

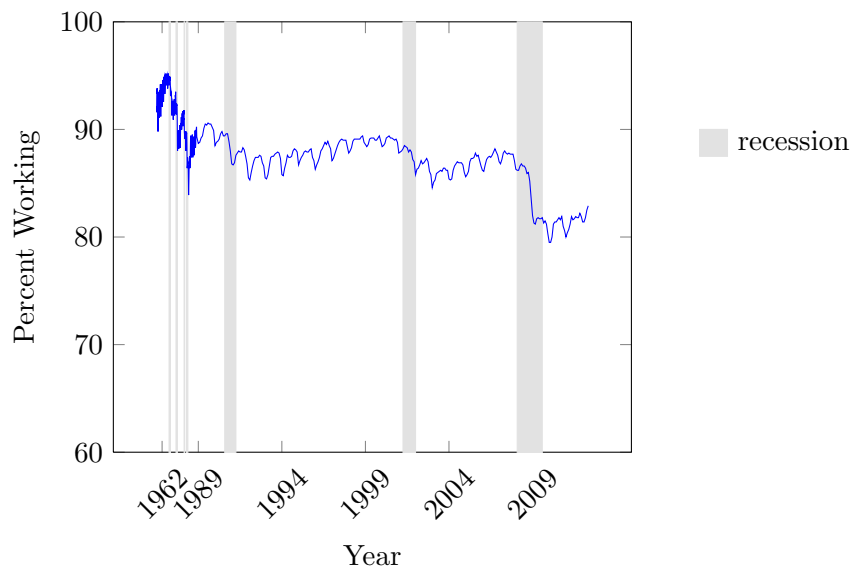
Non-Marriage Reduces U.S. Labor Participation:^{*} The Abandonment of Marriage Puts America at Risk of a Depression[†]

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Chart 1 Percent Males Employed

Males aged 25-54; Bureau of Labor Statistics (CPS)



^{*}Our term *labor participation* (being employed) is narrower than *labor force participation* (being employed or currently unemployed), defined by the Bureau of Labor Statistics. Note, men are either employed, unemployed, or “not in labor force.” As there has been an increase in men with long-term “not in labor force” status (see Footnote 9), the grouping of unemployed with those *not* in the labor force is analytically more tractable.

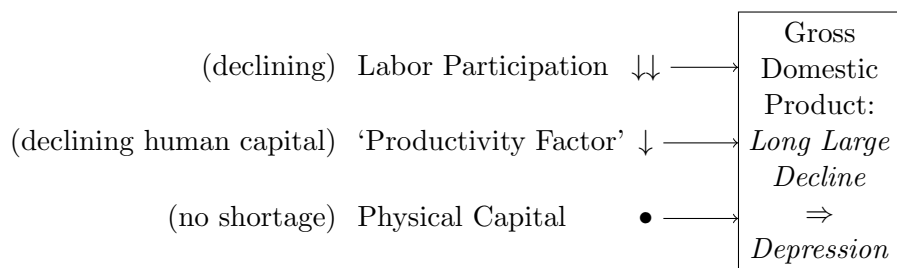
[†]In contrast to marriage, education has not shown a clear effect on labor participation, as the Appendix documents.

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Introduction: Macro Labor Patterns

The long, secular decline of adult male labor participation shown in Chart 1 represents a withdrawal of normally able-bodied workers from productive employment. This withdrawal amounts to a removal of one of the key components for domestic production at the macro-economic level (Chart 2). These workers' economic productivity comes to nought. We investigate the causes of this withdrawal. It cannot be ascribed to globalization of the labor pool or purely to women entering the workforce. A large part of this decline can be immediately, causally associated with increasing trends in non-marriage, within and across occupation classes, for the U.S. population.

Chart 2 Current State of Affairs of Factors Going into Production
Neo-classical production considerations; MARRI analyses



Labor Participation & Depression

Labor participation and the technical capacity of the workforce have been shown to be the core factors of production that drop off during any depression (Chart 2). This conclusion is deduced from the study of a dozen depressions in modern economies around the world.^{1,2} The factors that go into production³ are human labor, human technical skills (as well as other capacities and know-how that are embodied in the mechanisms of production), and physical capital.

Because of the drop-off in labor participation analyzed in this paper (Chart 1), coincidental with a demographically-driven drop-off in the tech-

¹Timothy Kehoe and Edward Prescott, eds., *Great Depressions of the Twentieth Century* (Minneapolis: Federal Reserve Bank of Minneapolis, 2007).

²A depression sees a fall-off of at least 20 percent from potential GDP. This fall-off lasts for more than a decade, with most of the fall-off occurring before the first decade of the depression is out, *ibid.*

³That is, into GDP.

nical skills, capacities, and know-how that go into production,⁴ the United States is at risk of a depression.⁵

Analysis: Family Structure & Labor Patterns

Charts 4 through 9 illustrate the employment rates for different occupational classes. These charts show the relative rates of employment for single, cohabiting, and married men in the upper graph. The lower graph illustrates the fraction of the population in that marital state (single, cohabiting, or married). Occupation type and education level are generally recognized specifiers of human capital.⁶ Human capital comprises the skills, capacities, and know-how contained in the human person and valued by the market for economic production.

Charts 4 through 9 cover 50 years of labor history including over a half-dozen indicated recessions.⁷ As can be seen *for all occupation classes and through myriad macro-economic changes*, married men are consistently more employed than single or cohabiting men. There is a well-defined difference in the rate of not working for men of different marital statuses. This is the ‘gap’ between the upper and lower curves in the upper graphs of Charts 4 through 9.⁸

Given that the story for the education classes (Charts 10 through 13) is analogous to that of occupation classes, we focus the following analysis on

⁴Henry Potrykus and Patrick Fagan, *Decline of Economic Growth: Human Capital and Population Change*, available at marri.us/human-capital, techreport (MARRI, 2011). The population concentrated in the baby boom is slowing down its (technically advanced) labor contribution and entering retirement; the follow-on generation is inadequate in size and skills, capacities, and know-how to replace this loss to productivity.

⁵Both factors here are consequences of the sexual revolution beginning in the 1960s. See the concluding Risk of Depression section and Footnote 30 especially.

⁶Gary Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, Third Ed. (Chicago: University of Chicago Press, 1994).

⁷Monthly data is readily available beginning in the late 1980s.

⁸The possible exception is that the difference in employment behavior in the professional populations (Chart 4) in the late 1960s is apparent but *seemingly smaller* than in succeeding decades. This may be a behavioral shift (e.g. because of a shift in the nature of this class). The class itself grows in population. It is difficult to conclude because of the paucity of data and is most likely an artifact of CPS coding changes between 1967 and 1968 – note the high noise in the charts in this range.

occupation classes, as they give a simpler view into labor dynamics.^{9,10}

To summarize what the appendix develops more fully: sub-populations – especially recently – have moved between different education levels without a definitive change to those sub-populations’ employment behaviors. By contrast, marital status strongly affects that population’s employment behavior, as we now show.

