The Effects of the Great Recession on Teenagers' Risky Health Behaviors and Time Use

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Abstract

This paper uses individual-level data from both the 2003-2011 American Time Use Survey and Youth Risk Behavior Survey and state-level unemployment rates to examine the effects of the Great Recession on teenagers' activities. Over the period, I find changes in sexual activity for males associated with changes in time spent with parents; but results vary significantly by race. In addition, Hispanic males gained weight during the recession, due perhaps to a decrease in time spent playing sports. Hispanic females, on the other hand, made greater educational investments. All females significantly decreased TV viewing during the Great Recession. However, females also slept less and were more likely to smoke regularly.

JEL codes: J22, J11

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1. Introduction

Job losses during and after the Great Recession of 2008-09 have had a tremendous impact on the health and incomes of a large number of Americans. Although numerous papers have examined the total economy-wide effects of the Great Recession on adults and families, none has specifically focused on effects of the Great Recession on the health and human capital investments made by teenagers aged 15-17, an especially vulnerable segment of the population. Teenagers may be affected by changes in macroeconomic conditions through numerous channels, including by direct changes to their own labor demand and future employment expectations, and by the stress resulting from the job losses experienced by their parents or the parents of their classmates (Ananat *et al.*, 2012; Arkes and Klerman, 2009; Bell and Blanchflower, 2011). The direction of the total effects of the economy on teenagers' risky behaviors and time use is ambiguous (Arkes and Klerman, 2009).

A number of studies have found that during previous economic downturns, some teenagers engaged more than usual in risky health behaviors such as substance abuse and sexual activity (Arkes, 2007; Arkes and Klerman, 2009; Levine, 2001). However, these researchers lacked time diary data to examine some of the potential explanations, for example changes in parental supervision, for these changes in behavior over the business cycle. Even though parents may lose their jobs in a recession or have their hours cut, this does not necessarily mean that they will spend more time with their children, because their children are in school during the majority of the hours parents would typically be working. In fact, Morrill and Pabilonia (2012) found that mothers, who are still the primary childcare providers in the U.S., work more hours on the weekends as the state-level unemployment rate increases, suggesting that parental supervision on weekends could fall. Aizer (2004) has documented that children aged 10-14 who are left

unsupervised after school may engage more in risky behaviors such as skipping school, using alcohol or drugs, stealing something, or hurting someone.

The goals of this paper are to 1) provide a description of the total effects of the economy on teenagers' risky health behaviors during the most recent recession, 2) examine several hypotheses about the potential reasons for these changes in behavior, including changes in the time teenagers spend being supervised by their parents and/or changes in time spent working, and 3) describe other effects that the Great Recession has had on teenagers' other major uses of time, especially effects related to investments in schooling-related human capital, which may affect the future earnings of this new cohort just beginning to enter the labor market. This paper uses state-level unemployment rates to proxy for macroeconomic conditions in order to examine the total effects of the economy on teenagers' activities. Results indicate that the effects vary by both gender and race/ethnicity. Hispanic male teenagers engage more in sexual activity during poorer economic conditions, while black male teenagers engage less in sexual activity. These patterns are consistent with the changes in the amount of time spent in the presence of one or both of their parents over the business cycle, with Hispanic male teenagers spending less time with a parent in poorer economic conditions and black male teenagers spending more time with at least one of their parents. Also, consistent with a decrease in parental supervision, Hispanic male teenagers were more likely to have drunk alcohol in the past 30 days when the unemployment rate was higher. At the same time, teenage girls were not any more or less likely to spend time with their parents over the business cycle, but they did spend less time working during the recession. Hispanic female teenagers spent more time on educational activities, and all females significantly decreased their TV viewing, both changes of potential benefit for future outcomes. However, teenage girls also slept less and smoked more regularly.

2. Data and Descriptive Statistics

This paper primarily uses two pooled cross-sectional data sets covering the period from 2003 to 2011: the Centers for Disease Control and Prevention's (CDC) National Youth Risk Behavior Survey (YRBS) and the Bureau of Labor Statistics' (BLS) American Time Use Survey (ATUS). In addition, I supplement information on youths' behaviors with information on state laws and state-level unemployment rates that may affect teenagers' activities. I describe each of these sources of data in more detail below.

2.1 YRBS

In 1991, the YRBS began interviewing high school students aged 12-18 biannually. Data are available through 2011. Thus, it is unique in providing information on teens' risky behaviors before and through the Great Recession. I focus on high school students aged 15-17 during the period of time that matches the ATUS collection period (2003-2011), as I want to examine possible explanations for the effects of changing macroeconomics conditions on risky behaviors. The upper age limit is 17 because many youths older than this have already graduated from high school and may be living away from their parents. (However, when possible, I also include estimates for all high school students and the entire sample period in the Appendix.)[1] The majority of students (95%) were interviewed between January and June of the survey year. One of the drawbacks of the survey compared to other longitudinal surveys capturing information on risky behaviors, such as the NSLY97, is the limited demographic information collected and it does not capture information on the effects of changes in macroeconomic conditions on risky

[1] Height and weight was not reported before 1999. Therefore, it is only possible to examine the effects of changes in economic conditions on the probability of being overweight or obese from 1999-2011.

behaviors that may operate through changes in school enrollment over the period. The YRBS collects individual information such as age and grade in school as well as race and ethnicity, but no information about the teens' parents or siblings. However, many of the results are remarkably similar to those found using the NLSY97. State indicators are available upon request from the CDC. Therefore, I can control for state-level economic conditions as well as specific state laws that may affect teenagers' activities. Even though weights are available that when applied make this survey nationally representative of 9th through 12th graders, not all states were surveyed. From 2003 to 2011, there were respondents in 13 states in all survey years, respondents in 4 states for 4 of the survey years, respondents in 8 states for 3 of the survey years, respondents in 11 states for 2 of the survey years, and respondents in 7 states for only one of the survey years.

The YRBS sample of high school students aged 15-17 includes 27,894 males and 26,770 females. More details on the sample selection can be located in Appendix Table A1. Table I shows the weighted percentage of high school students participating in various risky behaviors each year, by gender, and by race/ethnicity subgroups within gender groups. The table covers three basic groupings of health-risk behaviors: sexual activity, drug and alcohol use, and carrying excessive weight. From 2003 to 2011, teenage sexual activity in the three months preceding the survey fell slightly overall, with most of the decrease occurring among black and Hispanic youths. However, contraceptive use at last intercourse also fell, more dramatically so for teenage girls. Nicotine and alcohol use also fell over the period, again most dramatically for females.[2] Marijuana use did not follow any specific trend over the period. Finally, the percentage of teens considered overweight or obese was slightly lower during the recession and its aftermath (2009-2011) than during the preceding boom in the mid-2000s (2005-2007). In all years, non-Hispanic

[2] Nicotine use is inclusive of smoking, chewing tobacco, cigars, etc.

black females were much more likely to be overweight or obese than their peers, while Hispanic males were more likely to be overweight or obese than their peers.[3]

2.2 ATUS

This paper uses all data currently available from the nationally representative cross-sectional American Time Use Survey (ATUS) – 2003-2011. This time use survey is unique in that it is an ongoing survey of individuals aged 15 and older and thus now well suited for examining the effects of the Great Recession on time use. Individuals may be interviewed any day of the year, except for the day before major holidays. Respondents are randomly selected from households from a subset of households that have completed their final interview for the Current Population Survey (CPS).

