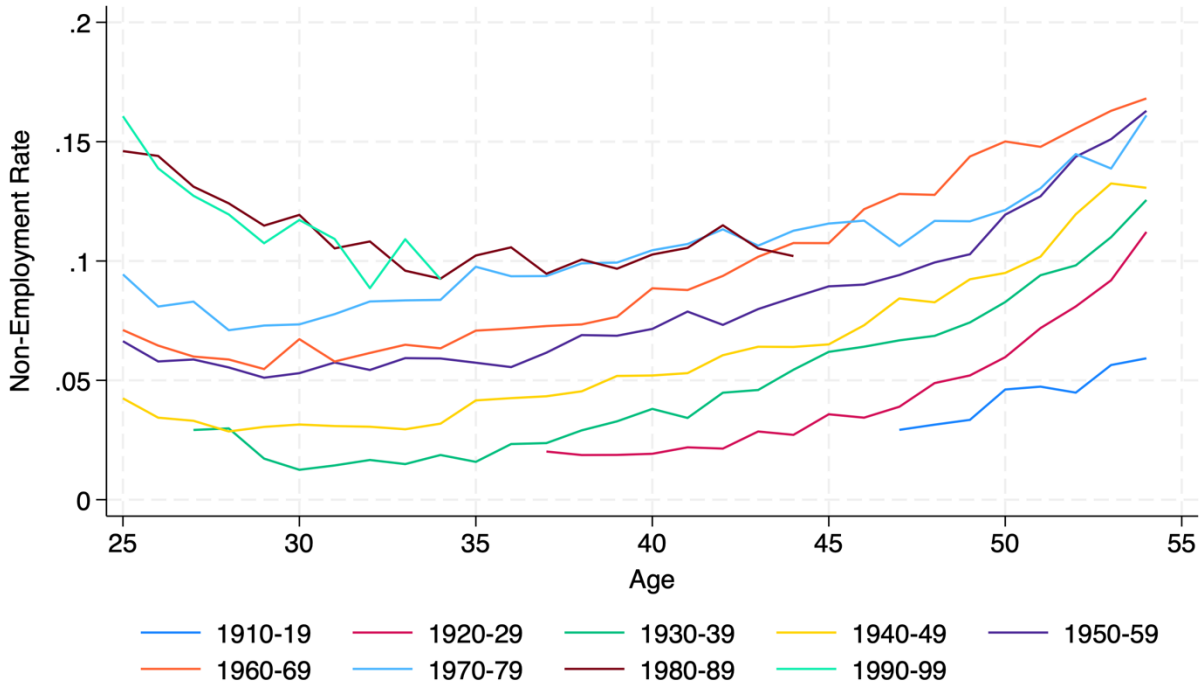
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Points and bars represent predicted average non-employment (and the 95% confidence interval) by year and age group. Predicted values are derived from a linear regression of non-employment on year dummies interacted with indicators for being 35-44 and being 45-54 (25-34 was the omitted group). Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Regressions are weighted by survey weights and use robust standard errors. Grey regions are recessions, as defined by the NBER.