Effect of Marital Status on Labor Participation

Across all occupation classes in Charts 4 through 9, a consistent and well-defined difference in rates of employment between men of different marital statuses persists (the ‘gap’ seen in the upper graphs). All the while, a population shift is occurring: the married state is consistently losing ground to singlehood and cohabitation (as seen in the lower graphs). We may conclude that it is the state of marriage that makes the men in these sub-populations be employed in much greater percentages, regardless of other qualities¹¹ found in those men.

Marital state must affect behavior because the population is shifting from one marital state to another as the decades progress.¹² If the same quality of man had merely moved from married to unmarried states, he would have brought his propensity to work with him. Had that happened, non-married men would see a *relative increase* in their group’s propensity to work. This increase did not happen (Charts 4 through 9). The men who shifted from married to unmarried states took on a lower propensity to work in the process.

⁹There is a selection effect comparing Charts 4 through 9 to Charts 10 through 13. CPS does not code occupation class for individuals out of the workforce for a year, or more. Thus Charts 10 through 13 will exhibit (correctly) a larger number not working, especially over time (and especially among singles). The argument to follow holds regardless, without modification. However, it is possible in this channel *specifically* (the sub-population long separated from work, in which itself singles are overrepresented), the mechanisms of Footnotes 15 and 17 (also Footnote 36) may be operative. See the end of Footnote 26 for elaboration.

¹⁰The subject of analysis in the appendix – that education is increasingly a credential and not an agent of human capital development – is an example of how occupation classes are more stable analytic factors than education classes.

¹¹We mean human capital qualities not measured by occupation class, tenure (age after entry into the workforce – Potrykus and Fagan, *Decline of Economic Growth: Human Capital and Population Change*), education level, or marital status.

¹²This shift occurs both within occupation classes and generally across all working males. Thus, the decrease in employment in Chart 1 is not from a population shift across occupation classes. In fact, the contrary happens: The CPS shows men generally moving away from occupation types that employ them at lower levels.

Likewise, if a sub-population of married men with a lower propensity to work were to move into the growing single and cohabiting population groups, the remaining married men should see their average propensity¹³ to work increase. This is not seen (Charts 4 through 9), hence no such sub-population exists. The men shifted from married to unmarried states and took on a lower propensity to work *through that transition*.

We may restate these two points: The new sub-population of now non-married men (those that would have otherwise been married had the pre-1960s culture been maintained) works at the rate of single and cohabiting men. Before (i.e. in the culture leading into the 1960s), this population segment would have had the propensity to work like the average married man. The abandonment of marriage *caused* this segment to reduce its labor participation.

Other Potential Factors Reducing Employment

Feminization of Labor

Women entering the workforce cannot be an explanation for the lower level of labor participation by unmarried men (at least after 1990¹⁴) as this process stabilized by the 1990s (Chart 3). After this time male labor participation continued to fall off (Chart 1).^{15,16}

¹³This should hold for both relative and absolute propensities to work.

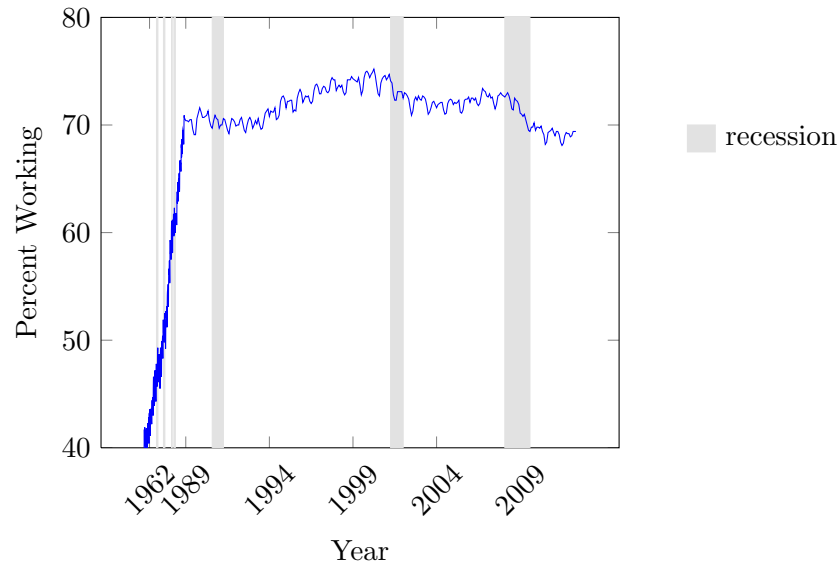
¹⁴And then we may *ex post* carry our main conclusion back through the 1960s, 1970s, and 1980s. This is justified because of the robust near-constancy of the ‘employment gap’ between marital status classes. Otherwise, there would be a temporary interaction between single male labor and women entering the workforce over the 1960s, 1970s, and 1980s. This interaction then must disappear, to be promptly replaced with the normal marital status effect persisting across the 1990s and 2000s. (Those decades experience the continued, gradual on-take of non-marital household arrangements.)

¹⁵The argument that cannot hold would go something like this: Single and cohabiting men find themselves disproportionately in occupations where increased competition from women entering the workforce saps jobs, and their employment prospects suffer in consequence.

¹⁶A careful analysis of the employment cycles (driven presumably by the business cycles indicated in Chart 1) shows this to be correct over the entire set of ‘rolling hills’ seen after 1990. Conformity of presentation of the data pre-1990 unfortunately necessitates a tightened depiction of the rise of women’s participation in that period in Chart 3. Rescaling the BLS data shows a real eventual stabilization of the rate of women entering the workforce in the 1990s.

Chart 3 Percent Females Employed

Females aged 25-54; Bureau of Labor Statistics (CPS)



Globalization of Labor

The effects of globalization of the labor market cannot be an explanation for this lower level of labor participation, as we control for occupation class,¹⁷ and this relative employment difference *holds irrespective of occupation class* and its susceptibility to global competition.¹⁸

Favoritism of Marrieds over Singles

Last, relative employment cannot be attributed to management favoritism of married men over singles. Two data are necessary to demonstrate this. First, note that because their human capital is more developed, married men earn

¹⁷The argument that cannot hold would go something like this: Single and cohabiting men find themselves disproportionately in occupations where increased competition from labor globalization saps jobs, and their employment prospects suffer in consequence. This argument of course ignores the dynamism of the labor market and the possibility for workers to retrain themselves and find work more in line with their stability preferences. We readily conjecture that *it is these stability preferences* that in part differentiate the marital status classes with respect to their propensity to work.

