Parental Disability and Teenagers' Time Allocation

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Abstract:
Using the 2003–2019 American Time Use Survey, we examine how living with a parent who has a work-limiting disability is related to teenagers' time allocation. For girls, we find that living with a disabled parent is associated with less time spent on educational activities, including both class time and homework, less time spent on shopping, and more time spent on market work, pet care, and leisure. For boys, living with a disabled parent is associated with less time spent sleeping. In addition, when examining the time spent by girls and boys in two-parent households, we find that the gender of the disabled parent matters. Girls living with a disabled mother in a two-parent household spend less time on educational activities and more time on market work and pet care, suggesting that girls may take on some of a disabled mother's activities. Boys living with a disabled mother in a two-parent household spend more time on homework and less time on housework and caring for household children. However, if their father is disabled, boys spend more time on food preparation and cleanup. Boys living with a disabled father also spend less time with their mother. Thus, there are differences in teens' time use that depend on both the gender of the teen and of the disabled parent, with teen girls likely being worse off than teen boys. Our results suggest that differences in teenagers' time investments are a plausible mechanism for gender differences in intergenerational economic mobility by parental-disability status.

JEL classification: I14, I24, J13, J14, J22

Keywords: disability, gender, time use, teenagers, schooling, homework

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1. Introduction

About one in five male household heads in the United States experiences a work-limiting disability by age 30 (Meyer and Mok 2019), suggesting that such disabilities are relatively common. Disabilities are associated negatively with individuals' well-being as well as the well-being of their families. Most obviously, work-limiting disabilities reduce employment. According to the Bureau of Labor Statistics (2020b), only 19.3 percent of persons with a disability were employed in 2019, compared to 66.3 percent of persons without a disability. In addition, work-limiting disabilities are associated with both lower educational attainment and lower household income. Olkin, Abrams, Preston, and Kirshbaum (2006), examining parents of teenagers, show that those with work-related disabilities are twice as likely to have less than a high-school education and have lower incomes than those without disabilities, on average. Meyer and Mok (2019) show that post-transfer incomes are below the poverty line for one-sixth of families in which the male household head experiences a chronic, severe disability.

Potentially compounding the negative effects of work-limiting disabilities on the livelihoods of the disabled are significant negative effects on their children. First, teens living in these households may be called upon to contribute more time or money to the household than teens not living with a disabled parent, which may affect their education negatively. Disabled parents may not be able to do housework or care for household children and may need extra assistance in caring for themselves. Teenagers may be requested to fill in these gaps and, given recent findings by Schulz (2021) that children's housework time within the family continues to be gendered, the additional caregiving burden within the household may fall primarily on daughters.

In a large U.S. survey focused on learning more about young caregivers aged 8–18 who cared for either parents or grandparents, Hunt, Levine, and Naiditch (2005) find that young caregivers spend more time doing household tasks than young persons who do no caregiving. They also find that young female caregivers spend more time caring for younger siblings than young females who do no caregiving, and that these caregiving responsibilities affect their schoolwork. Mont and Nguyen (2013) examine the effect of parental disability on the education of children in Vietnam and find that having a disabled parent reduces both a child's probability of attending school and the expected number of grades completed. They also find that the effect is larger for boys and that it is more pronounced when the mother is the disabled parent. Miles et al. (2011) show that children aged 0–17 living with disabled caregivers in North Carolina have lower grades and higher absenteeism. Haveman and Wolfe (1994) show a negative relationship between educational attainment and the length of time a parent has had a work-limiting disability.

Although not directly examining parental disability, Kalenkoski, Ribar, and Stratton (2011) find that teen girls living in single-parent households or with less-educated parents have extra household and/or market work responsibilities compared to other teen girls and spend less time on homework than teens not living in such households. Also related to teens' education, Kalenkoski and Pabilonia (2012) show that teen employment reduces time spent on homework. This may be an issue if teens work more in response to a parental disability.

Second, negative effects of living with a disabled parent may occur because of a lack of parental supervision as the parent struggles to deal with daily tasks. There is strong evidence that parental/adult supervision makes teens less likely to take part in risky behaviors and reduces truancy (Aizer 2004; Averett, Argys, and Rees 2011; See 2016), and that teens living in

disadvantaged households are less likely to be supervised (Kalenkoski, Ribar, and Stratton 2011). Parents invest time in their children to produce higher quality children (e.g., Bernal and Keane 2010; Caetano, Kinsler, and Teng 2019). In supervising their activities, they may help or encouraging their teenagers to do more homework and chauffeuring them to extracurricular activities or sports practices and games (Ramey and Ramey 2010). As children enter adolescence, they make more of their own decisions about how they will invest their time, and Del Boca, Monfardini, and Nicoletti (2017) show that adolescents' own time investments matter more than maternal time investments for their cognitive development. If disabled parents do not supervise their teens, teens' investments in themselves may occur less often or not at all. For example, Pabilonia (2017) shows that as the state unemployment rate rose during the Great Recession and mothers worked more hours on weekends, teenage boys spent less time with their mothers, less time on homework, and more time watching TV. However, if disabled parents who are not working spend more time in the home than nondisabled parents, it is also plausible that they could spend more time supervising their children's activities in the home.