The ATUS updates some information from the CPS as well as collecting a 24-hour diary that begins at 4 P.M. the day prior to the interview. Respondents are asked to sequentially list their activities as well as where the activity took place and, for most activities, who was in the room with them if they were at home or who accompanied them on an activity if they were away from home ("with whom" information was not collected for times when the respondent reported sleeping, grooming, private activities, refused to classify type or can't remember, and working, the last category only prior to 2010).[4] The response rate exceeded 53 percent in each year. Approximately half of diaries were recorded for weekdays and the other half for weekend days.

[3] Height and weight were self-reported by students. Overweight is defined as greater than or equal to 85% on the body-mass-index (BMI) percentile chart based upon age and gender. Obese is defined as greater than or equal to 95% on the BMI percentile chart based upon age and gender.

[4] In order to maintain consistency in time together across activities over the sample, we deleted any reported time together with parents while teens were working.

ATUS final weights, reweighted for equal day of the week representation for the male and female teen subsamples separately, are used in all analyses. Estimates from time diaries of time spent on activities are thought to be more accurate than those from usual retrospective questions, as they are less subject to aggregation bias, recall bias, and social desirability bias (Bianchi et al., 2006).[5]

The teen sample includes 1,974 boys and 2,146 girls who were aged 15-17, lived with at least one parent, and were interviewed during the school year.[6] Youths in all family structures and both enrolled and non-enrolled students are included in the sample in order to measure the total effects of the economy on the time use of all teenagers. Appendix Table A7 explains the sample selection criteria. All analyses in the paper are done separately for boys and girls, given the large differences in time they spend on some activities, the types of jobs they hold, and increasing differences in educational outcomes between the sexes.

Measures of Time Use

The outcome I examine is either the number of minutes a teen spends on an activity or, in the case of work, whether the teen was employed or worked on the diary day. In most cases, the time a teen spends doing the activity is measured from minutes spent on activities during the 24-hour diary day. However, the ATUS diary also includes the end time of the last activity that was recorded in the diary. Usually, the respondent's last activity was sleeping; thus, it is possible to also construct a measure of the full night time sleep episode following the diary day. I first examine the time a teen spends with either parent, one potential measure of the level of parental

[5] Social desirability bias is the tendency of respondents to answer direct questions in such a way as to make themselves be viewed more favorably by others.

[6] Youths interviewed from Memorial Day through Labor Day are excluded from the sample, because many teenagers are on summer vacation.

supervision. I also consider the total time a teen spends with his or her mother and then the total time a teen spends with his or her father. A reduction in a teenager's time spent with parents may be detrimental, both because time spent unsupervised may be used for engaging in counterproductive or risky behaviors and because time with parents may be positively associated with cognitive and social development. Then, I examine the time and timing of teens' paid work. Finally, I examine other major activities that teens spend time on, including various educational activities, sports, sleep, watching television and playing computer games, household work, and general leisure, which may affect their current and future well-being.

2.3 Macroeconomic Conditions

The main independent variable used in the analysis is the state yearly unemployment rate, a standard proxy for macroeconomic conditions. The state yearly unemployment rate is created from monthly and annual data obtained from the BLS' Local Area Unemployment Statistics (LAUS) database. It is measured as either the average of the last 12 monthly unemployment rates, ending with the interview month when using the ATUS, or the previous year's annual unemployment rate when using the YRBS. A yearly rate is used instead of a shorter rate to smooth some of the volatility in the CPS estimate (Arkes and Klerman, 2009; Morrill and Pabilonia, 2012).[7] The overall economy rate is used as opposed to a teenage rate because the goal of the paper is to examine how teenagers' behaviors change with an exogenous shock and not just how teenagers respond to changes in their own labor demand. In addition, although the teen unemployment rate moves together with the overall unemployment rate, it is definitely more

[7] Robustness tests using other proxies, such as the last 3 months, produce similar results.

volatile and not an official BLS publication at the state level because of the increased sampling error, especially in less populous states.

2.4 State Laws

In all the regressions, I also control for the effects of state and federal minimum wage laws, the state maximum compulsory schooling age, and the state minimum age to obtain a driver's license. The minimum wage is the natural logarithm of the higher of the federal or state minimum wage in each state.[8] Using the ATUS, Song (2012) found that higher minimum wages decrease teen employment and increase teen enrollment and time spent on education. The magnitude of these effects varied with the legal dropout age. Thus, I also include the state maximum compulsory schooling age, which ranged from 15 to 18 over the 2003-2011 period. In addition, there were several increases during the period in the minimum age required to obtain a driver's license that would permit a student to drive legally to a place of employment without a parent present in the car, thus further decreasing student job opportunities at the time the recession hit (Pabilonia, 2001).

3. Estimation and Results

3.1 Risky Health Behaviors

I first estimate the following series of linear probability models using Ordinary Least Squares (OLS):

$$Y_{ist} = \alpha + Urate_{s,t-1}\beta + X_{ist}\gamma + Z_{st}\eta + \delta_s + \theta_t + \varepsilon_{ist} \qquad (1)$$

[8] The wage was adjusted for inflation using the CPI-U/100, where the base year was 1982-84.

where Y_{ist} is an indicator equal to one if teen *i*, living in state *s*, participated in a risky behavior in survey year *t* (where the length of time in which the behavior could occur varies by the behavior measured), δ's and θ's are state and year fixed effects respectively, $Urate_{s,t-1}$ is the state-level unemployment rate in year *t-1*, X_{ist} is a vector of individual-level variables and Z_{st} is a vector of state-level laws, ε_{ist} is a stochastic disturbance term assumed to follow a normal distribution. X_{ist} includes indicators for age, race and ethnicity (non-Hispanic black, Hispanic), and grade in school. Z_{st} includes the state maximum compulsory schooling age, the natural logarithm of the minimum wage, and the state minimum age for getting an unrestricted driver's license. The key coefficient of interest is β, the effect of the unemployment rate on a teen's probability of participating in a risky behavior, which captures the effect of within-state variation in macroeconomic conditions over time relative to other states.[9] Sample means and proportions for all variables used in these regressions are in Appendix Table A2.

Tables II and III present the estimated coefficient β using pooled cross-sectional data from the 2003-2011 YRBS, with separate estimates by gender, and then race/ethnicity subgroups by gender. For all regressions reported in the paper, standard errors are adjusted for clustering by state. The sample sizes for these analyses vary due to different nonresponse rates for the dependent variables.