¹⁸This is a stronger result than that given by merely focussing on occupation classes not susceptible to 'global labor arbitrage,' i.e. their labor not having a high degree of relocatability in the act of economic production.

more generally.¹⁹ Second, note how the gap’s width (between singles and married men, with cohabiting men in between) *increases* during recessions. Let us interpret these data. Especially during recessions, management acts to hold on to its most valuable labor, even though it is its most expensive labor. This is a general phenomenon: in depressions, lower-skilled labor is let go of first, and in massive quantity.²⁰ It is single men that here are most identified with lower-skilled labor.²¹ Relative wage stickiness (i.e. the maintenance of relatively high wages during economic downturns²²) results as the higher-skilled and higher-paid employees are retained.

Labor patterns demonstrate that markets choose married men because they are, relative to all other groups, the most valuable.²³

The second datum above also shows that non-marriage *creates economic insecurity* for the whole nation: Compare the latest recession to the recession of the early 1980s. In both recessions each marital status group had similar employment responses, but the latest recession saw a further weakening of the *overall* workforce *because the population that is married is smaller*.

Non-Marriage Reduces Macro Labor Participation

American labor participation for men has been dropping off since the 1960s (Chart 1). As analyzed above, a ‘gap’ exists between the participation rates of married men and unmarried men. This ‘gap’ and the population shift towards non-marriage *alone*²⁴ can immediately account for around half of this

¹⁹The proof of this is in Henry Potrykus and Patrick Fagan, *The Divorce Revolution Perpetually Reduces U.S. Economic Growth*, available at marri.us/productivity-divorce_techreport (MARRI, 2012). This is perfectly consonant with the greater amount of time employed – as indicated in Charts 4 through 9 – during which married men *accrue* human capital.

²⁰Kehoe and Prescott.

²¹In fact, we have given a (real economic) mechanism for depression. A large class of workers ‘leaves’ the normal-operating labor force and moves into a lower productivity mode. In this paper, we are suggesting this class of low-productivity worker is at least partly characterized by his marital status.

²²This definition is slightly different from Keynes’. It is beyond the scope of the present paper to elaborate on this [real, testable] phenomenon or discuss its relation to Keynes’ General Theory of Employment.

²³Again, informally, firms would not so consistently maintain the much higher-priced labor when budgets are tightest – in recessions and depressions – unless this labor [here the married men of Charts 4 through 9] had greater value. The *quantification* of these statements is beyond the scope of the present paper.

²⁴That is, without taking into account any multiplier effect, i.e., a weakening of the overall economy from this pull-back in production. See also Footnote 12 for a comment on gross population shifts.

fall-off in labor participation.^{25,26} In macroeconomic terms this significant phenomenon is a large share of what is seen in depressions.²⁷

²⁵Chart 1 shows roughly a 10 percent drop in participation over the 1960s to the 2010s. Across education classes there is roughly a 15 percent ‘gap’ at 2010. Also across education classes, there is a shift from 90 percent of adult men aged 25 to 54 being married to roughly 60 percent (or 50 percent, depending on the class) still choosing marriage as one traces over the 1960s to the 2010s. This shift represents a fractional change of about 3/10 of the population losing 15 percent of its employment rate. (Proper accounting for population dynamics can make this number more accurate.) $15\% \times 0.3$ is a 5 percent drop in employment rate for the entire workforce.

This ‘15 percent gap’ is only applicable when the 2010s are used as the end-point of the drop-off in Chart 1. Earlier on, the gap across Charts 10 through 13 is roughly 7 to 10 percent. *Mutatis mutandis*, the calculation of the ‘half’ carries over for the period before the 2008 recession (with the recession’s amplifying effects on non-employment), only the numbers are proportionately smaller. Instead of a 10 percent drop, the drop in participation is about 7 percent through the early 2000s. These two relative calculations also serve to underline the point made at the end of the last section that non-marriage *amplifies* the overall workforce’s sensitivity to recessions.

²⁶Women entering the workforce and consequent shifts in the competitive labor market and (household) work preferences may account for part of the overall drop-off in labor participation, though the ‘floor’ levels of the rate of not working (levels during times of economic strength) in Charts 4 through 9 only shift a percentage point or two over the decades. This sociological phenomenon may be coupled with other labor market and sociological dynamics; for example, global labor arbitrage, a labor concentration in the “construction” sector and subsequent collapse of that sector (see Chart 5), and – as stated in Footnotes 17 and 36 – welfare benefits may *interact* with women entering the workforce and the abandonment of marriage.

²⁷Kehoe and Prescott.

Conclusion: Risk of Depression

Entering into marriage affects economic agents' behavior.^{28,29} The abandonment of marriage leads to reduced population³⁰ with its eventual loss in human capital.³¹ This rejection of marriage is also cause for reduced labor participation. Together, these put the United States at risk of economic depression (Chart 2). The continuance of this cultural-demographic drift away from marriage and into household structures that are less productive and less engaged in the economy will exacerbate this risk over time.

²⁸ As we have shown here and Potrykus and Fagan, *Decline of Economic Growth: Human Capital and Population Change*.

²⁹ Also, poor job prospects cannot be the “true explanation” of the effect of non-marriage investigated here. (This would be termed reverse causality – poor employment performance causing non-marriage – or an effect of “endogeneity.”) This cannot obtain because our analysis still holds when we look for age group variance: 35- to 44-year-olds and 45- to 54-year-olds, the groups that have experienced *decades* of employment, show no deviation in the differences analyzed. 25- to 34-year-olds behave nearly identically to 35- to 44-year-olds and 45- to 54-year-olds, in employment characteristics. (This near-identity *does not* hold for 55- to 64-year-olds, as this group ‘slows down’ and begins to enter retirement, *ibid.*) The argument made in the previous section carries over word-for-word, simultaneously for each of these age groups. The similarity of their behavior holds quite strongly. The argument thus holds as cohorts *age*: the population remaining unmarried *changes* (decreases), however the ‘gap’ in not working persists. For reverse causality to hold, men of all qualities, across all age groups must hold out from marriage just because they are less sure of employment. This would constitute an improbable cross-human-capital, cross-age-group phenomenon.

Moreover, reverse causality must necessarily hold across 50 years of varied macro-economic environments. The progression (aging) of men through their 20s, 30s, and 40s occurs through periods witnessing strong labor markets. The vast majority of men will be employed for long periods of time during this progression.