Third, having a parent with poor health could be stressful, which could have negative effects on teens. Hunt, Levine, and Naiditch (2005) find that children aged 12–18 who provide household adults or relatives with at least one activity of daily living exhibit more fluctuations in their moods and feelings. Many of them report missing schoolwork or being absent from school.

Fourth, educational attainment beyond high school may be reduced if parental disability lowers family income and/or greatly increases medical expenses and thus reduces the household's ability to afford post-secondary schooling (Manoli and Turner 2018; Hardy and Marcotte 2020). Lower incomes also may result in lower parental monetary investments in extracurricular activities, such as SAT prep classes, music lessons, or private club sports, that

have the potential to increase their children's probability of acceptance to college or motivate their children to pursue their education further (Kaufman and Gabler 2004; Buchmann, Condron, and Roscigno 2010; Park, Buchmann, Choi, and Merry 2016).

Fifth, future earnings may be lower if children of disabled parents invest less in their education. Jajtner (2020) finds that living with a parent who has a work-limiting disability negatively affects girls', but not boys', intergenerational economic mobility, especially those from lower-income households. Those who live with a parent with a severe disability (one that interferes a lot or completely with the ability to work) are the most impacted.

Using data from the 2003–2019 American Time Use Survey (ATUS), we focus on how teens' time use is related to living with a parent experiencing a work-limiting disability. We investigate whether teenagers take on additional caregiving and household responsibilities and, if so, whether this increased time spent on domestic responsibilities might be at the expense of time spent investing in educational activities. Given the gendered nature of such activities, we examine teens' time allocation separately for boys and girls. We also examine whether the gender of the disabled parent matters in two-parent households because children spend more time with their mothers and mothers and fathers invest their time differently in their daughters and sons (Lundberg, Pabilonia, and Ward-Batts 2017; Pabilonia 2017; Pabilonia and Vernon 2020). Mothers also tend to spend more time actively engaged with their children in educational activities (Caetano, Kinsler, and Teng 2019).

For girls, we find that living with a disabled parent is associated with less time spent on educational activities, including both class time and homework, less time spent on shopping, and more time spent on market work, pet care, and leisure. Boys living with a disabled parent spend less time sleeping. In addition, when examining the time spent by teenagers in two-parent

households, we find that the gender of the disabled parent matters. Girls living with a disabled mother in a two-parent household spend less time on educational activities and more time on market work and pet care. Girls living with a disabled father in a two-parent household only spend less time on food preparation and cleanup. Boys living with a disabled mother in a two-parent household spend more time on homework and less time on housework and caring for household children. However, if a father is disabled, boys spend more time on food preparation and cleanup. Boys living with a disabled father also spend less time with their mother. For those living in single-mother households, we find living with a disabled mother is associated with changes in teen girls' time use but not teen boys' time use. Teen girls spend less time in class and on homework and more time on leisure activities. Thus, there are differences in teens' time use that depend both on the gender of the teen and that of the disabled parent.

2. Related Literature on Parental Health Shocks

There is a large literature showing that parental health shocks lead to reduced educational outcomes for children, and some studies have found that the gender of the parent and the child matter in determining these outcomes. Using detailed longitudinal data from Denmark, Aaskoven, Kjaer, and Gyrd-Hansen (2020) find that the first onset of cancer negatively affects the likelihood that children will start and finish secondary education and suggest that the effects are driven by reduced parental time and emotional investments rather than negative income shocks. They find that the effects are stronger when the mother is the parent experiencing the health shock. In a longitudinal study of childhood poverty in Ethiopia, India, Peru, and Vietnam, Dhongde and Shemyakina (2018) find that parental health shocks reduce grade attainment, but they do not examine gender differences.

A few papers also report the effect of parental health shocks on children's time allocation in developing countries. Dinku, Fielding, and Genç (2018) show that Ethiopian children whose fathers experience a health shock spend less time in school, while Ethiopian children whose mothers experience a health shock spend less time playing and in market work but more time on household tasks. They also show that maternal health shocks affect daughters more than sons and that paternal health shocks affect sons more than daughters. Dillon (2012) shows that, in Mali, parental health shocks lead to an increase in children's time in household enterprises and child care for other siblings. Using longitudinal time-use data and fixed effects, Alam (2015) shows that, in Tanzania, a father's illness affects primary-to-middle-school-aged children's school attendance. This likely results from the inability of the family to pay for schooling when the primary breadwinner can no longer work. Using individual fixed effects, Bratti and Mendola (2014) find that, in Bosnia and Herzegovina, a mother's illness affects the school enrollment of teenagers and young adults.

3. Data and Descriptive Statistics

The ATUS is a time-use survey that draws its respondents from households that have completed their final Current Population Survey (CPS) interview. For a sub sample of these CPS households, one individual aged 15 and over per household is selected randomly for the ATUS. In addition to answering some survey questions that update information about the respondent provided in the CPS, one 24-hour time diary is collected that details how the respondent spent his or her time beginning at 4 a.m. on the day prior to the interview and ending at 4 a.m. on the day of the interview. Respondents are interviewed most days of the year, except for major holidays. Half are interviewed on weekdays while the other half are interviewed on weekend

days. We use ATUS final weights, reweighted separately for equal-day-of-the-week representation for our male and female teen samples, in all our analyses to provide nationally-representative estimates of time use on an average day.