Appendix Figure A3. Heterogeneity of Non-Employment of Men Aged 25-54 by Region



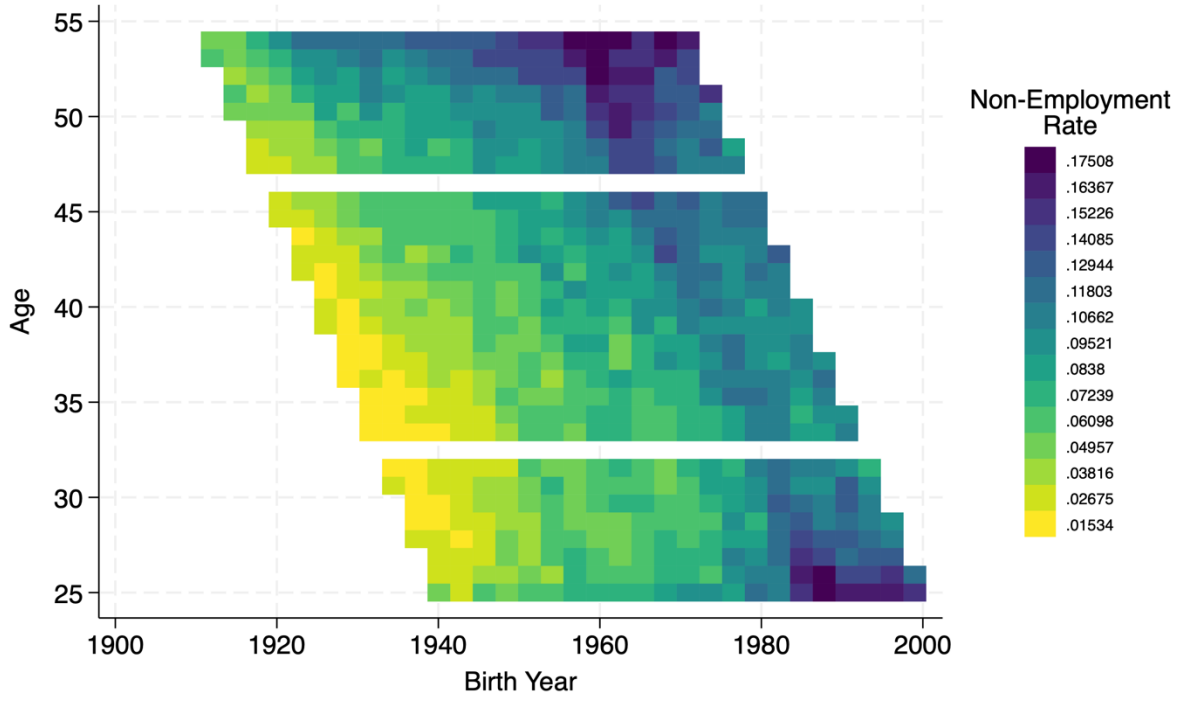
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Points and bars represent predicted average non-employment (and the 95% confidence interval) by year and region. Predicted values are derived from a linear regression of non-employment on year dummies interacted with indicators for being in the Midwest, being in the South, and being in the West (the Northeast region was the omitted group). Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Regressions are weighted by survey weights and use robust standard errors. Grey regions are recessions, as defined by the NBER.

Appendix Figure A4. Non-Employment of Men Aged 25-54 by Age and Birth Decade



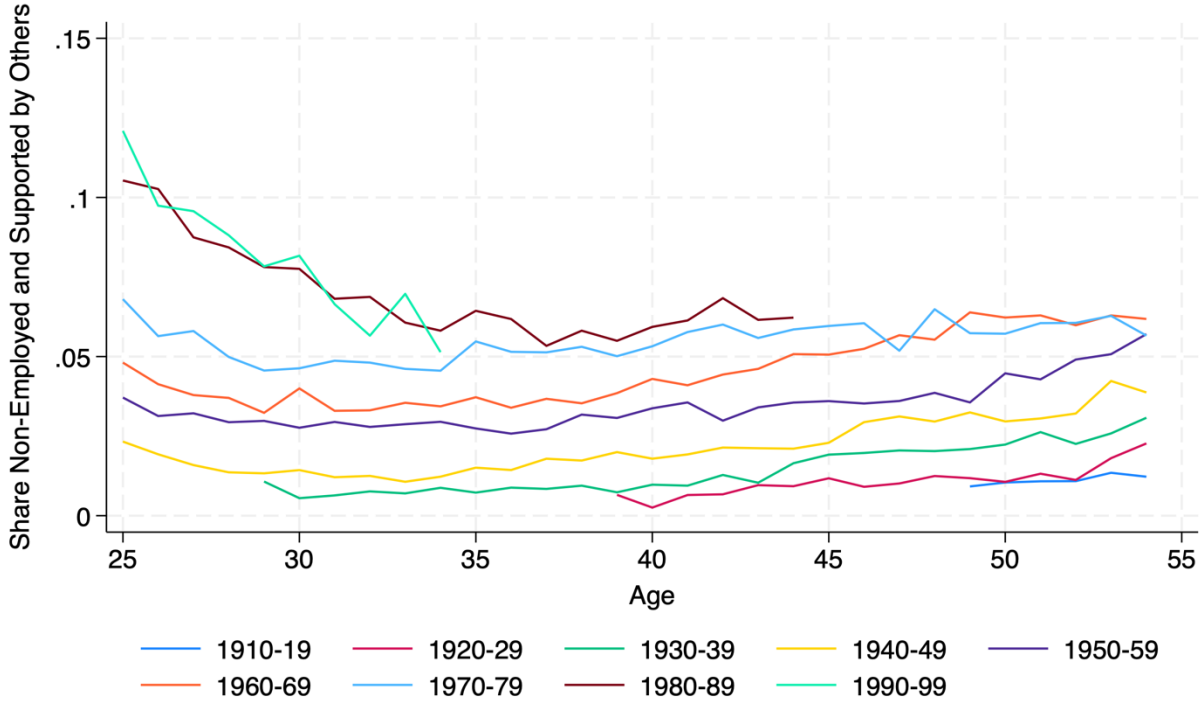
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Each line plots the average non-employment rate by age for a particular birth decade. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Assignment of birth decades uses implied birth year, found by taking survey year and subtracting age reported in the survey. Averages are computed using survey weights.

