**Title: Weeding Out Labor? Marijuana Laws and the Time Use of Young Adults**

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**Abstract**
Popular press articles about young adults often target young men and their lack of engagement with adult life. If not employed, looking for work, or running households, what are young men doing with their time? One hypothesis, prominent in the media, is that they spend all day playing videogames while stoned. The expansion of legalized recreational marijuana use increases the opportunity for this choice. We examine the time use of young men (and women) using 2003-2023 data from the American Time Use Survey, matched Current Population Survey data, and data on the existence and timing of states' legalization of marijuana over the period. We compare our results for young adults to those of middle-aged adults to examine how time use changes when recreational marijuana use becomes legal. We use a two-stage, difference-in-difference technique to determine how state marijuana laws are related to young adults' employment, household production, and leisure time, controlling for demographic characteristics. Our results are consistent with a gender divide in the impact of marijuana legalization on hours spent working. Both young adult and middle-aged men work less when marijuana is legalized. However, contrary to the popular narrative, video games do not appear to be the culprit. Young men are socializing more when marijuana is legalized, while the effects for young women are much smaller and not statistically significant. Both men and women middle-aged adults watch less television. In addition, middle-aged men play video games more, while middle-aged women spend more time on household production. Overall, marijuana legalization reduces the time men spend working both at young adult ages and in middle age. However, it is middle-aged men, not young men, that are turning to video games when marijuana is legalized.

**Introduction**

Some young men are failing to fully engage in adult life. The burning question is what are they doing with their time, if they are not in school or employed full-time, looking for work, or running households?  One hypothesis, prominent in media, is that they live with their parents, and spend all day playing video games while stoned. We examine the time use of young adults and middle-aged adults, separately for men and women, using 2003-2023 data from the American Time Use Survey, matched Current Population Survey data, and data on the existence and timing of states' legalization of recreational marijuana over the period. We use a two-stage, difference-in-difference technique to determine how state marijuana laws are related to young adults' employment, household production, and leisure time controlling for demographic and household characteristics, examining women and men separately.  We also examine the time use of middle-aged adults, men and women separately, to see how pervasive the change in lifestyle might be among working-age individuals.

**Existing Literature**

*Effects of marijuana use on labor-market outcomes*

Research examining the effects of marijuana use on labor market outcomes is mixed, often depending on the subpopulation studied.  Johnson and White (1995) use longitudinal data on young adults to examine whether the transition into full-time work affects marijuana usage, perhaps due to work-related stress, but find no effect.  Popovici and French (2014) use panel data from the National Epidemiological Survey of Alcohol and Related Conditions to examine the associations between several patterns of cannabis use during the past year, current employment, and annual personal income.  They find that nearly all patterns of cannabis use are significantly associated with worse labor market outcomes.  However, once fixed-effects analysis of panel data is performed, the estimates get smaller and

are less likely to be statistically significant.  Thus, the findings suggest that unobserved individual

heterogeneity is an important source of bias in models of cannabis use and labor market outcomes.

Analyzing the data separately by gender does show effects, however.  Bray et al. (2000) uses data

from the National Household Surveys on Drug Abuse to estimate descriptive statistics and ANOVA models

of the relationship between symptoms of marijuana dependence and labor market outcomes.  For men,

they find that substance use with symptoms of dependence is associated with both lower employment

rates and fewer hours of work.  For women, they find that substance use with symptoms of dependence

is associated with lower employment rates, but not hours worked.  Point estimates are smaller when

multiple types of substance use are controlled for.  Van Ours (2006) uses data on prime-age residents of

Amsterdam and a bivariate mixed proportional hazard model to study the employment effects of the use

of cannabis.  No effects are found for women.  However, for men there is a negative correlation between

past cannabis use and employment which goes away once selection is controlled for.  Hara et al. (2013)

use data from the National Longitudinal Survey of Youth (1979 cohort) to estimate trajectories of

employment and marijuana use over a 17-year period and find that the baseline level of employment at

age 23 is negatively correlated with marijuana use for both men and women.  They also find that

workforce participation at age 23 is associated with lower marijuana-use over subsequent years for men

and women.  They find that, for men, marijuana use at age 23 is associated with decreased levels of

workforce participation and career growth over time.  However, the associations between changes in

marijuana use and work participation over time are not systematic.