Hispanic male teenagers aged 15-17 are more likely to have engaged in sexual activity in the prior three months during weaker economic times as measured by the previous year's unemployment rate (Table II). For a one-percentage point increase in the unemployment rate, the probability of having sex increases by 1.8 percentage-points. Black male teenagers, on the other hand, are less likely to engage in sexual activity. For a one-percentage point increase in the

[9] The year effects absorb the effects of the national business cycle.

unemployment rate, the probability of their having sex decreases by 2.6 percentage-points. These contradicting effects of the unemployment rate on the sexual activity of male teenagers by race are consistent with Arkes and Klerman's (2009) findings for male teenagers during the late 1990s and early 2000s. However, I do not find any significant effects of the Great Recession on female teenagers' sexual behavior whereas Arkes and Klerman (2009) found evidence of counter-cyclical sexual activity among female teenagers.

Similar to Arkes (2007), I find a few statistically significant positive effects of weakening economic conditions upon drug and alcohol use. Hispanic male teenagers were 2.2 percentage points more likely to have drunk any alcohol in the last 30 days for each one-percentage-point increase in the unemployment rate. For each one-percentage-point increase in the unemployment rate, black male teenagers were 1.9 percentage points more likely to have used marijuana. Non-black, non-Hispanic (NBNH) female teenagers were 1.1 percentage points more likely to have smoked every day in the past 30 days for each one-percentage-point increase in the unemployment rate. Below, I look for any evidence of changes in parental supervision that could explain these changes in sexual activity and drug and alcohol use over the business cycle.

Finally, I find that Hispanic male teenagers' weight increased during the Great Recession (Panel 1 of Table III). For a one-percentage-point increase in the unemployment rate, they were 1.7 percentage points more likely to be considered obese. These results differ from Arkes (2009), who found that all male teenagers lost weight when the unemployment rate increased in an earlier period. Below, I look for any evidence of changes in time use, such as a corresponding decrease in activity or increase in TV watching, which could help to explain these changes in weight.

Results for all high school students aged 12-18 are shown in Appendix Tables A3 and A4. Results for a pooled sample over the entire YRBS sampling period (1991-2011) are shown in Appendix Tables A5 and A6. Among all high school students, I do not find statistically significant changes in male teenagers' participation in sexual activity over the business cycle, although NBNH male teenagers were less likely to use contraceptives if they engaged in sexual intercourse when the unemployment rate increased. I find similar effects of the unemployment rate on drug and alcohol use (Table A3). There are no significant effects of the unemployment rate on teenagers' weight (Table A4). Over all years of the YRBS (1991-2011), I find that Hispanic male teenager's sexual activity is counter-cyclical (Table A5). In addition,black and Hispanic male teenagers' alcohol and drug use is counter-cyclical. NBNH male teenagers were less likely to be obese when the unemployment rate increased in the prior recession, as found by Arkes (2009).

3.2 Teenage Time Use

Using data from the ATUS, I estimate the following model using OLS[10]:

$$Time_{ist} = \alpha + Urate_{s,t-1}\beta + X_{ist}\gamma + Z_{st}\eta + \delta_s + \theta_t + \varepsilon_{ist} \qquad (2)$$

where $Time_{ist}$ is the number of minutes per day that teen *i* spends on various activities, living in state *s*, at time *t*; $Urate_{s,t-1}$ is the state-level unemployment rate averaged over the last twelve months (t-1), X_{ist} is a vector of observable individual and family-level variables, Z_{st} is a vector of state-level laws, α is a constant, δ's are state fixed effects, and θ's are year fixed effects. ε_{ist} is a stochastic disturbance term assumed to follow a normal distribution. The key coefficient of interest is β, the effect of the unemployment rate on a teen's time use. X_{ist} includes mother's and

[10] When examining the probability of being employed or working on the diary day, I estimate linear probability models.

father's age and age squared, and indicators for age, mother's and father's education level (high school dropout, some college, college, missing), race and ethnicity (non-Hispanic black, other, Hispanic), 1st or 2nd generation immigrant, family structure (living with single mom, living with single dad), age of youngest household child (infant, preschooler, elementary), number of household children (two, three or more), household child older than age 18, lives with other adults, gender composition of the children (all boy, mixed gender), season, and respondent lives in SMSA. These controls are included based upon the previous literature on teenagers' time use derived from the ATUS, including Porterfield and Winkler (2007), Wight *et al.* (2009), Kofman and Bianchi (2012), and Kalenkoski and Pabilonia (2012). Z_{st} includes the log of the state minimum wage, state minimum driving license age, state maximum compulsory schooling age. Appendix Table A8 shows the means for most of the variables used in the time use analyses.

I first examine the effects of the economy on the total time spent by a teenager in the presence of at least one parent (one measure of parental supervision) as being a potential explanation for the previously observed changes in the probability of participating in risky health behaviors over the business cycle.[11] Table IV shows that teenage boys spent on average 7 minutes less per day with a parent for each one-percentage-point increase in the unemployment rate.[12] Over the Great Recession, the unemployment rate rose on average 5 percentage points; thus, this is a meaningful decrease in parental supervision as the economy weakened. Effects for non-black teenage boys were larger (10-11 minutes less per day) while non-Hispanic blacks spent more time with a parent (9 minutes more per day); but the estimates are imprecise due to

[11] The ATUS collects secondary childcare time, where parents say they are responsible for the children's welfare; but this is collected only for children under the age of 13. I also examined an alternative measure as the sum of both parents' time with children (as suggested in Folbre *et al.*, 2005), but the results were similar.

[12] Results for the full set of covariates for the full sample are in Appendix Table A9.

smaller sample sizes. These differences in time spent by race/ethnicity correspond to the differences found in Table II in male teenagers' patterns of sexual activity over the business cycle. It is possible that these results differ by race/ethnicity because the Great Recession disproportionately affected the unemployment rate of black adults, potentially giving them more time for parental supervision (U.S. Department of Labor 2012). The time that male teenagers spend with parents also appears to fall most on non-school days and among the employed as the unemployment rate rises. It is possible that these effects result from changes in the timing of work that could make it more difficult for families to coordinate joint activities. I do not find any statistically significant differences in the time female teenagers spend with a parent over the business cycle (Table IV), which is consistent with the findings in Table 2 that for females there were no changes in risky behaviors that are more likely to occur when a parent is not present.

I next examine the effects of the state-level unemployment rate on the time and timing of teenage paid work by gender (Tables V). It is not possible to consider all the effects of the unemployment rate on minutes worked by race/ethnicity, given the small sample sizes; however, Hispanic female teenagers work fewer minutes and are less likely to work on a weekday when the unemployment rate increases (estimates available upon request). Boys and girls aged 15-17 were not any less likely to be employed as the state unemployment rate increased over the recent recession when I controlled for other covariates; however, girls work significantly fewer minutes per day when state unemployment rates are higher.[13] This negative effect of the unemployment rate on minutes worked is concentrated on weekdays. These gender differences in minutes worked may be due to the types of jobs that teens hold. In Table VI, I show that employed girls are much more likely to babysit (i.e. childcare worker) or do sales work than are employed boys.

[13] This finding is consistent with Song (2012).

Boys, on the other hand, are more likely to hold maintenance jobs. The hours on these jobs may have been differently affected by the recession. For example, it may have been easier for families to cut back on babysitting hours. In addition, I note that a higher percentage of employed girls held a sales job after the financial crisis than in years before the crisis while a smaller percentage babysat or held a maintenance position.