Appendix Figure A5. Heat Map of Non-Employment of Men Aged 25-54 by Age and Birth Year



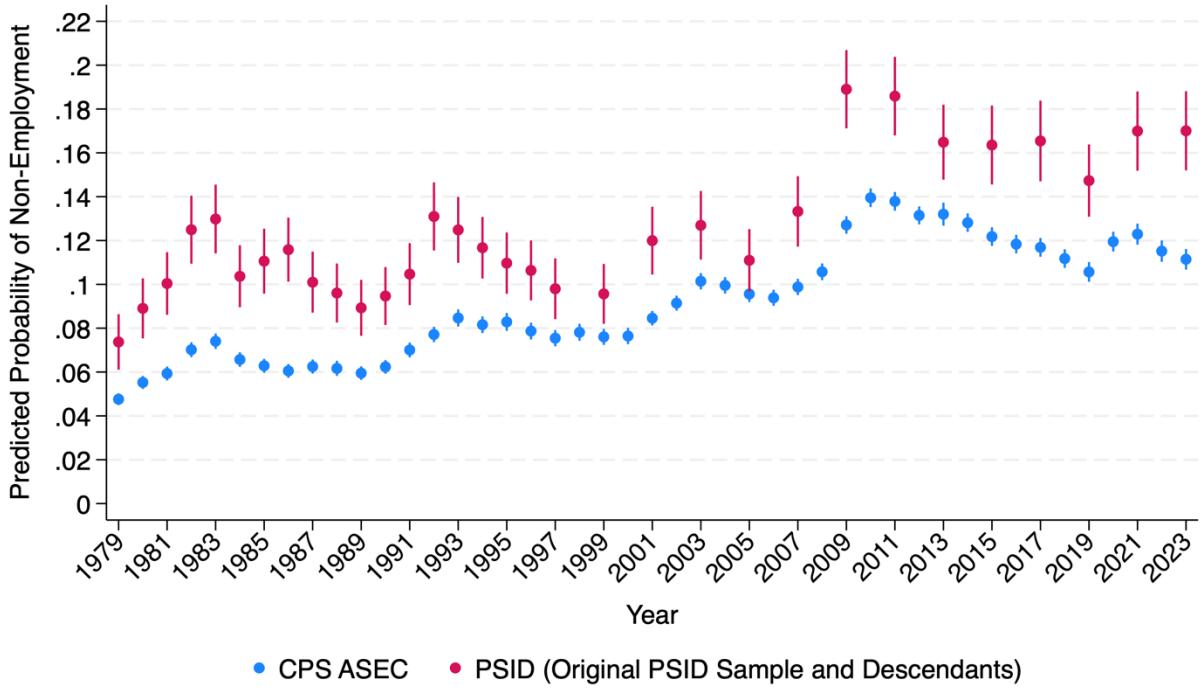
Data: 1966-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Heat map plots non-employment rate for each birth year by age cell, where lighter colors represent lower levels of non-employment and darker colors represent higher levels of non-employment. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Birth year is imputed as survey year minus reported age. Averages are computed using survey weights.

Appendix Figure A6. Household-Supported Non-Employment of Men Aged 25-54 by Age and Birth Decade