For this study, we restrict the sample to unmarried teenagers aged 15–17 who lived with their parents, did not have their own children, and who were interviewed between 2003 and 2019.[1] In addition, because we are interested in examining the time that teenagers spend on school-related activities, we restrict the sample to school-year months (September–May). Our main independent variable is an indicator for whether a teenager lived with at least one parent who had a work-limiting disability that was reported to be so severe as to prevent the parent from doing any kind of work for the next six months. This indicator is created using variables from the ATUS-CPS file which contains information collected in the final CPS interview approximately two to five months prior (85 percent of ATUS interviews occurred within 3 months of the CPS).[2] Our ATUS sample includes 3,010 females and 3,286 males (see Appendix Table A1 for information about dropped observations), of which 142 females and 163 males lived with a parent who had a work-limiting disability (about 5 percent of teenagers aged 15–17).[3]

[1] STATA code to replicate the analyses in this paper are available at: https://doi.org/10.5281/zenodo.4793763 (Kalenkoski and Pabilonia 2021).
[2] Since June of 2008, the monthly CPS also has asked respondents whether they or other household members aged 15 and older have any type of disability, which could include any physical, mental, or emotional condition that impacts daily living, but the condition does not have to limit employment status. Approximately 6 percent of teenagers in our sample lived with a parent reporting any disability. For all teenagers who report a parental disability (either any type or a work-limiting disability), the two measures overlap for only 37 percent and measure different types and degrees of disability.
[3] Meyer and Mok (2019) find that by age 50, about 9 percent of male household heads in the U.S. have a chronic and severe disability.

For the time-diary portion of the interview, respondents report the start and stop time for their primary activities only (except for secondary child care of children under age 13), as well as where the activities took place and who was with them during the activity (for most activities). We examine teenagers' major time-use activities (school, work, household production, leisure, and sleep) as well as specific subcategories that may vary by parental disability status (class, homework, sports/extracurricular activities, housework, shopping, food preparation and cleanup, caring for household children, caring for or helping household adults, and pet care). Appendix Table A2 details which activities are grouped into the categories examined. We also look at the time that respondents spend with a parent, one measure of parental supervision. When at home, "with whom" information covers all persons in the same room as the respondent at the time of the activity, unless the activity is sleeping, grooming, private activities, refused to classify type, or can't remember.[4] It is possible that parents may be home and aware of their children's activities but are not directly involved in them, and thus this indirect supervision would not be captured in our measure. While away from home, "with whom" information covers all persons who accompanied the respondent during the activity. In an exploratory analysis, we also considered all time teenagers spend with younger siblings as a measure that they were helping to care for household children while doing another primary activity; however, we did not find any support for this hypothesis.

Table 1 presents the mean time spent in these activities on the average day for girls, by parental-disability status. We observe that girls living with a disabled parent spend about 73 minutes less on school and schooling-related activities on an average day than girls not living

[4] Before 2010, "with whom" information was also not asked during time when the respondent was working. For consistency, we exclude time "with whom" while working throughout.

with a disabled parent. This includes 27 minutes less in class (although this difference is not statistically significant at conventional levels), 36 minutes less doing homework, and 10 minutes less on sports and extracurricular activities. Table 2 presents the same descriptive statistics, but for teen boys. For boys, we find no statistically significant differences in mean time spent on school and schooling-related activities.

There are no differences in overall household production activities for either girls or boys by parental-disability status, but there are small, statistically significant differences in shopping and pet-care activities for girls. On the average day, girls who live with a disabled parent spend nine minutes less shopping and three minutes more in pet-care activities than girls who do not live with a disabled parent. These results suggest that teens living with disabled parents are not overburdened by housework or caregiving activities. Instead, they are spending more time on leisure activities than teens who do not live with a disabled parent. Boys and girls who live with a disabled parent spend about 34 and 39 minutes more, respectively, on leisure activities on the average day. There is no difference in the amount of time that they spend with a parent by parental-disability status.

In Table 3, we present descriptive statistics for our control variables, by parental-disability status. We observe several clear demographic differences between teenagers living in households with a disabled parent and those living in households without a disabled parent. For both boys and girls, those living with a disabled parent are more likely to be living with a single mother, less likely to live with a parent who has a bachelor's degree, and more likely to live in households with incomes less than $30,000 per year. Girls living with a disabled parent have fewer younger siblings and are less likely to live in a metropolitan area.

4. Econometric Analyses

4.1 Estimation Methods

To examine the relationship between parental disability and teenagers' time use, we estimate two regression models. Given the large number of zeroes for minutes spent in several activities (see column 1 in Tables 1 and 2) and because teens may not regularly participate in these activities, we estimate tobit models by maximum likelihood estimation rather than linear regression models by ordinary least squares (OLS) for those activities.[5] Outcomes in the tobit models include daily minutes spent on activities in the broad time-use categories of school and schooling-related activities, work and work-related activities, and household-production activities. Daily minutes spent in the various subcategories of school and schooling-related activities and household-production activities are examined in separate regressions as well. These models are specified as follows:

$$Y^* = \beta_0 + \beta_1 D + \beta_x X + \varepsilon, \quad (1)$$

$$Y = Y^* \text{ if } Y^* > 0,$$

$$Y = 0 \text{ if } Y^* \leq 0,$$

where Y^* is a latent variable for desired time use; Y is the observed time-use variable measured as daily minutes spent on an activity; D is an indicator variable equal to one if the teenager lives with a parent who has a work-limiting disability and zero otherwise; X is a vector of control variables, including the number of siblings under age 15, the number of siblings age 15–18, and