Kerr et al. (2019) examine whether there is a relationship between marijuana usage and labor-

force status in the U.S. and Canada and find very little evidence of such a relationship.  They find only that

that U.S. women who were in school were more likely to use marijuana than employed women.  Williams

and van Ours (2020) use U.S. data from the National Longitudinal Survey of Youth (1997 cohort) and a

multivariate mixed proportional hazards framework to examine the relationship between cannabis use

and early labor market experiences of young men.  They find that early cannabis users (those using for at

least one year prior to first job search) accept job offers more quickly and at a lower wage rate compared

with otherwise similar men who do not use cannabis.  They also find that early cannabis users are less

likely to return to education and, as a consequence, will have a lower educational attainment.  Cunradi et al. (2014) analyze the role of women's labor force participation in relation to binge drinking, smoking, and marijuana use among employment-age married/cohabiting women.  Using multivariate logistic regression analyses, they show that women construction workers were at an elevated risk for smoking and monthly binge drinking and unemployed women were more likely to use marijuana.  Women in both categories were at risk for polysubstance use.

Bauermeister et al. (2007) examine the association between work and problem behaviors among African American youth followed from mid-adolescence to young adulthood.  They examine three operationalizations of work:  work history (never worked, worked), work intensity (no work, 20 hours or less, and 21 hours or more), and work trajectories (never worked, episodic work, stopped working, late starter, and consistent worker).  They find that non-working youth reported higher marijuana use during young adulthood than their working counterparts.

The effects differ by type and timing of marijuana use as well.  Davis (2019) uses a panel database of medical cannabis patients to analyze connections between medical cannabis treatment and changes in employment and disability status and finds a mild increase in employment and small reductions in unemployment and labor force participation.  He finds that other factors such as age, sex, prior use of cannabis, or characteristics of prescription cannabis are not strongly correlated with labor market changes.  Augustyn et al. (2020) use data from the Rochester Youth Development Study to examine how cannabis use is related to full-time employment and employment stability.  They find that abstention or rare cannabis use is associated with a higher likelihood of full-time employment compared with other cannabis-use patterns.  Once full-time employed, however, cannabis use is not associated with employment stability.

Other research, like ours, focuses on the effects of laws regarding marijuana use rather than actual marijuana use.  Nicholas and Maclean (2019) estimate the effects of state medical marijuana laws on the health and labor supply of adults aged 51 and older, using longitudinal data from the Health and Retirement Study and event study and differences-in-differences regression models.  They find that active state medical marijuana laws lead to lower pain and better self-assessed health among older adults, that

these laws lead to increases in older adult labor supply (effects concentrated on the intensive margin), and that the largest effects are for older adults with a health condition that would quantify for legal medical marijuana use under current state laws. Chakraborty et al. (2021) use county-level Colorado data from 2011 to 2018 to examine how legalization of the sale of recreational cannabis in a given county affects labor-market outcomes. They find, consistent with an increase in labor demand, that the sale of recreational cannabis through dispensaries is associated with a decrease in the unemployment rate with no effect on the size of the labor force. They also find an increase in the number of employees, with the strongest effects found in manufacturing, but no effect on wages. Jergins (2022) use data from the American Time Use Survey and the staggered roll out of medical marijuana laws in the U.S. to identify the effect of marijuana on labor-market outcomes. Using a difference-in-difference approach, the author finds that these laws increase the probability that a 30-39-year-old woman is in the labor force, and that they decrease the time that unemployed 20-29-year-old men spend looking for a job.