I also consider the time teenagers spend with their mothers separately from the time they spend with their fathers. Results in Table VII indicate that teenage boys spend significantly less time with their mothers when the unemployment rate increases, which may account for the reduction in total parental supervision, because much of the time that fathers spend with their children is time that they also spend with the mother. This is consistent with the finding by Morrill and Pabilonia (2012) that mothers in two-parent families were more likely to work on weekend days when the unemployment rate was relatively high (8-10% as compared to 4-6%), which may also explain why results for total parental supervision were stronger on non-school days. One reason that I do not find similar results in Table 8 for teenage girls may be that mothers usually spend more time, on average, with teenage daughters than with teenage sons (126 minutes versus 90 minutes). This could be either because mothers prefer spending time with daughters or because daughters need more developmental time with mothers, making it a priority (Lundberg *et al.*, 2008).

Finally, I examine teenagers' other major uses of time: school-related activities, sports, sleep, and screen time (e.g. TV and video games).[14] I find that male teenagers play sports less (possibly related to the associated costs of participating) and sleep more at night when the unemployment rate increases (Table VII). When I examine the changes in sports by

[14] In estimates not shown, I also examined housework; but teens do little housework, and all the effects were insignificant.

race/ethnicity, I find that as the unemployment rate increases, it is black and Hispanic youths who play sports less. Thus, this is one potential explanation for the weight gained by Hispanic males over the business cycle.

Hispanic female teenagers are much more likely to be enrolled in school at higher unemployment rates (Table VIII), which is consistent with their being less likely to be working on weekdays at higher unemployment rates. However, the net effect of the recession on the future wage returns to Hispanic female teenagers' human capital investments (i.e., educational attainment minus the loss in job experience) is unknown, as the literature on the returns to early job experience suggests positive effects on wages (Stephenson, 1981; Michael and Tuma, 1984; Ruhm, 1995, 1997; Light, 1999, 2001; Neumark and Joyce, 2001). Females also spent less time sleeping and less time watching TV.

4. Conclusion

The Great Recession of 2008-09 has had significant effects on the activities of today's youths that have a potential to affect their future health and economic opportunities in both positive and negative directions. Most significantly, Hispanic male teenagers increased their sexual activity and spent less time with their parents, while black male teenagers decreased their sexual activity and spent more time with their parents. The effects of the recession on parental supervision potentially explain why black and Hispanic male teenagers' sexual behavior differs during recessions. In addition, it could explain why Hispanic male teenagers were more likely to have drunk alcohol in the past 30 days. However, changes in parental supervision cannot explain why black male teenagers are more likely to smoke marijuana. This effect could potentially result because teenagers are more likely to sell drugs in a weak economy, thus increasing

teenagers' access to drugs during hard economic times, and potentially counteracting any positive effects of increased parental supervision for blacks in a weak economy (Arkes, 2007). Hispanic male teenagers gained weight during the Great Recession, which is consistent with their decrease in sports participation.

Hispanic female teenagers shifted their time toward educational activities as opportunities for employment shrank. All female teenagers significantly decreased their TV watching. However, there are still signs that female teenagers were stressed, because they slept less and were more likely to smoke regularly during the most recent recession.

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Table I. Percentage of Teenagers Aged 15-17 Participating in Risky Behaviors (Youth Risk Behavior Survey)										
	Boys					**Girls**				
	2003	**2005**	**2007**	**2009**	**2011**	**2003**	**2005**	**2007**	**2009**	**2011**
	SEXUAL ACTIVITY IN PAST THREE MONTHS									
ALL	33.7	31.6	33.7	32.4	32.4	35.5	34.5	35.5	35.5	34.9
NBNH	28.9	27.7	28.7	28.7	29.6	33.6	33.0	34.0	34.1	34.8
Non-Hispanic Black	53.8	50.5	48.6	49.0	44.5	43.8	43.0	43.0	45.0	37.2
Hispanic	39.3	35.1	41.1	35.5	34.3	37.0	34.0	34.5	33.3	33.8
	CONTRACEPTIVE USE AT LAST INTERCOURSE IN PAST THREE MONTHS									
ALL	89.6	88.6	89.0	89.7	88.7	87.6	85.5	86.7	86.2	84.6
NBNH	92.4	88.7	90.6	92.6	89.9	90.8	88.3	89.3	90.4	87.2
Non-Hispanic Black	91.0	90.0	89.2	87.6	89.9	87.5	81.9	84.4	80.2	84.2
Hispanic	79.3	86.3	84.0	82.6	83.8	76.0	76.4	79.1	76.7	75.5
	SMOKE IN PAST 30 DAYS									
ALL	21.5	22.6	21.7	19.0	18.5	22.6	23.6	18.7	19.3	16.3
NBNH	22.4	23.7	22.7	20.6	19.9	26.2	26.6	21.8	22.4	18.5
Non-Hispanic Black	18.8	14.7	14.1	11.3	13.5	10.6	12.5	8.2	8.9	6.9
Hispanic	19.4	24.6	18.4	18.8	16.8	17.4	20.4	15.7	16.5	15.7
	SMOKE DAILY IN PAST 30 DAYS									
ALL	7.4	6.9	5.8	5.1	4.4	7.7	7.0	5.7	4.4	4.0
NBNH	8.2	7.9	7.1	6.2	5.1	9.8	8.6	7.7	5.9	5.2
Non-Hispanic Black	6.5	4.1	3.2	2.2	2.5	2.0	2.0	0.8	0.7	1.5
Hispanic	4.6	5.0	2.8	3.4	3.2	3.4	4.3	2.0	1.9	1.5
	ANY NICOTINE USE IN PAST 30 DAYS									
ALL	30.1	31.4	29.9	29.4	27.1	25.1	25.7	21.0	22.1	18.8
NBNH	32.3	33.8	33.6	33.2	30.0	28.4	28.9	23.7	24.9	20.8
Non-Hispanic Black	23.6	18.9	19.4	17.7	19.0	15.3	15.6	11.9	15.3	12.0
Hispanic	25.5	30.0	23.4	23.3	22.3	19.1	19.8	17.5	17.6	16.5
	ALCOHOL USE IN PAST 30 DAYS									
ALL	43.8	43.8	44.8	41.2	38.7	46.4	43.3	44.3	43.0	38.6
NBNH	45.0	45.2	46.5	42.4	40.0	47.6	44.9	45.4	44.6	38.2
Non-Hispanic Black	36.9	30.4	33.1	30.4	28.2	37.8	33.3	34.0	35.9	32.6
Hispanic	44.1	49.1	47.7	44.6	41.2	48.4	45.4	48.9	42.9	44.5
	MARIJUANA USE IN PAST 30 DAYS									
ALL	25.6	22.2	22.6	23.8	25.8	19.7	18.8	17.3	18.7	20.8
NBNH	24.1	21.0	22.4	23.0	24.8	19.7	18.7	17.6	18.9	19.9
Non-Hispanic Black	29.0	23.1	26.5	25.2	30.1	18.6	19.6	16.7	17.6	22.2
Hispanic	29.6	27.3	20.2	25.9	26.5	20.6	18.0	16.6	18.6	22.3

Notes: YRBS weights used. Race and ethnicity are mutually exclusive.