[5] If teens do an activity regularly but they do not do the activity on the one random day that they are surveyed, then OLS would be appropriate. This is because the zero is not a true zero; that is, they are true participators in the activity, but we do not observe them doing it. However, some teenagers are not enrolled in school, are not working, or do not regularly help around the house. These are true non-participation zeros and thus warrant the use of tobit models (Kalenkoski and Pabilonia 2012).

indicator variables for age, nonwhite, Hispanic ethnicity, single mother, single father, parent has a bachelor's degree, extra adult (older than age 18) in the household, household income ($30,000–74,999, >$75,000), lives in a metropolitan area, Census region, weekday, month, and year. β_0 is a constant. The coefficient β_1 and vector of coefficients, β_x, are to be estimated. The error term, ε, follows a normal distribution with mean 0 and variance σ^2. The subscripts indicating individual observations are suppressed.

Daily minutes spent sleeping, daily minutes spent in leisure activities, and daily minutes spent with a parent are examined in separate models. As all students regularly spend some time sleeping, in leisure, and with a parent, we estimate the following linear regression models by OLS for these activities:

$$Y = \gamma_0 + \gamma_1 D + \gamma_x X + \mu \quad (2)$$

where Y is daily minutes spent in each time-use activity and the other variables are defined as above. γ_0 is a constant. The coefficient γ_1 and vector of coefficients, γ_x, are to be estimated; μ is the error term with mean 0 and variance σ^2.

4.2 Results

Table 4 shows the estimated average marginal effects for the observed time-use outcomes from the tobit models and coefficients for the linear models. These show the relationships between parental-disability status and teens' time use, controlling for demographic and economic factors. Boys' time use is largely unrelated to living with a disabled parent with the exception that they spend 30 minutes less time sleeping than boys not living with a disabled parent. Girls living with a disabled parent, however, spend substantially less time in school and schooling-related activities on the average day (60 minutes less) compared to girls not living with a

disabled parent. They spend 19 minutes less doing homework and 34 minutes less in class. Girls with a disabled parent spend more time on work and work-related activities (16 minutes more) and doing pet care (3 minutes more) and less time shopping (8 minutes less) than girls without a disabled parent. Although girls are engaging in more market work and pet care, they also get more leisure than girls without a disabled parent (31 minutes more). The estimated negative relationship between homework time and parental disability and the estimated positive relationship between leisure and parental disability for teen girls are consistent with the hypothesis that children living with a disabled parent receive less supervision (or the disabled parent is more lenient) than children not living with a disabled parent, although we find no direct evidence that they spend less time with a parent.[6]

Table 5 shows the relationships between parental-disability status and teenager time use for the major time-use categories and homework on schooldays and non-schooldays separately. The relationships for schooldays appear to be stronger than for the average day for work and work-related activities for both boys and girls, for homework for girls, and for sleep for boys. This could be important if the timing of activities matters for educational outcomes. Sample sizes are reduced significantly when examining schooldays and non-schooldays separately, so we do not look at this breakdown when we look at two-parent households and single mothers separately.

[6] Using an alternative indicator of disability (a measure of disability that is activity limiting but not necessarily work limiting), we also find a negative relationship between girls' school and schooling-related activities and parental disability (though not as strong) and a positive relationship between girls' pet care activities and parental disability (see Appendix Table A3). In addition, we find that girls spend more time with their parents when at least one parent is disabled.

Tables 6 and 7 examine the time use of teenagers living in two-parent households to determine whether the gender of the disabled parent matters. Table 6 shows the results for girls and Table 7 shows the results for boys. For teen girls living in two-parent households, mother's disability status matters more for their time allocation than father's disability status. Girls spend 73 minutes less in school and schooling-related activities when they live with a disabled mother compared to girls that do not. Girls living with a disabled mother spend 21 minutes more on work and work-related activities than girls not living with a disabled mother. They also spend 7 minutes more on pet care if they live with a disabled mother. Girls living with a disabled father spend 7 minutes less on food preparation and cleanup.

Looking at the results in Table 7, we observe that, for the most part, mother's disability status also matters more than father's disability status for teen boys' time allocation. Boys living with a disabled mother spend 42 minutes more time on homework than boys not living with a disabled mother. They also spend 13 minutes less on housework and 31 minutes less caring for other household children. These results suggest that sons who live with a disabled mother are treated much differently in the household than daughters who live with a disabled mother (relative to not living with a disabled mother). Boys living with a disabled father spend about 6 minutes more in food preparation and cleanup than boys who do not, but almost an equal amount of time less in shopping (though the latter estimate is not statistically significant). Boys living with a disabled father also spend less time with their mothers (37 minutes less). One plausible explanation is that their mothers are busy caring for their husbands, because formal care is often

prohibitively expensive or not preferred (Lee 2020). Another plausible explanation is that their mothers are more likely to be employed or working longer hours to support the family.[7]

Finally, we also examine boys and girls in single-mother households (the sample of single fathers is too small to examine separately). We find that boys' time use is unrelated to mother's disability status, although the large and statistically significant negative relationship between sleep and parental disability for the full sample appears to be driven by boys living in single-mother households (Table 8).[8] On the other hand, girls living with a disabled single mother spend less time in class and on homework (70 minutes and 21 minutes, respectively) and more time on leisure activities (48 minutes) than girls living with non-disabled single mothers.