*Living arrangements and marijuana use*

Living arrangements also are associated with marijuana use. Bachman et al. (1984) examines data on young adults for three years following high school. They find that marijuana usage rates are correlated with post-high-school living arrangements. Those who continue to live with their parents show little or no change in their drug use but, among those who move out of the parental home, those who marry decrease their usage, those living with a partner of the opposite sex increase their usage, and those who enter other living arrangements (such as dormitories) show an increase in use. They also find that these relationships are largely unaffected by controlling for student status and employment status.

Newcomb and Bentler (1987) use longitudinal data to show how drug use changes from adolescence to young adulthood and examines these changes in terms of role socialization theory. They find that approximately 60% of the variance in adult drug use was accounted for by high-school drug use, and that cannabis use decreases over time. They also find that living arrangement is related to the change in drug use from high school to young adulthood. Bourque et al. (1991) examine a convenience

sample of marijuana users and compare this sample to more representative county and national samples. They find that heavy marijuana users differ significantly in living arrangements, job stability and income, and that men and women differ from each other.

Langille et al. (2003) uses cross-sectional survey data on students in four high schools in northern Nova Scotia, Canada to determine the association of socioeconomic factors with risk behaviors among adolescents. They find that living in any family arrangement other than with both parents is associated with using marijuana. Madras et al. (2019) examines survey data from the 2015 through 2018 National Surveys on Drug Use and Health, which provide nationally representative data on adolescent or young adults living with a parent (father-offspring and mother-offspring dyads), to determine whether parental marijuana use is associated with their adolescent offspring's marijuana use. They find that parental and offspring marijuana use are positively associated.

Buttazzoni et al. (2020) use data on Canadian high-school students and logistic regression models to examine the relationship between cannabis use and "stigma markers," which include their current living arrangement, mother's education, and ethnicity. They find that students who do not live with their mothers have higher odds of cannabis use relative to students living with their mothers. Low maternal education and "nonwhite" ethnicity are positively related to marijuana use. Johnson et al. (2020) examine variability in substance-abuse profiles among urban, low-income, and predominantly African American adolescents using data from the Mobile Youth Survey and latent class analysis and regressions. They find that there are four subgroups of youth: non-users, alcohol users, alcohol and marijuana users, and polysubstance users. They do not look at marijuana use separately. They find that youth who are living with two biological parents are less likely to belong to either the alcohol or the alcohol and marijuana classes than the non-use group. Khlat et al. (2020) examines 2017 data from a nationally representative French survey of 17-year-olds using a modified Poisson regression. They find that adolescents living in non-intact families engage in regular cannabis use much more frequently than those living in intact families. Socioeconomic differences are not related to cannabis use.

**Contributions**

Our paper contributes to the literature by providing empirical evidence about the popular notion in the media young men are smoking weed and playing video games instead of working. Second, we contribute to the literature on marijuana use by examining how marijuana laws are related to labor market outcomes and other activities. Third, we use a two-stage difference-in-difference approach to identify a causal relationship between marijuana use and labor market outcomes.

**Data and Methods**

Using time-use data and data on the timing of the legalization of recreational marijuana use, we examine changes in time use for men and women, separating them into young-adult and middle-aged samples. For time use, we use data from the 2003-2023 American Time Use Survey (ATUS), matched with the relevant Current Population Survey (CPS) data (U.S. Bureau of Labor Statistics 2023a). We use the harmonized data compiled by IPUMS (Flood, et al 2023). Data on the existence and timing of states' legalization of recreational marijuana over the same time period is the National Council of State Legislatures (2025).  We estimate the effects of marijuana legalization at the state level on the time use of young and middle-aged adults, separated by gender, with a particular eye to examining the video gaming and labor market time of young men. We estimate our model using the two-stage, differences-in-differences approach proposed by Gardner (2021). Because states legalize the recreational use of marijuana at different times, the early legalizers will exert more influence on the estimates of the impact of legalization on time use. The Gardener (2021) approach corrects for the differential timing of treatment in a differences-in-differences model.