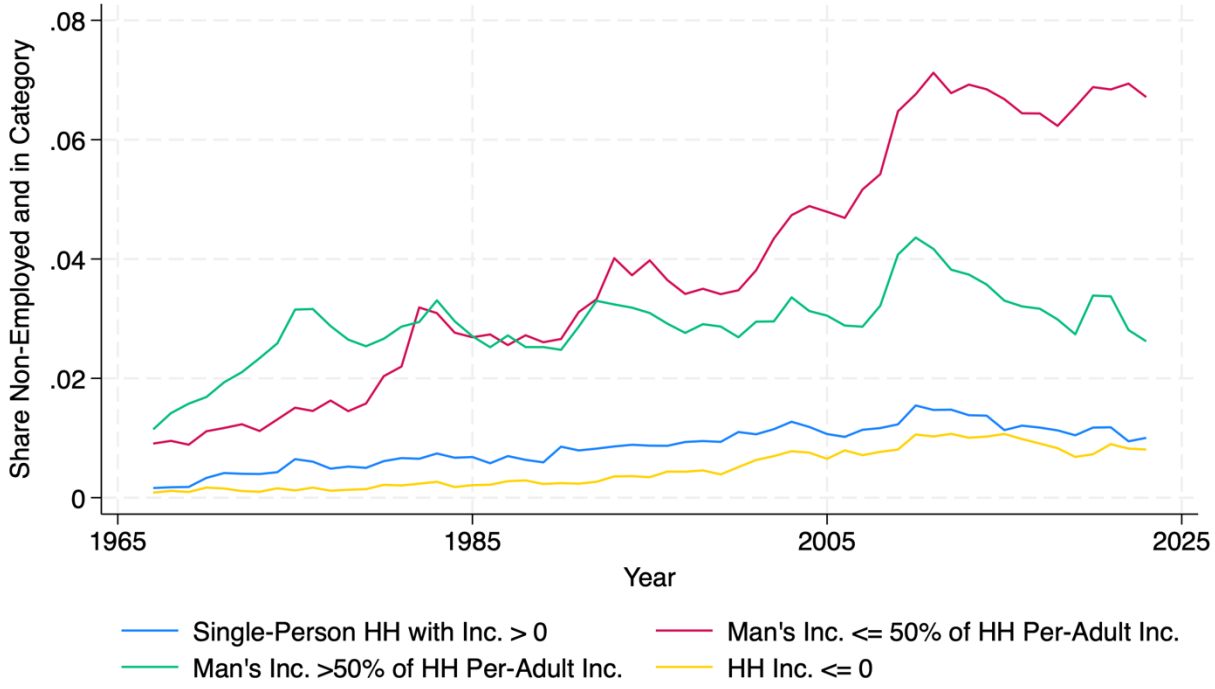
Data: 1968-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Each line plots the average rate of being non-employed and primarily supported by others in the household by age for a particular birth decade. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Primarily supported by others in the household means the man lives in a multi-person household with positive income and his income is less than or equal to 50% of per-adult household income. Assignment of birth decades uses implied birth year, found by taking survey year and subtracting age reported in the survey. Averages are computed using survey weights.

Appendix Figure A7. Non-Employment of Men Aged 25-54 Over Time in CPS ASEC and PSID



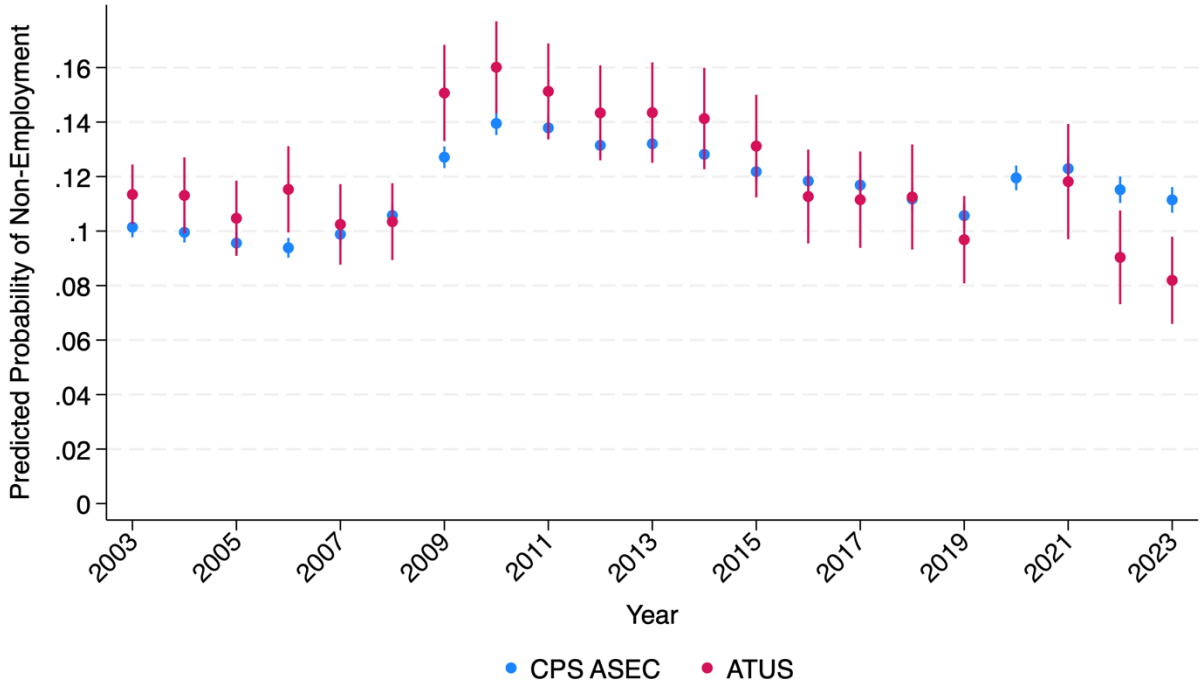
Data: 1979-2023 Panel Study of Income Dynamics, 1980-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Blue points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies without a constant using the CPS ASEC while the red points and bars represent analogous estimates using the PSID. In the CPS ASEC, non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. In the PSID, non-employment is defined as not currently working. Regressions are weighted by survey weights (the PSID uses longitudinal weights) and use robust standard errors.