Table 1 Continued. Percentage of Teenagers Aged 15-17 Participating in Risky Behaviors (Youth Risk Behavior Survey)										
	Boys					**Girls**				
	2003	**2005**	**2007**	**2009**	**2011**	**2003**	**2005**	**2007**	**2009**	**2011**
	OVERWEIGHT (BMI>=85%, by age and sex)									
ALL	30.7	33.2	33.7	31.2	31.3	22.5	25.7	25.5	24.3	24.6
NBNH	28.0	32.2	31.6	28.0	30.1	18.9	22.3	20.9	19.9	21.1
Non-Hispanic Black	33.9	32.3	37.3	37.8	30.5	35.3	39.1	40.1	35.2	38.9
Hispanic	40.3	38.8	39.6	38.8	35.8	26.8	28.9	31.0	31.0	26.4
	OBESE (BMI>=95%, by age and sex)									
ALL	15.5	17.9	17.1	15.5	16.7	8.0	11.0	10.4	9.1	9.5
NBNH	14.1	16.8	15.3	13.7	15.8	6.2	9.2	7.3	7.2	7.8
Non-Hispanic Black	17.7	17.9	19.7	19.4	17.5	13.7	17.3	20.9	15.0	19.1
Hispanic	19.5	23.1	22.1	19.5	19.1	11.0	13.1	13.5	11.5	8.6

Notes: YRBS weights used. Race and ethnicity are mutually exclusive.

Table II. Effects of the Unemployment Rate on Teen Risky Behaviors for Teens Aged 15-17, by Gender and Race/Ethnicity (YRBS 2003-2011)

Subsample	Sexual Intercourse in Past Three Months	Contraceptive Use if Sexual Intercourse	Smoke in Past 30 Days	Smoke Every Day in Past 30 Days	Any Nicotine Use in Past 30 Days	Alcohol Use in Past 30 Days	Marijuana in Past 30 Days
Panel 1. Boys							
All	0.003	-0.008	0.009	0.004	0.009	0.007	0.002
	(0.007)	(0.007)	(0.008)	(0.004)	(0.013)	(0.009)	(0.008)
NBNH	0.009	-0.018	0.009	0.003	0.004	0.005	-0.009
	(0.010)	(0.012)	(0.011)	(0.006)	(0.015)	(0.009)	(0.009)
Black	-0.026*	0.012	0.012	0.006	0.024	-0.005	0.019**
	(0.015)	(0.014)	(0.014)	(0.005)	(0.018)	(0.013)	(0.009)
Hispanic	0.018***	0.004	0.011	-0.002	0.013	0.022**	0.012
	(0.006)	(0.012)	(0.009)	(0.003)	(0.011)	(0.008)	(0.008)
N (All)	24,000	8,077	25,295	25,295	24,220	24,377	25,981
Panel 2. Girls							
All	0.002	-0.005	0.008	0.008**	0.008	0.008	0.007
	(0.010)	(0.005)	(0.008)	(0.004)	(0.008)	(0.007)	(0.008)
NBNH	0.009	-0.004	0.011	0.011**	0.012	0.005	0.010
	(0.013)	(0.007)	(0.010)	(0.005)	(0.011)	(0.012)	(0.009)
Black	0.003	-0.005	-0.012	-0.001	-0.010	0.018	-0.011
	(0.014)	(0.019)	(0.011)	(0.004)	(0.013)	(0.011)	(0.007)
Hispanic	-0.014	-0.004	0.003	0.004	-0.006	-0.002	0.007
	(0.011)	(0.011)	(0.008)	(0.004)	(0.010)	(0.008)	(0.011)
N (All)	25,684	9,107	26,892	26,892	25,729	25,896	27,434

Notes: Linear probability models were estimated. N refers to the number of non-missing values for the dependent variable in the sample of all boys or all girls. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, Hispanic), grade in school, state laws (maximum compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** $p<0.01$; ** $p<0.05$; * $p<0.10$.

Table III. Effects of the Unemployment Rate on Teenage Weight for Teens Aged 15-17, by Gender and Race/Ethnicity (YRBS 2003-2011)

Subsample	Overweight	Obese
Panel 1. Boys (N=25,270)		
All	0.005	0.005
	(0.007)	(0.005)
NBNH	0.009	0.003
	(0.010)	(0.006)
Black	-0.018	0.009
	(0.013)	(0.009)
Hispanic	0.010	0.017**
	(0.009)	(0.008)
Panel 2. Girls (N = 25,937)		
All	0.001	-0.001
	(0.007)	(0.004)
NBNH	0.010	0.005
	(0.011)	(0.006)
Black	-0.003	-0.010
	(0.016)	(0.013)
Hispanic	-0.011	0.002
	(0.009)	(0.004)

Notes: Linear probability models were estimated. N refers to the number of non-missing values for the dependent variable in the sample of all boys or all girls. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, Hispanic), grade in school, state laws (maximum compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Table IV. Effects of the Unemployment Rate on Time with Either Parent (in minutes) for Teens Aged 15-17, by Gender (ATUS 2003-2011)

Subsample		N	Mean	Urate	R^2
Panel 1. Teen Boys					
All Boys		2,146	119.74	-7.425*(3.911)	0.069
Race/Ethnicity	NBNH	1,554	131.97	-10.406(6.326)	0.080
	Non-Hispanic Black	233	79.15	9.370(14.350)	0.314
	Hispanic	359	112.14	-11.162(12.922)	0.253
Day of Week	School day	997	89.80	-2.219(4.036)	0.132
	Non-school day	1,149	188.10	-11.021(8.618)	0.118
Teens' Earner Status	Employed	635	114.48	-12.702*(7.381)	0.212
	Not Employed	1,511	121.77	-6.645(4.569)	0.090
Panel 2. Teen Girls					
All Girls		1,974	147.43	4.309(6.835)	0.078
Race/Ethnicity	NBNH	1,453	145.44	6.382(6.795)	0.080
	Non-Hispanic Black	204	116.61	-11.299(18.943)	0.459
	Hispanic	317	178.65	-6.536(18.566)	0.240
Day of Week	School day	937	111.90	-0.677(5.845)	0.145
	Non-school day	1,037	225.82	10.092(11.762)	0.199
Teens' Earner Status	Employed	581	123.80	-8.751(11.215)	0.196
	Not Employed	1,393	156.24	7.312(8.330)	0.088

Standard errors adjusted for clustering by state are reported in parentheses. Control variables include mother and father's age and age squared, ln(minimum wage), state minimum driving license age, state maximum compulsory schooling age, and indicators for age, mother's and father's education level (high school dropout, some college, college, missing), family structure (single mother, single father), race and ethnicity (non-Hispanic black, Hispanic), 1st or 2nd generation immigrant, age of youngest household child (infant, preschooler, elementary), number of household children (two, three or more), household child older than age 18, lives with other adults, gender composition of the children (all boy, mixed gender), season, and respondent lives in SMSA. Significance levels: *** $p<0.01$; ** $p<0.05$; * $p<0.10$.