The American Time Use Survey draws its sample from the outgoing rotation group of the Current Population Survey. ATUS is collected each month, providing a snapshot of life across the year. Within each CPS household sampled for ATUS, the activities of only one individual in the household are collected. Like the CPS, ATUS limits the sample to civilian, non-institutionalized individuals aged 15 years or older. To capture both weekdays and weekends, 50% of the sample comes from each group. This means that Saturday and Sunday each comprise 25% of the sample, and Monday, Tuesday, Wednesday, Thursday,

and Friday each comprise 10% of the sample.  While the first year of ATUS (2003) had a sample of around 20,000, sample size fell to 12,000- 13,000 from 2004 through 2012, 10,000- 11,000 from 2013 through 2017, and 8,500- 9,500 from 2018 through 2023. Respondents are asked the start and stop times of activities from 4 am to 4 am in order to capture data for a full 24-hour period.

ATUS collects extensive data on who was with the individual during their activity episodes, the time of the activity episodes, and the duration of the activity episodes. A person can report multiple episodes of an activity over the course of their day. In this paper, we focus on the sum of time spent on different activities over the course of a day. It is possible that individuals could be performing multiple activities at any given time.  However, we focus only on the time spent on the activity which is the primary activity reported by an individual. in addition, while there is a code for drug use in the ATUS, nearly zero individuals report using drugs on their diary day, perhaps due to social desirability bias and fear of arrest and prosecution. NIDA (2024) reports that about 10% for American adults use cannabis daily, with 29% reporting monthly use and 42% reporting use at some point in a year.  Thus, the ATUS record of drug use does not seem consistent with actual use. Therefore, we examine the effects of marijuana legalization in various activities rather than focus on reported time using drugs.

The activities we focus on are as follows. Each bullet point is an activity we consider separately, noting that some activities are subcategories.  More information can be found in US Bureau of Labor Statistics (2024b).

- Socializing, top tier code 12 (examples: socializing and communicating with others, attending or hosting social events, relaxing and leisure, arts and entertainment (not sports))
- Playing games, a subset of socializing
- Leisure computer use, a subset of socializing
- Watching television, a subset of socializing
- Education and education-related activities, top tier code 06

- Household activities, top tier code 02 (examples: interior cleaning, laundry, food and drink preparation and cleanup, interior and exterior maintenance and decoration, lawn and garden, animals and pets, vehicles, appliances and tools, toys, household management)

- Household services and care of others, top tier codes 02, 03, 04, 07 (examples: household activities as well as caring for and helping household and non-household children and adults, activities related to children's education and health, purchases, and researching purchases)

- Volunteering, top tier code 15

- Religious and spiritual activity, top tier code 14

We divide our sample by age and gender. Young adults include those aged 22 to 34 at the time of the diary, and middle-aged adults include those aged 35 to 50. We include covariates for whether the individual is partnered or married, lives with a parent, age, race, educational attainment, year of the diary day, whether the diary day is a weekend. We cluster standard errors at the state level.

We estimate the following model separately for each of the above activities, each estimated separately. $Activity_{ist}$ is time spent in the relevant activity by individual i in state s and in year t. $MJLegal_{st}$ is a dummy indicating whether marijuana is legal in state s in year t. $X_i$ is a vector of control variables, and $\varepsilon_{is}$ the error term. $\beta_0, \beta_1$, and $\Gamma$ are vectors of coefficients to be estimated.

$$Activity_{ist} = \beta_0 + \beta_1 MJLegal_{st} + \Gamma X_i + \varepsilon_{is}$$

**Results**

Descriptive statistics for the samples used in the analyses are provided in Table 1. The first five columns show average demographic characteristics for young adults, defined as those aged 22-34, together and separately by gender, as well as results of a t-test and a confidence-interval test to determine whether there are statistically significant differences across the genders. ATUS replicate weights are applied for all except the t-test. The remaining columns show the same for middle-aged adults, those aged 35-50. The average age of young adults is 28 for the full sample as well as the samples

of men and women. The average age of middle-aged adults is 43for the full sample as well as the samples of men and women.  The majority of respondents is white for all samples, and the largest group by highest education attained is made up of high school graduates.  Between 20 and 30 percent of graduates have a bachelor's degree as their highest degree, depending on the sample.