Last, as these men age and consequently marry, the constancy of the ‘gap’ indicates the remaining unmarried men do not exhibit especially low levels of employment. Hence these men similarly experience employment periods. This high probability of eventual employment (for some period) and the immutability of the employment ‘gap’ make reverse causality (poor employment performance causing non-marriage) highly improbable on the time scales measured here.

Other cohort effects are also entailed by these considerations. First, business cycle shocks dominate workforce changes. The long periods *after* a recession show lower levels of labor participation, cf. Charts 4 through 9. Next, as mentioned above, older age groups are (slightly) more employed. Any general cohort effect cannot be distinguished because of these factors. See however Footnote 35 for an interesting recent cohort effect.

³⁰ Henry Potrykus and Patrick Fagan, *Marriage, Contraception & The Future of Western Peoples*, available at marri.us/demographics, techreport (MARRI, 2011) contains a stark representation of this.

³¹ Potrykus and Fagan, *Decline of Economic Growth: Human Capital and Population Change* connects Footnote 30 to human capital.

Charts & Descriptions

Charts 4 through 9 illustrate the employment rates for different occupational classes. These charts show the relative rates of employment for single, cohabiting, and married men in the upper graph. For each occupation class the lower graph illustrates the fraction of the population in that marital state (single, cohabiting, or married).

Typical occupations within each occupation class

- **Professional occupations:** accountants, chemists, professors, doctors, editors, engineers, lawyers, nurses, pharmacists, social workers, teachers, managers.
- **Skilled labor occupations:** technicians, carpenters, craftsmen, mechanics and repairmen, plumbers, metal workers.
- **Salesmen:** all types except retail.
- **Administrative support occupations:** clerical secretaries, typists, bookkeepers, phone operators, office boys.
- **Unskilled labor occupations:** drivers, deliverymen, furnacemen, assembly line workers, day laborers.
- **Service-sector occupations:** waitstaff, housekeepers, retail salesmen.

The smoothed lines of Charts 4 through 13 are derived using a Census Bureau / Bureau of Labor Statistics standard process. The so-called X-11 filters give industry-standard means of obtaining estimates of smoothed, seasonally-adjusted trends.

Chart 4 Percent Professional Occupation Class Males Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

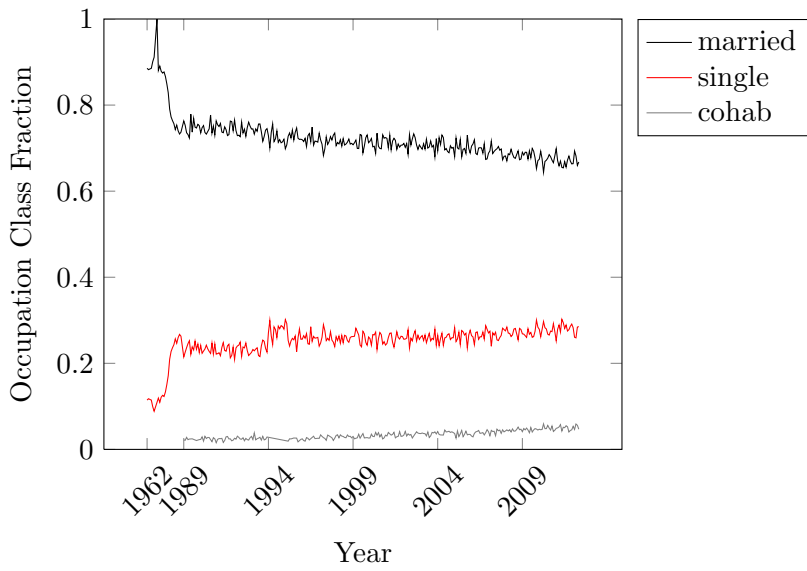
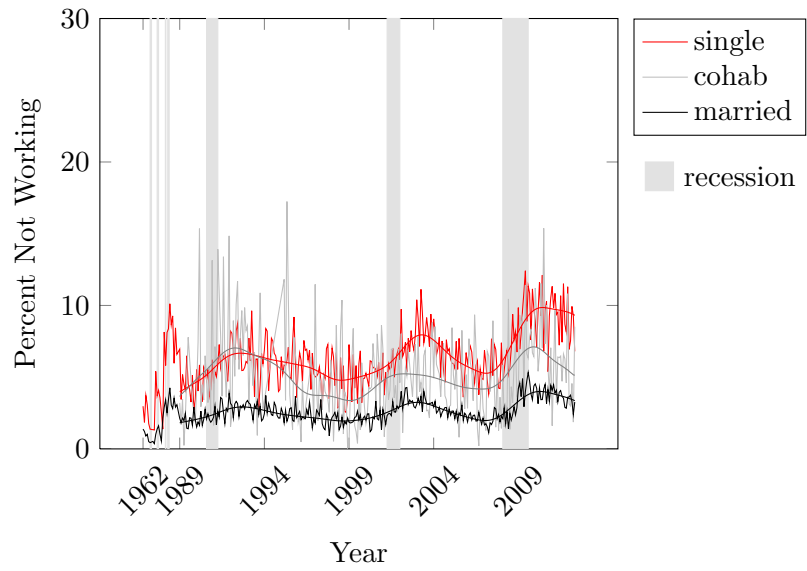


Chart 5 Percent Skilled Labor Class Males Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

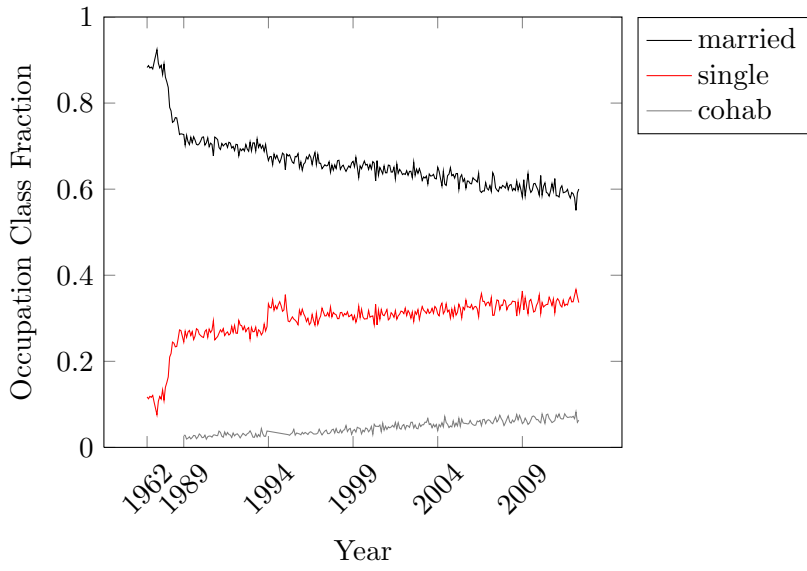
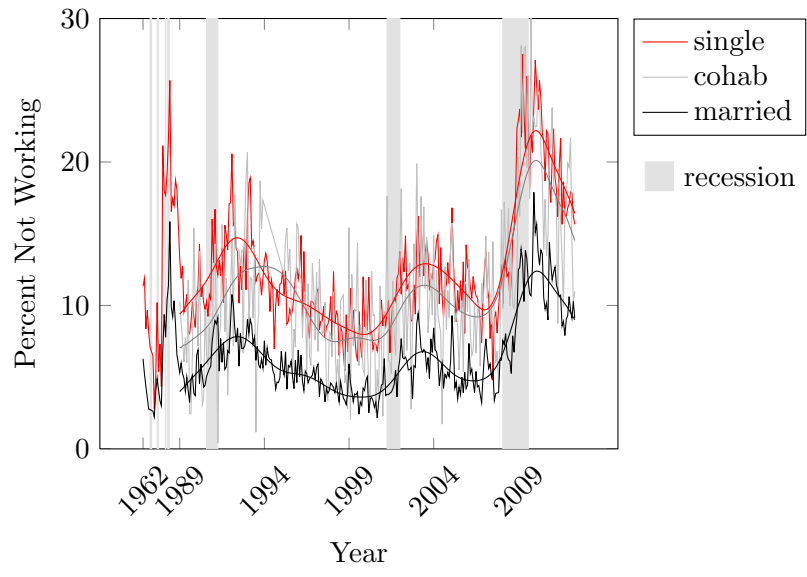