Table V. Effects of the Unemployment Rate on Teenagers' Time and Timing of Work, by Gender (ATUS 2003-2011)

	ALL DAYS		WEEKDAYS		WEEKENDS	
	Pr(Employed)	Minutes Worked	Pr(Worked)	Minutes Worked	Pr(Worked)	Minutes Worked
Panel 1. Teen Boys						
All (N = 2,146)	-0.005	-3.639	-0.004	-4.921	0.002	1.307
	(0.011)	(2.659)	(0.010)	(3.054)	(0.010)	(3.660)
Mean	0.28	36.41	0.12	30.92	0.13	49.83
Panel 2. Teen Girls						
All (N = 1,974)	-0.009	-6.864**	-0.021*	-8.119***	-0.010	-1.797
	(0.010)	(3.004)	(0.011)	(2.804)	(0.015)	(6.997)
Mean	0.27	32.60	0.10	27.61	0.12	44.75

Notes: Unemployment rates are measured at the state-level and all specifications include state and year fixed effects. ATUS final weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include mother and father's age and age squared, ln(minimum wage), state minimum driving license age, state maximum compulsory schooling age, and indicators for age, mother's and father's education level (high school dropout, some college, college, missing), family structure (single mother, single father), race and ethnicity (non-Hispanic black, Hispanic), 1st or 2nd generation immigrant, age of youngest household child (infant, preschooler, elementary), number of household children (two, three or more), household child older than age 18, lives with other adults, gender composition of the children (all boy, mixed gender), season, and respondent lives in SMSA. Minutes of work exclude job search time. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Table VI. Top 8 Primary Jobs Held By Teens as a Percent of Those Holding Jobs, By Gender (ATUS 2003-2011)

	2003-2011		2003-2007		2008-2011	
	MALE	**FEMALE**	**MALE**	**FEMALE**	**MALE**	**FEMALE**
Athletes, Coaches, Umpires, and Related Workers	0.02	0.02	0.02	0.02	0.02	0.02
Food Preparation and Serving Related Occupations	0.23	0.24	0.24	0.24	0.22	0.25
Building and Grounds Cleaning and Maintenance Occupations	0.16	0.05	0.15	0.06	0.16	0.03
Childcare	0.01	0.16	0.01	0.17	0.02	0.15
Sales and Related Occupations	0.14	0.26	0.16	0.24	0.09	0.30
Stock Clerks and Order Fillers	0.04	0.01	0.05	0.01	0.02	0.002
Miscellaneous Agricultural Workers	0.04	0.02	0.03	0.02	0.04	0.02
Laborers and Freight, Stock and Material Movers	0.07	0.01	0.05	0.01	0.09	0.01
Multiple Job Holders	0.09	0.07	0.08	0.08	0.11	0.06
Number Employed	635	581	433	400	202	181

Notes: ATUS final weights used. Only the occupation of the primary job is recorded in the ATUS.

Table VII. Effects of the Unemployment Rate on Teen Boys Aged 15-17 Time Use (ATUS 2003-2011)

Dependent Variable	N	Mean	Urate	R^2
Minutes with Mother	2,146	89.58	-5.780*(3.333)	0.072
Minutes with Father	2,146	74.50	-3.228(3.219)	0.133
Minutes in Class	2,146	219.01	3.672(6.186)	0.054
Minutes of Homework	2,146	40.82	-2.270(1.972)	0.127
Minutes Homework & Extracurricular Activities	2,146	46.41	-2.580(2.960)	0.127
Minutes of Total Education	2,146	265.43	1.092(6.970)	0.074
Minutes in Sports (All)	2,146	53.42	-4.645**(2.000)	0.074
NBNH	1,554	52.52	-0.280(2.499)	0.069
Non-Hispanic black	233	66.07	-21.276**(9.093)	0.472
Hispanic	359	47.71	-12.126*(6.173)	0.226
Minutes Sleeping on Diary Day	2,146	555.46	2.303(6.416)	0.063
Minutes Sleeping on Night Following Diary Day	2,146	516.77	7.492**(3.273)	0.074
Minutes TV	2,146	129.17	1.980(2.803)	0.087
Minutes Games and TV	2,146	196.49	5.457(5.223)	0.100

Note: Unemployment rates are measured at the state-level and all specifications include state and year fixed effects. ATUS final weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include mother and father's age and age squared, ln(minimum wage), state minimum driving license age, state maximum compulsory schooling age, and indicators for age, mother's and father's education level (high school dropout, some college, college, missing), family structure (single mother, single father), race and ethnicity (non-Hispanic black, Hispanic), 1st or 2nd generation immigrant, age of youngest household child (infant, preschooler, elementary), number of household children (two, three or more), household child older than age 18, lives with other adults, gender composition of the children (all boy, mixed gender), season, and respondent lives in SMSA. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Table VIII. Effects of the Unemployment Rate on Teen Girls Aged 15-17 Time Use (ATUS 2003-2011)

Dependent Variable	N	Mean	Urate	R^2
Minutes with Mother	1,974	126.45	4.749(6.160)	0.097
Minutes with Father	1,974	66.94	4.407(4.217)	0.147
Minutes in Class	1,974	215.86	6.502(5.074)	0.084
NBNH	1,453	214.91	-2.983(4.744)	0.098
Non-Hispanic Black	204	224.68	5.387(24.219)	0.462
Hispanic	317	212.76	25.430*(14.586)	0.274
Minutes of Homework	1,974	60.19	2.048(3.235)	0.120
Minutes of Homework & Extracurricular Activities	1,974	69.06	1.804(3.137)	0.126
Minutes of Total Education	1,974	284.93	8.307(6.698)	0.092
Minutes in Sports	1,974	24.88	0.565(1.710)	0.073
Minutes Sleeping on Diary Day	1,974	543.37	-5.424*(2.836)	0.075
Minutes Sleeping on Night Following Diary Day	1,974	511.65	-6.505(4.123)	0.062
Minutes TV	1,974	117.06	-8.957**(4.190)	0.088
Minutes Games and TV	1,974	146.85	-5.680(4.486)	0.087

Note: Unemployment rates are measured at the state-level and all specifications include state and year fixed effects. ATUS final weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include mother and father's age and age squared ln(minimum wage), state minimum driving license age, state maximum compulsory schooling age, and indicators for age, mother's and father's education level (high school dropout, some college, college, missing), family structure (single mother, single father), race and ethnicity (non-Hispanic black, Hispanic), 1st or 2nd generation immigrant, age of youngest household child (infant, preschooler, elementary), number of household children (two, three or more), household child older than age 18, lives with other adults, gender composition of the children (all boy, mixed gender), season, and respondent lives in SMSA. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

APPENDIX

Appendix Table A1. YRBS Teens Aged 15-17 Sample Selection (2003-2011)

	Number of Observations
All Teens	74,962
Drop teens missing age	74,669
Drop teens missing gender	74,549
Drop teens missing grade in school	74,310
Drop teens missing race/ethnicity	73,375
Teens aged 15-17 only	54,664
FEMALE TEENS	26,770
MALE TEENS	27,894