5. Conclusion

Using the 2003–2019 ATUS and linear and non-linear regression models, we examine the relationship between a parent's severe, work-limiting disability and teenagers' time allocation. We find that girls living with a disabled mother are at risk for poorer educational

[7] A labor-leisure model does not provide a clear prediction as to how household members' labor supply will respond to severe health shocks experienced by the family breadwinner (Muller, Levy, and Coate 1979). Nils (2014) finds that disability has no effect on German parents' labor market outcomes. Mussida and Sciulli (2019) find that women in Italy are less likely to be employed when living with a disabled partner, while women in France and the UK are more likely to be employed. Using long panels of administrative data on Danish families, Fadlon and Nielsen (forthcoming) find that spouses do not substantially alter their labor supply on average when their partners experience a severe but non-fatal health shock (specifically, a heart attack or stroke), but there is heterogeneity in the response to the shock, and their paper suggests that families to some extent use spousal labor supply to self-insure. Using the Panel Study of Income Dynamics and the ATUS, Meyer and Mok (2019) do not find that wives statistically significantly reduce their labor supply following a spousal disability. Using the Survey of Income and Program Participation, Anand, Dague, and Wagner (2021) find that the labor force participation of potential caregivers decreases after the onset of a spousal work-limiting disability.

[8] In results not shown, we find that male teenagers spend 11 minutes more time per average day watching TV while in the presence of younger siblings in single-mother households when the mother was disabled. This could indicate that they are filling in the gaps in child care.

outcomes, as they spend significantly less time on school and schooling-related activities than those not living with a disabled mother. On the other hand, we find that boys living with a disabled mother in a two-parent household spend more time on homework. The sizeable negative relationship between educational time and living with a disabled parent for girls, but not boys, in the full sample is consistent with Jajtner's (2020) finding that girls', but not boys', intergenerational economic mobility is affected negatively by parental disability.

For both teen girls and teen boys living in two-parent households, having a disabled mother matters more than having a disabled father for their time allocation. Girls spend less time on school and schooling-related activities when the disabled parent is the mother, while boys spend more time on homework when the disabled parent is a mother. Girls living with a disabled single mother also spend less time on their education compared to girls living with a non-disabled single mother.

In two-parent households, the impact of a parent's work-limiting disability also appears to reflect traditional gender norms within the family in the sense that daughters, but not sons, appear to be taking over the disabled mother's work. Daughters of disabled mothers spend more time on pet care and work and work-related activities. Sons, on the other hand, spend less time on housework and caring for household children when their mother has a work-limiting disability and, when their father has a work-limiting disability, they spend more time on food preparation and clean up. Thus, girls appear to be more negatively affected than boys when they have a disabled mother.

A limitation of the current study is that we cannot control for unobserved household heterogeneity in this cross-sectional analysis. However, unobserved parental characteristics may affect both a parent's health and a teen's activities. One example might be future orientation.

Parents who place less emphasis on the future may engage in risky behaviors that affect their future health. They also may convey to their children this lack of emphasis on the future, which might cause them to spend less time in educational activities. Future research in the U.S. could use panel-data techniques to control for this unobserved household heterogeneity if repeated observations were available on the same families. In addition, future research should explore how changes in teens' time allocation resulting from parental disability affect future educational outcomes.

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Table 1. Summary Statistics for Teens' Activities, by Parental Work-Limiting Disability Status (GIRLS)

Activity	% engage in activity	Minutes per Average Day: Parental Disability Mean	Minutes per Average Day: No Parental Disability Mean	Difference	p-value
School and schooling-related activities	75.5	239.809	312.713	-72.904	0.004
Class	56.1	188.086	214.777	-26.691	0.228
Homework	50.3	30.972	67.115	-36.143	0.000
Sports/Extracurricular activities	26.3	20.751	30.820	-10.069	0.054
Work and work-related activities	11.8	40.755	27.098	13.657	0.179
Household production	71.4	60.967	64.822	-3.855	0.590
Housework (cleaning, laundry, etc.)	22.5	16.948	14.974	1.974	0.566
Shopping	31.7	10.560	19.252	-8.692	0.007
Food preparation and cleanup	28.4	11.788	11.190	0.598	0.827
Caring for household children	10.3	4.323	4.662	-0.339	0.852
Caring/helping household adults	4.4	1.572	0.968	0.604	0.476
Pet care	9.7	6.464	3.261	3.203	0.093
Leisure	99.7	353.692	315.053	38.639	0.033
Sleep	100.0	580.416	556.035	24.381	0.138
Time with a parent	84.8	179.988	166.519	13.470	0.510
Time with mother	77.9	155.236	145.044	10.192	0.614
Time with father	53.4	74.240	79.511	-5.271	0.710
Number of observations	3,010	142	2,868		

Note: ATUS weights are used. P-values are for t-tests of differences between teens living with a disabled parent and those not living with a disabled parent. The sample includes unmarried teenagers aged 15–17 living with their parents. The sample has been restricted to school-year months.