Chart 6 Percent Salesmen Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

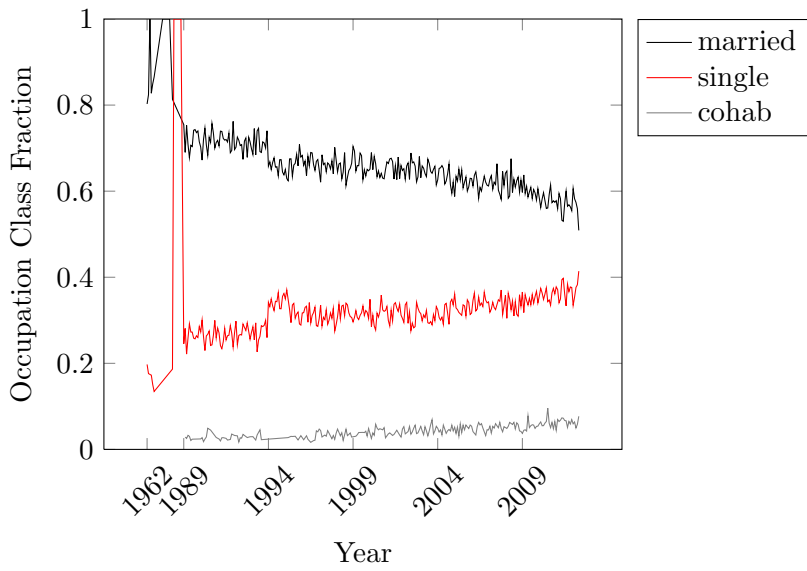
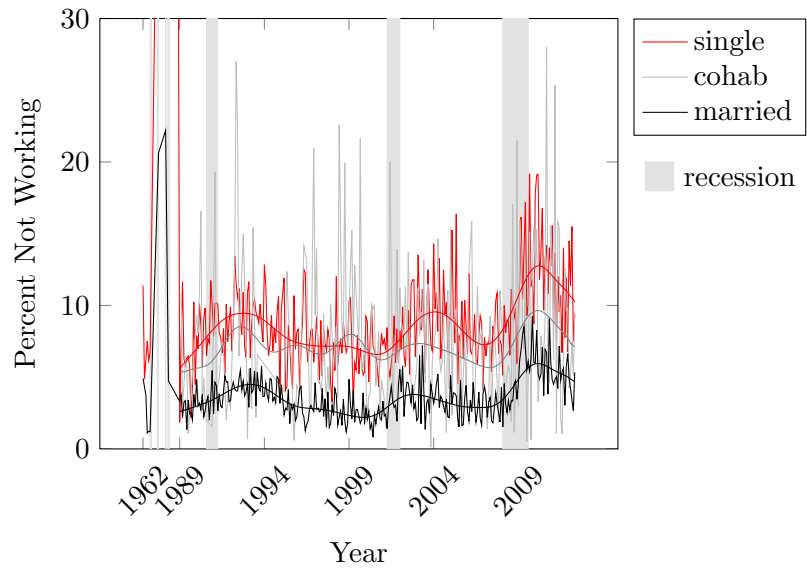


Chart 7 Percent Administrative Support Occupation Males Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

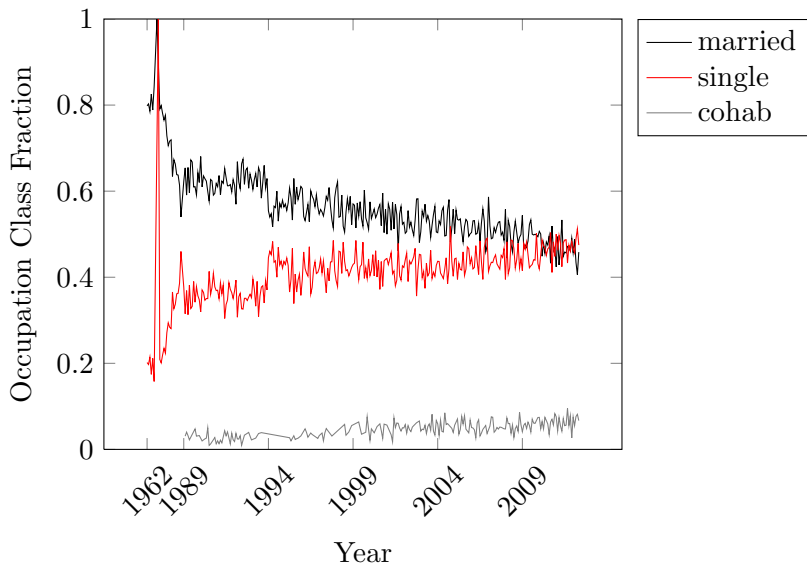
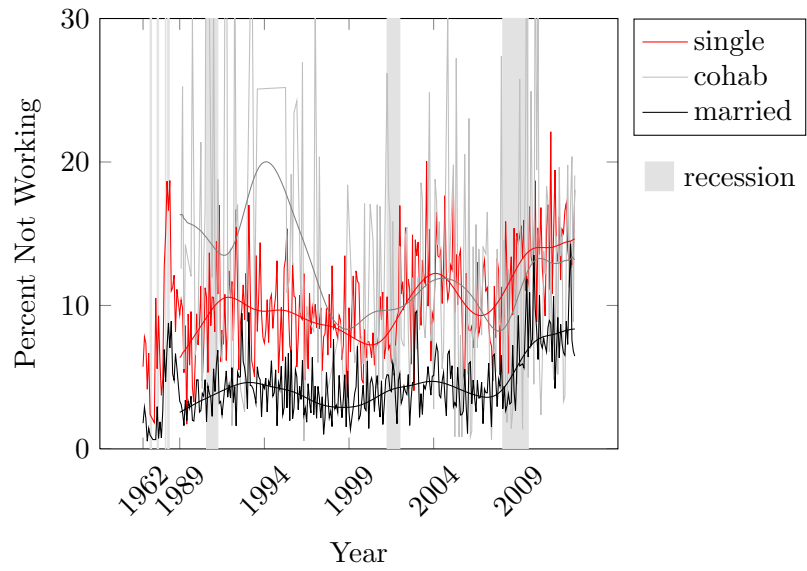