We test for differences between men and women in two ways. Using a standard t-test, we use unweighted estimates by gender. Using the survey replicate weights in ATUS, we compare the 95% confidence intervals of the survey-weighted mean values for each variable by gender. The results almost always match, and in cases they do not it is a result of differential estimates of the average estimate for the group in the unweighted calculation. In the case of demographics, we find some differences in racial representation by gender. Most striking are the differences in life choices between men and women. Among young adults and middle-aged adults, women make up a larger portion of the higher-educated categories, and a smaller portion of those at high school completers and below. Across both age groups, women are more likely to live with their parents than men. Young women are more likely to be partnered than young men, but middle-aged men are more likely to be partnered than middle-aged women.

Table 2 shows the average minutes spent on the diary day by the different subsamples.  ATUS replicate weights are used.  Among young adults, men spend more time in the broad category of "Socializing, relaxing, and leisure" than women, 260 minutes versus 220 minutes (a difference of 40 minutes).  However, while middle-aged men also spend more time than middle aged women in this category, the gap is smaller, only 23 minutes.  Regarding TV watching, men also spend more time than women in both age groups.  However, this gap is larger for the middle-aged group (a difference of 28 minutes versus 21 minutes).  Middle-aged adults spend a lot less time on games and computers for leisure than young adults, especially for men who do the bulk of gaming and using computers for leisure. Young men spend 42.5 minutes per day on average on games and leisure computer use, more than twice as much compared to 18.7 minutes for young women, 17.7 for middle-aged men, and 13.8 for middle-aged women. Men spend more time on work and related activities than women, 301 minutes versus 216 minutes for young adults, and 323 minutes versus 224 minutes for middle-aged adults. The difference flips when we look at household-related time, with women doing more than men. In the case of young

adults, women double what men are doing, and with middle-aged adults, women nearly double what

men do in and for the household. Regarding work activities, middle-aged adults spend more time on work

and work-related activities and household activities (chores, upkeep), household services and care of

others, volunteering, and religious and spiritual activity than young adults, likely due to greater family and

social responsibilities, while young adults spend more time on sleeping and education and related

activities than middle-aged adults.  As expected, women sleep a bit longer than men, work less, and spend

more time in education and education-related activities, household activities, household services and care

of others, volunteering, and religious and spiritual activity than men.  This is true for both age groups.

Table 3 shows the two-stage (Gardner) difference-in-difference estimates for the effects of

legalization of recreational marijuana on the time use of young adults.[1]  These show that marijuana

legalization is positively associated with time spent socializing, relaxing, and engaging in leisure for men,

with men in states where marijuana is legalized spending over 14 minutes more in this activity on the

diary day.  Marijuana legalization is also associated with an over 22-minute reduction in time spent by

men in work and work-related activity on the diary day. There are no statistically-significant differences

for women in work or in socializing, relaxing, and leisure. Also of note, marijuana legalization is negatively

related to time spent in religious and spiritual activity for both men and women.

Table 4 shows the two-stage difference-in-difference estimates for middle-aged adults.  Unlike

young adults, middle-aged men do not spend more time socializing, relaxing, and engaging in leisure

when marijuana is legalized. In fact, middle-aged women spend almost 12 minutes less in this activity

when marijuana is legalized.  Unlike young adults, both men and women spend less time on TV watching

when marijuana is legalized, 7 minutes less for men and 10 minutes less for women.  Surprisingly, and also

unlike young adults (whom we expected to spend more time to playing video games as a result of

legalization but did not), middle-aged men spent almost 4 minutes more on games when marijuana is

legalized than when it is not.  Also surprisingly, women spend almost 9 minutes more on household

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[1] We also estimate our model using OLS and the survey replication weights. The results largely mimic the Gardner method.

activities (chores and upkeep) when marijuana is legalized than when it is not. This differs from the results for young adult women, where nothing was statistically significant except religious and spiritual activities. Similar to the results for young adults, however, both men and women middle-aged adults spent less time on religious and spiritual activity when marijuana is legalized.