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 2. Summary Statistics for Teens' Activities, by Parental Work-Limiting Disability Status (BOYS)

Activity	% engage in activity	Minutes per Average Day: Parental Disability Mean	Minutes per Average Day: No Parental Disability Mean	Difference	p-value
School and schooling-related activities	80.2	308.133	323.683	-15.550	0.573
Class	56.3	200.672	218.266	-17.594	0.377
Homework	43.3	44.813	48.518	-3.705	0.762
Sports/Extracurricular activities	41.0	62.647	56.898	5.749	0.562
Work and work-related activities	12.4	27.641	29.795	-2.153	0.798
Household production	57.9	40.393	39.562	0.831	0.886
Housework (cleaning, laundry, etc.)	12.5	8.007	6.973	1.034	0.708
Shopping	21.0	8.155	9.253	-1.098	0.581
Food preparation and cleanup	17.9	10.098	4.894	5.204	0.166
Caring for household children	6.1	1.275	2.161	-0.886	0.454
Caring/helping household adults	2.8	0.919	0.737	0.182	0.721
Pet care	7.0	2.379	2.156	0.223	0.785
Leisure	99.8	384.365	350.433	33.932	0.129
Sleep	99.9	554.046	568.400	-14.354	0.295
Time with a parent	79.8	116.787	130.401	-13.614	0.361
Time with mother	70.7	83.077	99.303	-16.227	0.214
Time with father	54.3	68.606	83.263	-14.657	0.233
Number of observations	3,286	163	3,123		

Note: ATUS weights are used. P-values are for t-tests of differences between teens living with a disabled parent and those not living with a disabled parent. The sample includes unmarried teenagers aged 15–17 living with their parents. The sample has been restricted to school-year months.

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 3. Summary Statistics for Control Variables, by Teen's Gender and Parental Work-Limiting Disability Status

	GIRLS				BOYS			
	Parental Disability	No Parental Disability			Parental Disability	No Parental Disability		
	Mean	Mean	Difference	p-value	Mean	Mean	Difference	p-value
Age 15	0.292	0.287	0.005	0.922	0.257	0.271	-0.013	0.769
Age 16	0.341	0.365	-0.024	0.634	0.360	0.371	-0.011	0.823
Age 17	0.367	0.348	0.019	0.733	0.383	0.359	0.024	0.605
White	0.738	0.786	-0.048	0.298	0.723	0.780	-0.056	0.224
Nonwhite	0.262	0.214	0.048	0.298	0.277	0.220	0.056	0.224
Hispanic	0.196	0.211	-0.015	0.767	0.273	0.231	0.042	0.355
Single mother	0.396	0.221	0.175	0.001	0.281	0.206	0.075	0.075
Single father	0.065	0.037	0.028	0.251	0.092	0.048	0.044	0.137
Two parents in household	0.540	0.742	-0.203	0.000	0.627	0.746	-0.119	0.011
Parent has bachelor's degree	0.172	0.447	-0.275	0.000	0.077	0.426	-0.349	0.000
Extra adult age 19+	0.333	0.343	-0.010	0.860	0.406	0.344	0.062	0.216
Number of siblings < age 15	0.522	0.846	-0.324	0.001	0.644	0.795	-0.150	0.173
Number of siblings age 15–18	0.352	0.294	0.058	0.331	0.265	0.284	-0.020	0.693
Income missing	0.073	0.070	0.004	0.884	0.156	0.075	0.081	0.019
Income < $30,000	0.548	0.180	0.368	0.000	0.453	0.186	0.267	0.000
Income $30,000–$74,999	0.352	0.377	-0.026	0.619	0.400	0.381	0.020	0.692
Income ≥ $75,000	0.088	0.417	-0.328	0.000	0.054	0.398	-0.344	0.000
Lives in metropolitan area	0.689	0.844	-0.154	0.004	0.778	0.831	-0.054	0.166
Census region (Northeast)	0.209	0.228	-0.019	0.659	0.248	0.229	0.020	0.650
Census region (South)	0.465	0.347	0.118	0.031	0.355	0.359	-0.004	0.929
Census region (West)	0.235	0.263	-0.027	0.581	0.188	0.249	-0.061	0.096
Weekday (non-holiday)	0.692	0.696	-0.004	0.921	0.680	0.698	-0.017	0.680
Number of observations	142	2,868			163	3,123		

Note: ATUS weights are used. P-values are for t-tests of differences between teens living with a disabled parent and those not living with a disabled parent. The sample includes unmarried teenagers aged 15–17 living with their parents. The sample has been restricted to school-year months (September–May). Month and year fixed effects are included as controls in regressions but not shown here.