Chart 8 Percent Unskilled Labor Class Males Not Working

Men aged 25-54; Derived from Bureau of Labor Statistics CPS

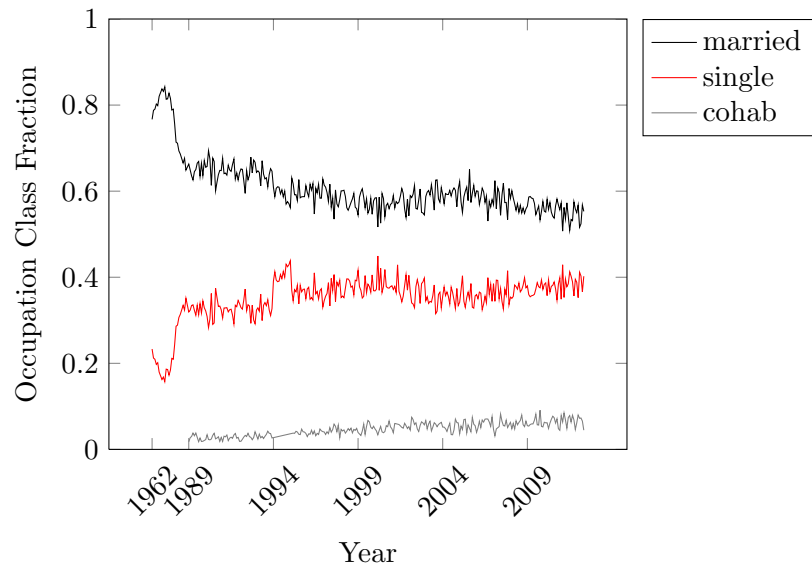
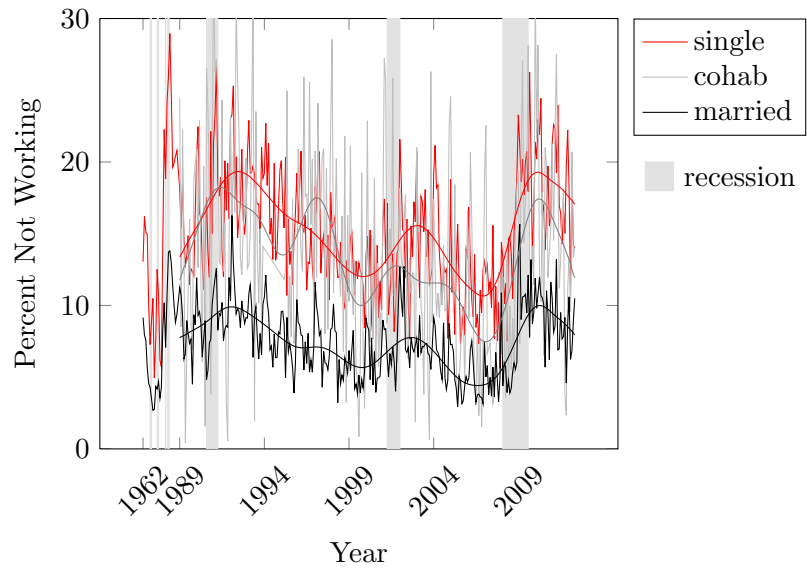
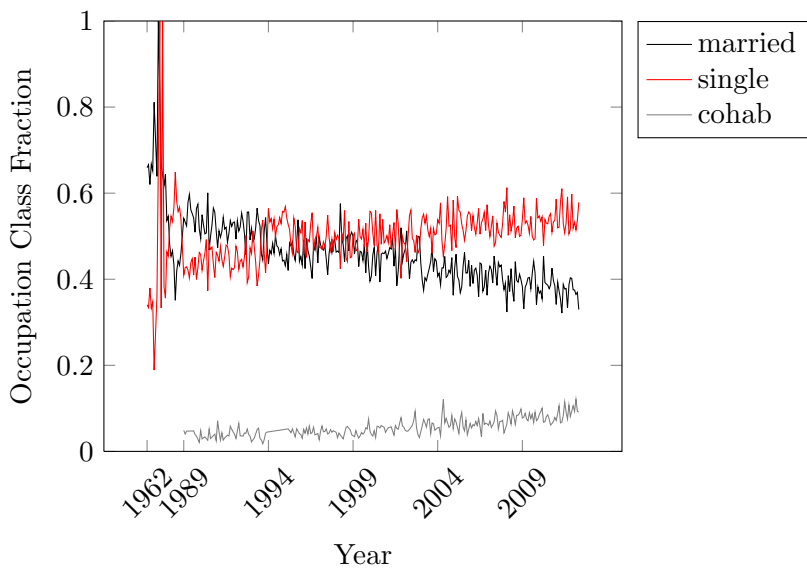
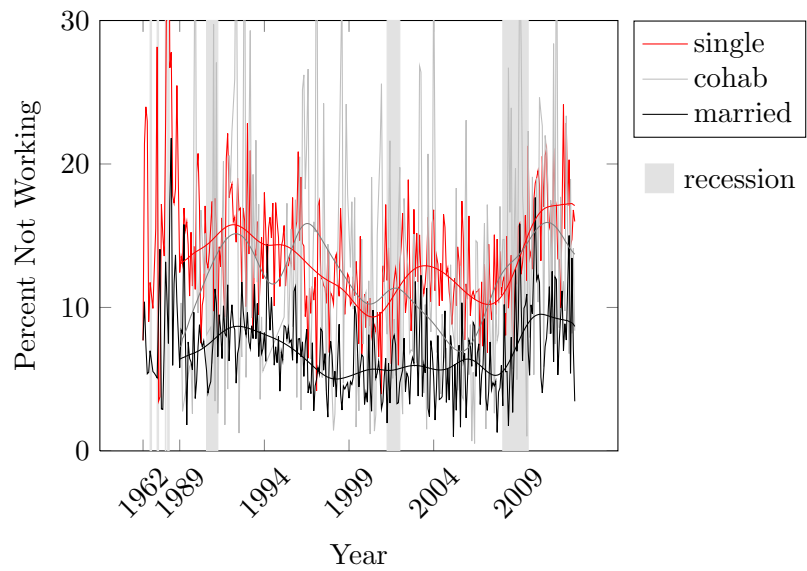


Chart 9 Percent Service-sector Males Not Working

Men aged 25-54; Derived from Bureau of Labor Statistics CPS



Appendix: Education is Increasingly a Credential

Education classes are not like marital status classes. Changes in education levels show less *effect* on the populations they differentiate than marriage does. The shift in education status has much less effect on employment behavior than shifting marriage status.