Appendix Table A2. Sample Means and Proportions (YRBS 2003-2011)

	Male (N = 26,770)	Female (N = 26,988)
Dependent Variables:		
Sexual Intercourse in Past Three Months	0.33	0.35
Contraceptive Use at Last Intercourse	0.89	0.86
Smoke in Past 30 Days	0.20	0.20
Smoke Daily in Past 30 Days	0.06	0.06
Any Nicotine Use in Past 30 Days	0.30	0.23
Alcohol Use in Past 30 Days	0.42	0.43
Marijuana in Past 30 Days	0.24	0.19
Overweight	0.32	0.25
Obese	0.16	0.10
Economic Conditions:		
State yearly unemployment rate [overall min 2.90, max 13.70]	6.33	6.32
Individual Characteristics:		
Age 15	0.34	0.34
Age 16	0.35	0.34
Age 17	0.31	0.32
NBNH	0.69	0.68
Non-Hispanic Black	0.14	0.15
Hispanic	0.17	0.17
Grade 9	0.24	0.21
Grade 10	0.35	0.34
Grade 11	0.29	0.31
Grade 12	0.12	0.14
Year = 2003	0.21	0.20
Year = 2005	0.18	0.19
Year = 2007	0.18	0.19
Year = 2009	0.22	0.22
Year = 2011	0.21	0.20
State Laws:		
Ln(Minimum Wage)	1.15	1.15
Minimum Driver's License Age	16.07	16.08
Maximum Compulsory Schooling Age	17.04	17.03

Note: Estimates are weighted and based upon non-missing values.

Appendix Table A3. Effects of the Unemployment Rate on Teen Risky Behaviors for Teens Aged 12-18, by Sex and Race/Ethnicity (YRBS 2003-2011)

Sample	Sexual Intercourse in Past Three Months	Contraceptive Use if Sexual Intercourse	Smoke in Past 30 Days	Smoke Every Day in Past 30 Days	Any Nicotine Use in Past 30 Days	Alcohol Use in Past 30 Days	Marijuana in Past 30 Days
Panel 1. Boys							
All	0.002	-0.006	0.007	0.004	0.007	0.009	0.002
	(0.007)	(0.005)	(0.008)	(0.004)	(0.011)	(0.008)	(0.006)
NBNH	0.008	-0.014*	0.008	0.003	0.004	0.007	-0.007
	(0.009)	(0.008)	(0.009)	(0.006)	(0.013)	(0.008)	(0.007)
Black	-0.023	0.009	0.011	0.005	0.024	-0.010	0.018**
	(0.014)	(0.011)	(0.013)	(0.005)	(0.017)	(0.014)	(0.009)
Hispanic	0.009	0.002	0.009	0.003	0.011	0.028***	0.010*
	(0.007)	(0.009)	(0.009)	(0.003)	(0.011)	(0.007)	(0.005)
N (All)	32,403	11,309	34,155	34,155	32,734	32,975	35123
Panel 2. Girls							
All	0.004	-0.004	0.007	0.008**	0.006	0.009	0.003
	(0.009)	(0.005)	(0.007)	(0.004)	(0.008)	(0.006)	(0.006)
NBNH	0.011	-0.004	0.011	0.010**	0.013	0.008	0.005
	(0.012)	(0.006)	(0.010)	(0.005)	(0.011)	(0.011)	(0.008)
Black	0.000	0.004	-0.009	0.001	-0.014	0.016	-0.009
	(0.010)	(0.014)	(0.008)	(0.003)	(0.013)	(0.010)	(0.008)
Hispanic	-0.008	-0.007	-0.002	0.003	-0.011	-0.004	0.003
	(0.009)	(0.009)	(0.006)	(0.003)	(0.008)	(0.007)	(0.009)
N (All)	34,169	12,270	35,831	35,831	34,284	34,494	36,535

Notes: Linear probability models were estimated. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, other, Hispanic), grade in school, state laws (max compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Appendix Table A4. Effects of the Unemployment Rate on Teenage Weight for Teens Aged 12-18, by Sex and Race/Ethnicity (YRBS 2003-2011)

Sample	Overweight	Obese
Panel 1. Boys (N=34,029)		
All	0.000	0.003
	(0.006)	(0.005)
NBNH	0.004	0.003
	(0.009)	(0.006)
Black	-0.012	0.009
	(0.012)	(0.009)
Hispanic	-0.000	0.008
	(0.009)	(0.008)
Panel 2. Girls (N = 34,495)		
All	-0.002	-0.004
	(0.007)	(0.004)
NBNH	0.005	0.002
	(0.009)	(0.005)
Black	-0.003	-0.016
	(0.014)	(0.011)
Hispanic	-0.014	-0.003
	(0.010)	(0.004)

Notes: Linear probability models were estimated. N refers to the number of non-missing values for the dependent variable in the sample of all boys or all girls. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, other, Hispanic), grade in school, state laws (max compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Appendix Table A5. Effects of the Unemployment Rate on Teen Risky Behaviors for Teens Aged 12-18, by Sex and Race/Ethnicity (YRBS 1991-2011)

	Sexual Intercourse in Past Three Months	Contraceptive Use if Sexual Intercourse	Smoke in Past 30 Days	Smoke Every Day in Past 30 Days	Any Nicotine Use in Past 30 Days	Alcohol in Past 30 Days	Marijuana in Past 30 Days
Panel 1. Boys							
All	-0.001	-0.003	0.002	0.003	-0.001	0.003	0.007
	(0.004)	(0.004)	(0.004)	(0.003)	(0.006)	(0.005)	(0.006)
NBNH	-0.001	-0.004	0.002	0.004	-0.003	0.003	0.006
	(0.005)	(0.004)	(0.005)	(0.003)	(0.006)	(0.005)	(0.007)
Black	-0.019	-0.003	0.006	0.003	0.014	-0.006	0.013
	(0.012)	(0.007)	(0.012)	(0.005)	(0.012)	(0.013)	(0.011)
Hispanic	0.012*	-0.001	0.012	0.003	0.016	0.026***	0.015**
	(0.007)	(0.007)	(0.008)	(0.004)	(0.010)	(0.009)	(0.006)
N (All)	69,428	25,457	71,341	71,341	69,387	69,901	73,588
Panel 2. Girls							
All	-0.001	0.000	0.002	0.003	0.002	0.004	0.002
	(0.007)	(0.003)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)
NBNH	-0.000	0.001	0.003	0.004	0.004	0.005	0.003
	(0.008)	(0.003)	(0.007)	(0.005)	(0.007)	(0.005)	(0.005)
Black	0.004	0.005	-0.009	0.001	-0.017	0.017	-0.005
	(0.008)	(0.012)	(0.007)	(0.003)	(0.011)	(0.012)	(0.008)
Hispanic	-0.004	-0.009	-0.004	0.001	-0.011	-0.004	0.002
	(0.009)	(0.008)	(0.006)	(0.002)	(0.008)	(0.007)	(0.006)
N (All)	73,559	26,959	75,023	75,023	73,026	73,606	76,880