**Discussion**

While our point estimates are not particularly large, taken as an average per day change in minutes spent on an activity, we consider the implications of the results. First, and consistent with the broader narrative, we find evidence that the legalization of recreational marijuana leads to less time working for men, both young adult and middle aged. We find no such reduction in work time for women. The reduction is larger for young adults, particularly notable since the baseline average is smaller for that group than for the middle-aged adults.

We expected that a reduction in time spent on work and work-related activities would coincide with more time in video games for men. We find no statistically significant evidence of this for young adults, but find that middle-aged men have a small uptick in time spent on games. The large shift in time use for young men is a shift into socializing, relaxing and leisure. This is consistent with the nearly zero estimates of time spent on drug use in the ATUS, as individuals are reticent to report drug use to a government data collector. Instead, "hanging out" is code among young adults for hanging out – and using marijuana (or other substances).[2]

The impact of the legalization of recreational marijuana is radically different for women. Young adult women are largely unaffected by marijuana legalization, only reporting less religious and spiritual activity. Middle-aged women engage in less socializing, relaxing, and leisure and spend more time in household

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[2] We thank the young adult participants at the Association of Christian Economists 2025 meeting for this insight. The humor of the source of this insight is not lost on the authors.

activities (chores and upkeep) when marijuana is legalized. There is no one clear interpretation of this result, but it is suggestive of women taking on more responsibility in the home where marijuana is legal.

One result worth further exploration is the finding that religious and spiritual activity are lower with marijuana legalization. With young adults spending 5 (males) or 6 (women) minutes on average per day, and middle-aged adults spending 6 (males) and 8 (women) minutes per day, the estimate of a 1.5 to 2 minute drop for young adults and a 1.3 to 1.4 minute drop for middle-aged adults is large in comparison.

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## Table 1. Average Characteristics

| Characteristic | Young Adults (22-34) | | | Different? | | Middle-Aged Adults (35-50) | | | Different? | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | Men | Women | Diff (t-test) | Diff (mean CI) | All | Men | Women | Diff (t-test) | Diff (mean CI) |
| Age | 27.97 | 27.97 | 27.98 | N | N | 42.56 | 42.56 | 42.56 | Y | N |
| Female | 0.50 | | | | | 0.51 | | | | |
| Race | | | | | | | | | | |
|   White | 0.80 | 0.82 | 0.79 | | | 0.80 | 0.82 | 0.79 | | |
|   Black | 0.12 | 0.11 | 0.14 | Y | Y | 0.13 | 0.12 | 0.14 | Y | Y |
|   Asian | 0.06 | 0.06 | 0.06 | Y | N | 0.05 | 0.05 | 0.06 | N | N |
|   Other Races | 0.01 | 0.01 | 0.01 | N | N | 0.01 | 0.01 | 0.01 | N | N |
| Education | | | | | | | | | | |
|   Less than High School | 0.09 | 0.1 | 0.08 | Y | Y | 0.10 | 0.10 | 0.09 | Y | Y |
|   High School Graduate | 0.45 | 0.49 | 0.42 | Y | Y | 0.42 | 0.44 | 0.4 | Y | Y |
|   Associate Degree | 0.09 | 0.08 | 0.1 | Y | Y | 0.10 | 0.09 | 0.11 | Y | Y |
|   Bachelor Degree | 0.27 | 0.25 | 0.29 | N | Y | 0.23 | 0.22 | 0.24 | Y | Y |
|   Postgraduate Degree | 0.10 | 0.08 | 0.11 | Y | Y | 0.15 | 0.14 | 0.16 | Y | Y |
| Not Partnered | | 0.52 | 0.43 | Y | Y | | 0.27 | 0.28 | Y | Y |
| Lives with parent | | 0.35 | 0.40 | Y | Y | | 0.41 | 0.46 | Y | Y |
| Recreational marijuana legal | | 0.12 | 0.12 | Y | N | | 0.12 | 0.11 | Y | Y |
| Number of Observations | 45,212 | 19,339 | 25,873 | | | 74,657 | 34,453 | 40,204 | | |