The analysis of employment for different educational classes is analogous to that of occupation classes. The lower graphs of Charts 10 through 13 show a trend towards lower-employment for singles and cohabitators in the lower education classes (Charts 10 and 11), and *recently* a stabilization of marriage³² in college-graduate classes (Charts 12 and 13).³³

There is also a general trend towards higher education levels for the U.S. population as a whole – the sub-populations obtaining high school and college diplomas have increased as a fraction of the total U.S. population.³⁴ However, there has been *no* stabilization of relative employment within these education-level sub-populations: note the trend *up* in rates of not working, especially in Chart 11 and Chart 12.³⁵ These two trends together demonstrate the increase of ‘credentialing’ of the American population: As the population of workers shifts to higher levels of education, they bring their (lower) employment propensities with them into their new education class.

³²Stabilization occurs after the 1980s.

³³Part of this ‘stabilization’ is a baby boom-driven demographic effect. Later marital years are marked by increased marital stability—see Sally Clarke, *Advance Report of Final Divorce Statistics, 1989 and 1990*, vol. 43, supplement, techreport (Center for Disease Control, 1995), and Potrykus and Fagan, *The Divorce Revolution Perpetually Reduces U.S. Economic Growth*. The baby boom, in which a population concentration exists, have entered their later marital years. As the baby boom ages and continues to leave the 25- to 54-year-old age group these ‘plateaux’ will curve down further.

³⁴Camille Ryan and Julie Siebens, *Educational Attainment in the U.S.: 2009*, Current Population Reports, techreport (U.S. Census, 2009), Figure 1.

³⁵When we also control for age, recent cases deserve mention. Among 25- to 34-year-olds, *high school drop-outs* (only) likely experience a ‘selection effect’: Within the sub-population these men *are more likely to be employed if they marry*, compared to 35- to 54-year-old high school drop-outs. Within this sub-population, women may select (relatively) harder workers as mates. Similarly, men who innately work more (relatively within this education class) may be more marriage-prone. Thus, employability and likelihood for marriage are confounded, though the ‘gap’ between marrieds and singles needed for our analysis does persist. Interestingly, cohabitators behave more like marrieds *in this sub-population* (only); again, a sign of selection effect.

If there were no ‘mere credentialing,’ the higher class of education would be a class of higher human capital and hence of higher employability.^{36,37} The new members of these higher education classes would take on the higher employment behavior of their peer group. This does not occur: The newly minted graduates bring lower employment and so are merely credentialed with a higher education degree. The new members have not accrued higher human capital or employability.

To conclude: Sub-populations, especially recently, have moved between different education levels without a whole change to those sub-populations’ behaviors. Marital status, in contrast, strongly affects a population’s behavior. Marriage macroeconomically changes adult labor activity.

³⁶There is a possibility that generous welfare benefits may distort the willingness of these populations to take jobs ‘below them.’

³⁷Human capital includes capacities like perseverance, showing up to the job, and showing up on time, capacities developed or revealed in school/college attendance. This is mentioned in Becker.

Chart 10 Percent Male High School Drop-Outs Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

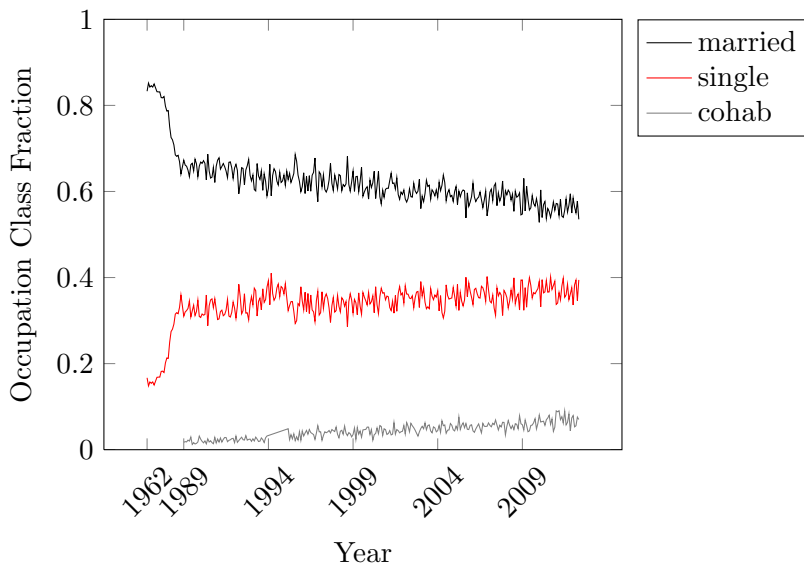
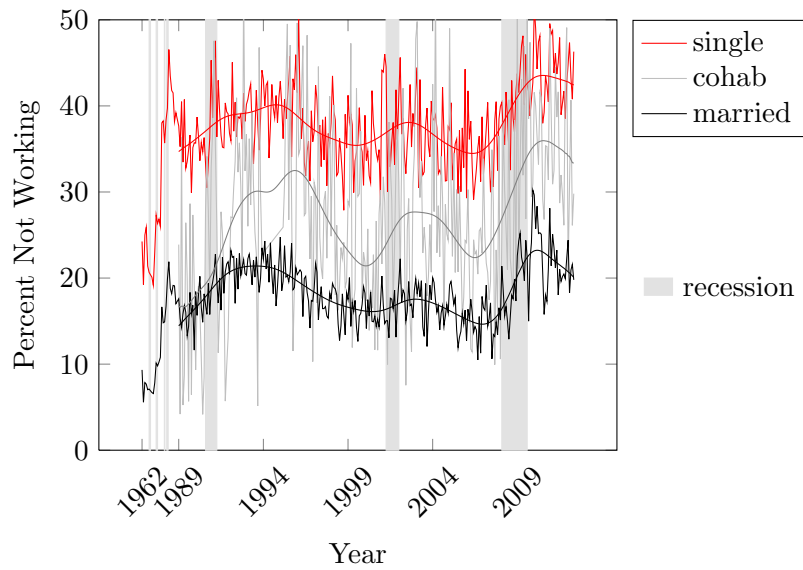