Notes: Linear probability models were estimated. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, other, Hispanic), grade in school, state laws (max compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

APPENDIX Table A6. Effects of the Unemployment Rate on Teenage Weight for Teens Aged 12-18, by Sex and Race/Ethnicity (YRBS 1999-2011)

	Overweight	Obese
Panel 1. Boys (N=47,133)		
All	-0.006	-0.004
	(0.005)	(0.004)
NBNH	-0.008	-0.009**
	(0.007)	(0.004)
Black	-0.006	0.006
	(0.011)	(0.008)
Hispanic	-0.001	0.006
	(0.008)	(0.007)
Panel 2. Girls (N = 48,114)		
All	-0.003	-0.003
	(0.005)	(0.003)
NBNH	-0.001	-0.001
	(0.007)	(0.005)
Black	0.004	-0.009
	(0.013)	(0.010)
Hispanic	-0.013	-0.002
	(0.010)	(0.003)

Notes: Linear probability models were estimated. N refers to the number of non-missing values for the dependent variable in the sample of all boys or all girls. YRBS weights used. Standard errors adjusted for clustering by state are reported in parentheses. Control variables include indicators for age, race and ethnicity (non-Hispanic black, other, Hispanic), grade in school, state laws (max compulsory schooling age, ln[minimum wage], minimum driver's license age), state and year fixed effects. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.

Appendix Table A7. ATUS Teen Sample Selection 2003-2011

	Number of Observations
Teens aged 15-17	5,863
Teens who live with at least one heterosexual parent	5,660
Drop teens who are married or cohabitating	5,645
Drop teens who have their own children	5,613
Drop teens whose parent is missing education	5,580
Drop those who slept more than 20 hours on diary day	5,572
Drop those sick more than 4 hours on diary day	5,566
Drop those interviewed in summer months (between Memorial Day and Labor Day)	4,120
FEMALE TEENS	1,974
MALE TEENS	2,146

Table A8. Teenagers' Mean Characteristics (ATUS 2003-2011)

	Boys (N=2,146)	Girls (N=1,974)
Economic conditions:		
State Yearly Unemployment Rate [Overall min 2.49, max 13.80]	6.41	6.43
Individual characteristics:		
NBNH	0.63	0.68
Hispanic	0.23	0.18
Non-Hispanic Black	0.15	0.14
Age 15	0.27	0.28
Age 16	0.36	0.38
Age 17	0.37	0.34
Immigrant	0.24	0.22
Live with both parents	0.74	0.71
Live with single mother	0.21	0.24
Live with single father	0.05	0.04
Mother's age	43.98	44.05
Father's age	46.62	46.77
Mother high school dropout	0.14	0.13
Mother high school	0.26	0.25
Mother some college	0.32	0.31
Mother college	0.28	0.31
Father high school dropout	0.16	0.12
Father high school	0.27	0.28
Father some college	0.25	0.25
Father college	0.33	0.35
Two children in household	0.18	0.21
Three or more children in household	0.12	0.12
Youngest child infant	0.05	0.04
Youngest child preschooler	0.06	0.06
Youngest child elementary student	0.27	0.28
Child older than 18 in household	0.26	0.24
All boy household children	0.58	0.57
Mixed gender household children	0.18	0.20
Live with other adults	0.33	0.31
Resides in SMSA	0.84	0.86
Fall	0.33	0.33
Winter	0.33	0.36
Spring	0.34	0.31
State Laws:		
Ln (minimum wage)	1.13	1.13
Minimum driver's license age	16.07	16.08
Maximum compulsory schooling age	17.17	17.18

Notes: Survey weights used. Mother's and father's age and education means are for non-missing observations due to differences in family structure.

Appendix Table A9. OLS Estimates: Time with Either Parent (ATUS 2003-2011)

	Boys	Girls
Urate	-7.425*	4.309
	(3.911)	(6.835)
Live with single mother	-40.261***	-26.878*
	(12.528)	(13.752)
Live with single father	-47.250***	-62.221***
	(17.484)	(21.561)
Hispanic	-3.603	31.909*
	(10.346)	(16.600)
Non-Hispanic black	-25.738*	-15.501
	(13.190)	(12.942)
Immigrant	-10.030	1.836
	(9.597)	(11.117)
Age 16	-18.461*	-10.515
	(10.849)	(12.016)
Age 17	-24.778**	-23.608**
	(11.122)	(11.131)
Mother's age	-0.169	-3.602
	(6.130)	(5.671)
Mother's age squared	-5.785	30.256
	(70.266)	(63.384)
Father's age	11.874**	-0.978
	(4.682)	(5.893)
Father's age squared	-108.720**	9.198
	(49.507)	(59.720)
Mother HS dropout	-1.006	25.164
	(12.245)	(18.602)
Mother some college	-3.525	3.759
	(11.684)	(13.104)
Mother college	-7.832	-12.478
	(11.488)	(13.722)
Father HS dropout	-1.727	-43.375
	(13.369)	(30.316)
Father some college	8.563	1.777
	(10.046)	(13.067)
Father college	25.587**	12.856
	(12.390)	(14.987)
Two children in household	-6.343	-8.638
	(10.514)	(9.804)
Three or more children in household	-10.867	-35.077*
	(18.160)	(18.899)
Youngest child infant	6.018	20.444
	(20.861)	(20.372)
Youngest child preschooler	5.589	22.947
	(17.290)	(27.897)

Youngest child elementary student	1.791	14.723*
	(11.573)	(7.792)
Child older than 18 in HH	-19.054	3.082
	(13.429)	(16.198)
All boy HH children	11.205	8.640
	(7.556)	(8.593)
Mixed gender HH children	19.541	37.515*
	(12.894)	(20.791)
Live with other adults	12.256	-24.476
	(11.764)	(15.935)
Resides in SMSA	-10.107	-21.205
	(12.451)	(15.318)
Winter	-2.420	-21.540*
	(9.963)	(11.244)
Spring	1.557	-24.257**
	(8.379)	(11.776)
Ln (minimum wage)	-28.433	91.203
	(57.534)	(75.329)
State minimum driver's license age	132.112**	-129.049
	(54.981)	(90.486)
State maximum compulsory schooling age	-12.837	-19.157
	(7.896)	(14.076)
Year = 2003	-20.154	-30.067**
	(16.297)	(11.729)
Year = 2004	-7.225	-6.716
	(19.822)	(18.089)
Year = 2006	-15.842	26.104
	(14.534)	(15.798)
Year = 2007	-12.227	2.418
	(16.816)	(15.532)
Year = 2008	-2.236	1.532
	(18.146)	(16.623)
Year = 2009	25.151	6.122
	(20.139)	(27.479)
Year = 2010	40.658	-0.270
	(27.652)	(38.812)
Year = 2011	48.659	-11.486
	(30.153)	(41.186)
Observations	2,146	1,974
R-squared	0.069	0.078

Notes: This is the full set of covariates from the first row of each Panel in Table IV, full sample. Regressions also include state fixed effects and a constant. Standard errors adjusted for clustering by state are reported in parentheses. Significance levels: *** p<0.01; ** p<0.05; * p<0.10.