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 4. The Relationship between Parental Work-Limiting Disability and Teen Time Spent on Activities in Minutes per Average Day, by Teen's Gender

	GIRLS (N = 3,010)		BOYS (N = 3,286)	
Dependent Variables	**Marginal Effect**	**Std. Error**	**Marginal Effect**	**Std. Error**
School and schooling-related activities	-59.531***	(22.347)	13.508	(24.267)
Class	-34.223*	(19.919)	-4.374	(16.039)
Homework	-19.045**	(8.165)	8.187	(9.143)
Sports/Extracurricular activities	-4.200	(7.248)	1.385	(9.820)
Work and work-related activities	15.812**	(7.264)	7.548	(8.192)
Household production	-2.158	(7.094)	-1.755	(5.002)
Housework (cleaning, laundry, etc.)	2.655	(3.130)	-1.289	(2.099)
Shopping	-7.752**	(3.944)	-1.406	(2.347)
Food preparation and cleanup	-2.581	(2.653)	2.690	(1.683)
Caring for household children	1.060	(2.205)	-1.307	(1.178)
Pet care	2.968**	(1.203)	1.050	(0.828)
Leisure	30.517*	(16.671)	20.554	(22.541)
Sleep	5.950	(15.344)	-29.529**	(12.426)
Time with a parent	8.553	(19.823)	-6.463	(14.701)

Notes: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, single mother, single father, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 5. The Relationship between Parental Work-Limiting Disability and Teen Time Spent on Activities in Minutes per Day, by Teen's Gender on Schooldays and Non-schooldays

		GIRLS			BOYS	
Dependent Variables	**N**	**Marginal Effect**	**Std. Error**	**N**	**Marginal Effect**	**Std. Error**
Panel A. Schooldays	1,452			1,558		
School and schooling-related activities		-87.245***	(33.852)		0.119	(36.127)
Homework		-24.232**	(10.460)		12.225	(13.000)
Work and work-related activities		19.438**	(8.304)		18.388**	(8.510)
Household production		7.366	(8.221)		-2.652	(5.549)
Leisure		32.960	(21.108)		42.065	(27.552)
Sleep		4.843	(20.153)		-42.563***	(16.140)
Time with a parent		19.080	(21.260)		-12.468	(14.728)
Panel B. Non-schooldays	1,558			1,728		
School and schooling-related activities		-21.204	(16.381)		20.907	(20.079)
Homework		-11.364	(12.445)		0.648	(10.125)
Work and work-related activities		6.228	(13.510)		-42.998***	(14.335)
Household production		-22.506*	(13.092)		2.585	(9.766)
Leisure		28.942	(25.537)		-21.860	(32.905)
Sleep		-10.813	(18.586)		8.716	(17.637)
Time with a parent		1.684	(38.577)		-0.924	(32.525)

Notes: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, single mother, single father, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 6. The Relationship between Parental Work-Limiting Disability and Teen Girl's Time Spent on Activities in Minutes per Average Day in Two-Parent Households, by Gender of Disabled Parent (N = 2,072)

	Mother disabled		**Father disabled**	
Dependent Variables	**Marginal Effect**	**Std. Error**	**Marginal Effect**	**Std. Error**
School and schooling-related activities	-72.867*	(43.601)	-18.487	(39.608)
Class	-39.714	(43.322)	11.320	(32.006)
Homework	-13.569	(14.740)	-14.958	(16.652)
Sports/Extracurricular activities	-26.272	(16.428)	-4.967	(12.151)
Work and work-related activities	21.261*	(11.130)	18.035	(11.633)
Household production	14.911	(13.110)	-10.927	(12.281)
Housework (cleaning, laundry, etc.)	8.039	(4.957)	-4.208	(6.392)
Shopping	-12.337	(8.105)	-11.133	(7.490)
Food preparation and cleanup	3.207	(4.353)	-7.373*	(4.357)
Caring for household children	3.163	(4.221)	0.110	(5.282)
Pet care	7.415***	(2.026)	2.273	(1.829)
Leisure	30.482	(36.192)	-0.703	(26.975)
Sleep	-32.008	(28.023)	5.508	(31.701)
Time with parent	0.579	(40.921)	-0.934	(34.932)
Time with mother	-25.163	(39.115)	7.375	(35.369)
Time with father	-6.440	(28.466)	32.437	(33.200)

Notes: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 7. The Relationship between Parental Work-Limiting Disability and Teen Boy's Time Spent on Activities in Minutes per Average Day in Two-Parent Households, by Parental Gender (N = 2,303)

	Mother disability		Father disability	
Dependent Variables	**Marginal Effect**	**Std. Error**	**Marginal Effect**	**Std. Error**
School and schooling-related activities	26.947	(54.927)	13.346	(35.319)
Class	-14.339	(32.827)	4.219	(21.966)
Homework	41.551*	(22.540)	-8.986	(12.233)
Sports/Extracurricular activities	-17.155	(17.366)	13.024	(14.802)
Work and work-related activities	15.868	(16.578)	6.504	(10.416)
Household production	-3.304	(7.896)	-1.602	(7.599)
Housework (cleaning, laundry, etc.)	-12.977***	(4.128)	1.161	(2.871)
Shopping	2.390	(4.409)	-5.912	(3.903)
Food preparation and cleanup	-1.394	(2.743)	5.753**	(2.592)
Caring for household children	-31.451***	(4.715)	-1.571	(2.351)
Pet care	1.964	(1.361)	0.676	(1.251)
Leisure	-13.578	(47.551)	-15.902	(30.407)
Sleep	-20.850	(28.539)	-7.458	(15.324)
Time with a parent	3.876	(33.671)	-25.036	(21.142)
Time with mother	5.791	(31.803)	-37.316**	(14.841)
Time with father	6.363	(30.368)	-9.106	(20.186)

Notes: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Table 8. The Relationship between Parental Work-Limiting Disability and Teen's Time Spent on Activities in Minutes per Average Day in Single Mother Households, by Teen's Gender