Chart 11 Percent Male High School Graduates Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

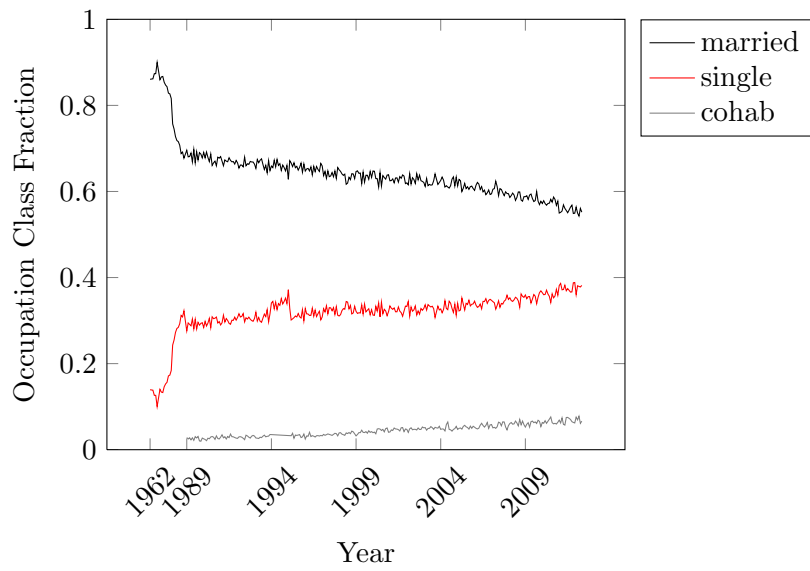
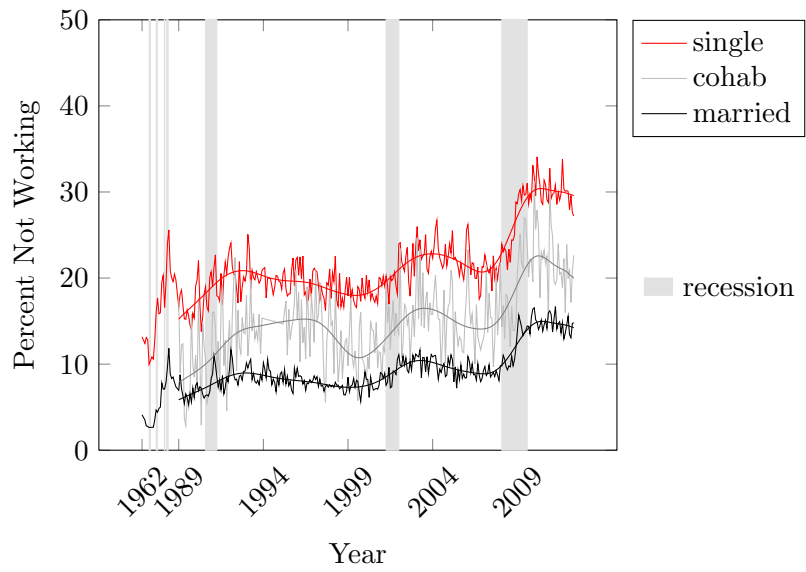


Chart 12 Percent Male College Graduates Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

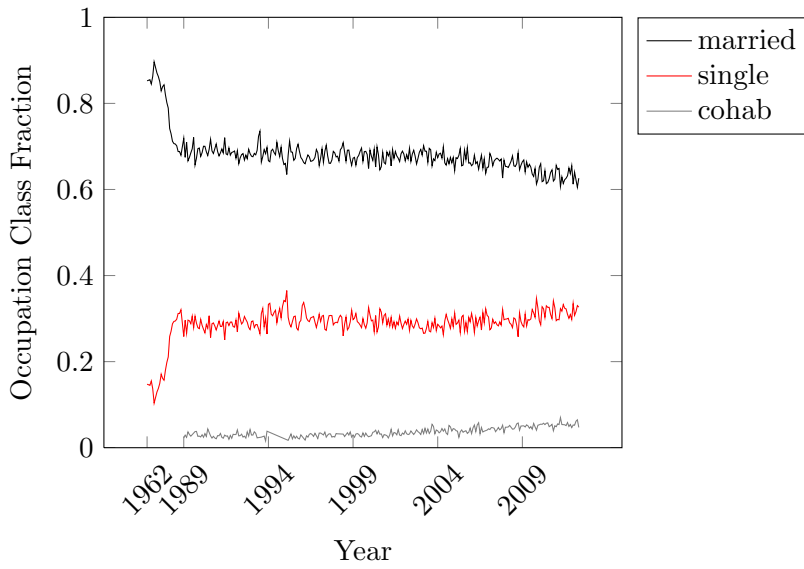
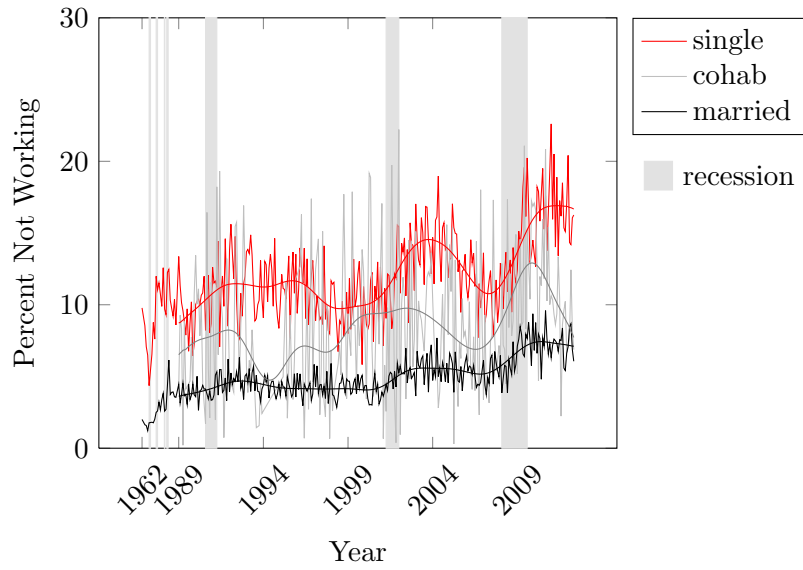


Chart 13 Percent Male Graduate/Professional Degree Holders Not Working
Men aged 25-54; Derived from Bureau of Labor Statistics CPS