Note: means calculated using survey command, t-tests are not
Note: statistical differences calculated using a t-test at the 95% level

## Table 2. Average Minutes Spent on the Diary Day

| Time Use | Young Adults (22-34) | | | Diff (t-test) | Diff (mean CI) | Middle-Aged Adults (35-50) | | | Diff (t-test) | Diff (mean CI) |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | Men | Women | | | All | Men | Women | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Socializing, Relaxing, and Leisure | 240.29 | 260.80 | 219.99 | Y | Y | 231.04 | 242.65 | 219.77 | Y | Y |
|    Watching TV | 129.00 | 139.59 | 118.51 | Y | Y | 136.13 | 150.23 | 122.47 | Y | Y |
|    Playing Games and Using a Computer for Leisure | 30.55 | 42.51 | 18.72 | Y | Y | 15.69 | 17.66 | 13.79 | Y | Y |
|       Games | 18.52 | 28.88 | 8.28 | Y | Y | 7.28 | 8.80 | 5.80 | Y | Y |
|       Computer for Leisure | 12.03 | 13.64 | 10.44 | Y | Y | 8.42 | 8.86 | 7.99 | Y | N |
| Sleeping | 529.67 | 521.78 | 537.48 | Y | Y | 508.56 | 501.72 | 515.20 | Y | Y |
| Work and Work-related Activities | 258.28 | 301.02 | 215.96 | Y | Y | 273.04 | 323.42 | 224.20 | Y | Y |
| Education and Education-related Activities | 24.35 | 23.37 | 25.33 | N | N | 5.82 | 3.91 | 7.68 | Y | Y |
| Household Activities (chores, upkeep) | 87.37 | 63.21 | 111.29 | Y | Y | 114.36 | 83.12 | 144.65 | Y | Y |
| Household Services and Care of Others | 161.74 | 109.83 | 213.14 | Y | Y | 189.05 | 139.62 | 236.98 | Y | Y |
| Volunteering | 4.30 | 4.07 | 4.54 | N | N | 7.75 | 6.91 | 8.57 | Y | Y |
| Religious and Spiritual Activity | 5.21 | 4.57 | 5.84 | Y | Y | 7.14 | 6.08 | 8.17 | Y | Y |
| | | | | | | | | | | |
| Number of Observations | 45,212 | 19,339 | 25,873 | | | 74,657 | 34,453 | 40,204 | | |

**Table 3. Difference-in-Difference (Gardner) Estimates: Effects of Marijuana Legalization on the Time Use of Young Adults**

| Activity | All | | | | Men | | | | Women | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef | Std Err | pvalue | | Coef | Std Err | pvalue | | Coef | Std Err | pvalue |
| Socializing, Relaxing, and Leisure | 11.12 | 5.155 | 0.031 | ** | 14.42 | 7.024 | 0.04 | ** | 8.24 | 5.725 | 0.15 |
| Watching TV | 1.36 | 3.310 | 0.68 | | -0.60 | 4.070 | 0.883 | | 4.28 | 4.292 | 0.318 |
| Playing Games and Using a Computer for Leisure | 2.69 | 3.831 | 0.482 | | 2.63 | 4.819 | 0.585 | | 2.40 | 3.911 | 0.539 |
| Games | 2.93 | 3.322 | 0.378 | | 4.07 | 5.135 | 0.428 | | 1.41 | 2.075 | 0.498 |
| Computer for Leisure | -0.24 | 2.119 | 0.911 | | -1.44 | 2.632 | 0.585 | | 0.99 | 2.806 | 0.723 |
| Sleeping | 4.30 | 3.414 | 0.208 | | 5.82 | 6.184 | 0.347 | | 2.56 | 4.158 | 0.537 |
| | | | | | | | | | | | |
| Work and Work-related Activities | -16.07 | 8.636 | 0.063 | * | -22.44 | 10.463 | 0.032 | ** | -10.03 | 10.976 | 0.361 |
| Education and Education-related Activities | -0.90 | 3.247 | 0.781 | | 1.54 | 3.335 | 0.645 | | -3.69 | 5.245 | 0.482 |
| | | | | | | | | | | | |
| Household Activities (chores, upkeep) | 2.27 | 2.907 | 0.435 | | 3.18 | 3.244 | 0.327 | | 1.50 | 3.886 | 0.699 |
| Household Services and Care of Others | -2.55 | 3.816 | 0.504 | | 2.84 | 3.478 | 0.414 | | -7.72 | 5.188 | 0.137 |
| | | | | | | | | | | | |
| Volunteering | -0.82 | 0.688 | 0.235 | | -1.32 | 0.845 | 0.119 | | -0.24 | 0.975 | 0.808 |
| Religious and Spiritual Activity | -1.78 | 0.628 | 0.005 | *** | -1.93 | 1.110 | 0.083 | * | -1.64 | 0.617 | 0.008 *** |
| | | | | | | | | | | | |
| Number of Observations | | 44,954 | | | | 19,214 | | | | 25,740 | |