	GIRLS (N = 800)		BOYS (N = 786)	
Dependent Variables	**Marginal Effect**	**Std. Error**	**Marginal Effect**	**Std. Error**
School and schooling-related activities	-82.275**	(34.233)	-6.086	(30.484)
Class	-70.339**	(31.717)	-7.774	(25.974)
Homework	-20.968**	(9.402)	-4.500	(9.128)
Sports/Extracurricular activities	3.558	(8.127)	-13.209	(15.218)
Work and work-related activities	9.616	(13.639)	15.608	(12.325)
Household production	-4.339	(10.714)	2.255	(10.210)
Housework (cleaning, laundry, etc.)	2.526	(4.160)	2.870	(4.511)
Shopping	1.271	(5.467)	2.062	(3.156)
Food preparation and cleanup	-5.322	(4.645)	-0.062	(2.259)
Caring for household children	1.024	(1.404)	0.963	(1.350)
Pet care	-0.007	(1.557)	-	-
Leisure	47.798*	(24.425)	33.594	(30.530)
Sleep	21.230	(23.773)	-30.087	(20.843)
Time with a parent	12.108	(29.658)	21.589	(23.648)

Notes: ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. For boys, the pet care model would not converge. Significance levels* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)

Appendix

Table A.1 Sample Selection

Criteria	**N**
Teenagers aged 15–17	8,741
Drop if interviewed in June–August	6,650
Drop if not living with a parent	6,411
Drop if living with same-sex parents	6,405
Drop if married or living with partner	6,389
Drop if missing parent information (disability, etc.)	6,330
Drop if have children	6,296
Females	3,010
Males	3,286

Table A.2 Activity Codes Used for Time-Use Categories

Time-Use Category	**ATUS Activity Codes**
School and schooling-related activities	06: Education
	1301: Participating in sports, exercise, and recreation
	130301: Waiting related to playing sports or exercising
	130401: Security related to playing sports or exercising
Select subcategories:	
Class	0601: Taking class
Homework	0603: Research/Homework
Sports	1301: Participating in sports, exercise, and recreation
	130301: Waiting related to playing sports or exercising
	130401: Security related to playing sports or exercising
Extracurricular activities	0602: Extracurricular school activities (except sports)
Work and work-related activities	05: Work and work-related activities
Household production	02: Household activities (cleaning, laundry, etc.)
	03: Caring for and helping household members
	07: Consumer purchases
Select subcategories:	
Housework (cleaning, laundry)	0201: Housework
Shopping	07: Consumer purchases
Food preparation and cleanup	0202: Food and drink preparation, presentation, and clean-up
Caring for household children	0301: Caring for and helping household children
	0302: Activities related to household children's education
Caring/helping household adults	0304: Caring for household adults
	0305: Helping household adults
Pet care	0206: Animals and pets
Leisure	11: Eating and drinking
	12: Socializing, relaxing, and leisure
	1302: Attending sports/recreational events
	130302: Waiting related to attending sporting events
	130402: Security related to attending sporting events
	14: Religious and spiritual activities
	15: Volunteer activities
	160101: Telephone calls to/from family members
	160102: Telephone calls to/from friends, neighbors, or acquaintance
Sleep	0101: Sleeping

Source: ATUS Activity Lexicon 2003–2019 (Bureau of Labor Statistics 2020a)

Table A.3 The Relationship between Any Parental Disability and Teen Time Spent on Activities in Minutes per Average Day, by Teen's Gender

Dependent Variables	GIRLS (N = 1,637) Marginal Effect	GIRLS (N = 1,637) Std. Error	BOYS (N = 1,812) Marginal Effect	BOYS (N = 1,812) Std. Error
School and schooling-related activities	-42.638*	(22.920)	1.842	(22.396)
Class	-23.260	(18.746)	13.791	(16.658)
Homework	-0.087	(8.457)	-3.796	(7.852)
Sports/Extracurricular activities	-9.041	(6.870)	0.677	(9.856)
Work and work-related activities	12.257	(7.741)	-	-
Household production	9.555	(7.429)	8.132	(5.106)
Housework (cleaning, laundry, etc.)	0.548	(4.334)	2.062	(2.111)
Shopping	1.609	(5.110)	2.288	(2.091)
Food preparation and cleanup	2.005	(2.973)	1.215	(1.903)
Caring for household children	-0.812	(1.714)	0.029	(1.041)
Pet care	4.876***	(1.574)	0.759	(1.199)
Leisure	8.474	(20.019)	-6.582	(19.177)
Sleep	-1.124	(14.157)	-5.538	(15.002)
Time with a parent	42.002*	(21.737)	-9.183	(14.702)

Notes: These regressions use an alternative measure of disability introduced in the CPS in June 2008 (not necessarily work-limiting); data cover the period from 2008–2019. ATUS final weights reweighted separately for equal-day-of-the-week representation for our male and female teen samples are used. Robust standard errors are presented in parentheses. Control variables include number of siblings under age 15, number of siblings age 15–18 and indicators for age, nonwhite, Hispanic ethnicity, single mother, single father, parent has a bachelor's degree, extra adult age 19+, income ($30,000–$74,999, ≥$75,000, missing), lives in a MSA, Census region, weekday, month and year. For boys, the work model would not converge. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations based on the ATUS (Bureau of Labor Statistics 2003–2019)