Appendix Figure A8. Sources of Support of Non-Employed Men Aged 25-54 Over Time



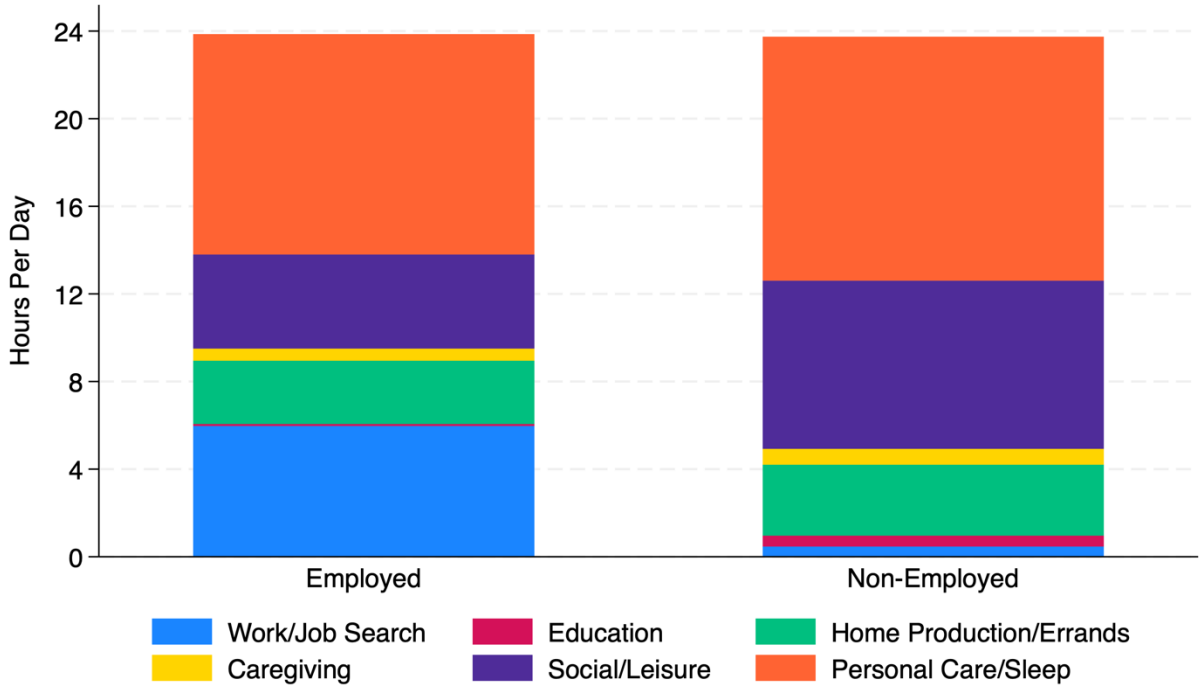
Data: 1968-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Blue line is proportion of sample who are non-employed, live by themselves, and receive positive income. Red line is proportion of sample who are non-employed, live with others, and have income <=50% of per-adult household income. Green line is proportion of sample who are non-employed, live with others, and have income > 50% of per-adult household income. Yellow line is proportion of sample who are non-employed and have a household income <= 0. Non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. Proportions are weighted by survey weights.