*significant at the 10% level

**significant at the 5% level

***significant at the 1% level

**Table 4. Difference-in-Difference (Gardner) Estimates:  Effects of Marijuana Legalization on the Time Use of Middle Aged Adults**

| Activity | All | | | | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef | Std Err | pvalue | | Coef | Std Err | pvalue | | Coef | Std Err | pvalue | |
| Socializing, Relaxing, and Leisure | -5.51 | 3.250 | 0.09 | * | 0.41 | 4.170 | 0.922 | | -11.63 | 4.112 | 0.005 | *** |
| Watching TV | -8.98 | 2.558 | 0 | *** | -7.02 | 3.262 | 0.031 | ** | -10.08 | 3.773 | 0.008 | *** |
| Playing Games and Using a Computer for Leisure | 1.86 | 1.142 | 0.103 | | 3.78 | 1.899 | 0.047 | ** | -0.54 | 1.014 | 0.595 | |
| Games | 1.74 | 0.960 | 0.07 | * | 3.77 | 1.558 | 0.016 | ** | -0.71 | 0.972 | 0.467 | |
| Computer for Leisure | 0.12 | 0.577 | 0.833 | | 0.01 | 0.887 | 0.989 | | 0.17 | 0.846 | 0.843 | |
| Sleeping | 1.12 | 2.701 | 0.677 | | 2.29 | 2.930 | 0.434 | | 0.13 | 3.707 | 0.971 | |
| | | | | | | | | | | | | |
| Work and Work-related Activities | -8.00 | 7.295 | 0.273 | | -18.81 | 7.790 | 0.016 | ** | 3.19 | 9.233 | 0.729 | |
| Education and Education-related Activities | 0.93 | 1.064 | 0.381 | | 1.69 | 0.568 | 0.003 | *** | 0.27 | 1.987 | 0.89 | |
| | | | | | | | | | | | | |
| Household Activities (chores, upkeep) | 6.43 | 2.447 | 0.009 | *** | 3.85 | 3.427 | 0.262 | | 8.53 | 3.307 | 0.01 | ** |
| Household Services and Care of Others | 4.02 | 3.479 | 0.247 | | 2.86 | 4.343 | 0.51 | | 4.60 | 5.616 | 0.413 | |
| | | | | | | | | | | | | |
| Volunteering | 0.18 | 0.646 | 0.784 | | -0.93 | 0.793 | 0.242 | | 1.30 | 1.082 | 0.23 | |
| Religious and Spiritual Activity | -1.38 | 0.494 | 0.005 | *** | -1.30 | 0.524 | 0.013 | ** | -1.41 | 0.716 | 0.049 | ** |
| | | | | | | | | | | | | |
| Number of Observations | | 74,260 | | | | 34,278 | | | | 39,982 | | |

*significant at the 10% level

**significant at the 5% level

***significant at the 1% level