Appendix Figure A9. Non-Employment of Men Aged 25-54 Over Time in CPS ASEC and ATUS



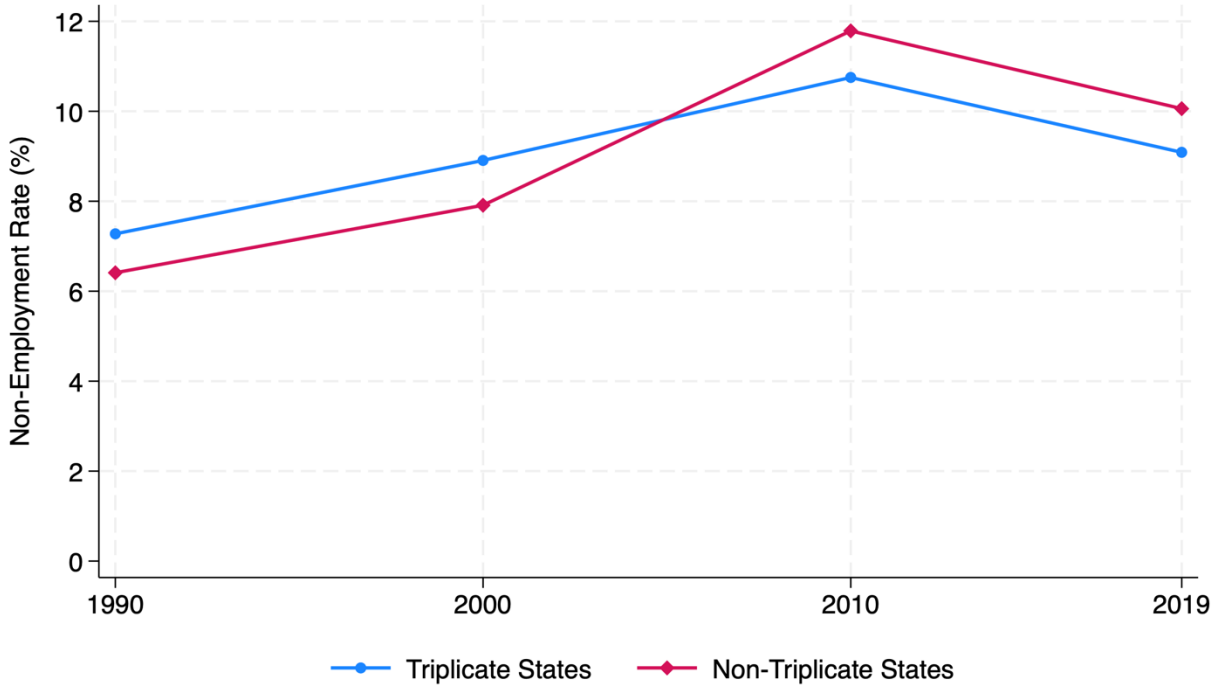
Data: 2003-2023 American Time Use Survey, 2004-2024 CPS ASEC.
Notes: Sample is men aged 25-54. Blue points and bars represent estimated coefficients and 95% confidence intervals, respectively, on year dummies from a linear regression of non-employment on the full set of year dummies without a constant using the CPS ASEC while the red points and bars represent analogous estimates using the ATUS. In the CPS ASEC, non-employment is defined as having zero weeks worked in the reference year and not being an active-duty member of the armed forces. In the ATUS, non-employment is defined as being unemployed or not in the labor force. Regressions are weighted by survey weights and use robust standard errors.

Appendix Figure A10. Time Use of Employed and Non-Employed Men Aged 25-54 (2003-2023, Excluding 2020)



Data: 2003-2023 American Time Use Survey. 2020 is excluded due to data quality issues.
Notes: Sample is men aged 25-54. For each group, we plot the average hours spent per day on six categories of time use. Non-employment is defined as being not in the labor force or being unemployed. Means are weighted by survey weights.

Appendix Figure A11. Non-Employment of Men Aged 25-54 by State Triplicate Program Status



Data: 1990 and 2000 Census; 2009-2011 and 2018-2019 ACS.
Notes: The blue line plots the non-employment rate of men aged 25-54 for commuting zones located entirely in California, Idaho, Illinois, New York, or Texas while the red line plots the non-employment rate of men aged 25-54 for commuting zones located entirely in one of the other 45 states. Non-employment is defined as having worked zero weeks in the last 12 months. The 2010 endpoint pools the 2009-2011 ACS while the 2019 endpoint pools the 2018-2019 ACS. Rates are weighted by survey weights.