Over-Scheduled or at Loose Ends? The Socioeconomic Correlates of American Adolescents' Time Use in 1977-78 and 2003-05

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Abstract

Adolescence is a period where time use can provide important developmental experiences that in turn affect an individual's ease of transition into adult roles. In this paper, time diary data on youth aged 15-17 gathered in 1977-78 and 2003-05 are used to create portraits of time use in middle adolescence with a focus on answering three questions. First, what does American adolescents' time use look like and to what extent has it changed over the past quarter century? Second, what roles do socio-economic factors (e.g., adolescent wage rates, household income, parents' education levels) play in adolescent time allocation and have these relationships changed over time? Finally, to what extent does the mix of leisure undertaken by today's adolescents reflect a choice set that favors positive developmental experiences?

Introduction

Adolescence is a period where time use can provide important developmental experiences that in turn affect an individual's ease of transition into adult roles. Experiences that promote challenge, concentration, and motivation are seen as developmentally enriching while those that involve repetitive activities with little challenge are seen as less advantageous (Larson 2001). Despite its potential importance, we know little about the overall patterns of American youth's time allocation choices and the factors that may influence them. In this paper, time diary data on youth aged 15-17 gathered in 1977-78 and 2003-05 are used to create portraits of time use in middle adolescence with a focus on answering three questions. First, what does American adolescents' time use look like and to what extent has it changed over the past quarter century? Second, what roles do socio-economic factors (e.g., adolescent wage rates, household income, parents' education levels) play in adolescent time allocation and have these relationships changed over time? Finally, to what extent does the mix of leisure undertaken by today's adolescents reflect a choice set that favors positive developmental experiences?

The Literature

Researchers focusing on American adolescents' time use lament the paucity of time that is spent doing homework (Campbell, Hombo and Mazzeo 2000; Zill, Nord and Loomis 1995). Others raise concerns about the level of adolescents' physical activity (Gordon-Larson, McMurray and Poplin 2000; Gordon-Larson, Nelson and Popkin 2004), the excessive amounts of time spent watching tv and playing computer games (Krosnick, Anand and Hartl 2003; Page and

Hammermeister 1996; Pate et al. 1996), and/or the gender stereotyping of housework time (Bryant and Zick 2006; Lawrence, Tasker and Babcock 1983; Zick and Allen 1996). Typically, such studies focus on one or two selected types of time use. To date, investigations of the full range of American adolescents' time have been confined to cross-sectional descriptive studies[1] (Raley 2006; Robinson and Godbey 1997).

Absent from the literature is a full accounting of American adolescent time use, how it has shifted across time, and what role, if any, economic factors may be playing in such shifts. Yet, there have been dramatic shifts in the economic environment faced by adolescents. Analyses of the March Supplement to the Current Population Survey presented in Table 1 show that hourly wage rates for both adolescent males and females have fallen in real terms over the 1977 to 2004 period. At the same time, median family income rose almost 12% in real terms from $44,452 in 1980 to $52,680 in 2003 (measured in 2003 dollars) (Bureau 2006). Simultaneously, the likelihood of employment for adolescent females and hours worked if employed for both adolescent males and females also dropped.[2] If paid employment consists primarily of repetitive, unchallenging tasks, then this may be a good thing from a developmental standpoint (Larson 2001). But, if increases in employment time squeeze out other repetitive,

[1]Multivariate analyses that make use of nationally representative data on a full range of activities in other countries have been undertaken in recent years. See Zuzanek and Mannell (2005) for a collection of such work. Zill Nord and Loomis (1995) examine changes over time in American adolescents' time use but they focus on only a selected subset of activities.

[2]The statistics presented in Table 1 mirror those reported by Herz and Kosanovich (2000). They found that approximately 44% of youth age 15-17 were employed in the summer of 1978 but this dropped to 35% by the summer of 1998. At the same time, the average hours worked per week by employed youth during the summer dropped from 27 to 24. Employment rates during the school year declined from 30 percent to 25% over this same period but hours worked per week during the school year held steady at about 17 hours per week.

unchallenging types of leisure, such as television viewing (Schoenhals, Tienda and Schneider 1998), then this shift away from paid employment may be reason for concern.

To what extent are adolescents' choices about paid employment time affected by wage rates and family income? If wage rates and family income are associated with adolescent paid employment time, are they also associated with time spent in school work, housework, organized activities, and leisure? And, have these relationships changed over the past quarter century?

The Data

Data from two unique time diary studies will be used to answer the above questions and provide new insights about American time use in middle adolescence.[3] The first is a 1977-78 time diary survey entitled, *Family Time Use Survey: An Eleven-State Urban/Rural Comparison* (FTUS). The eleven states include California, Connecticut, Louisiana, New York, North Carolina, Oklahoma, Oregon, Texas, Utah, Virginia, and Wisconsin. All families in this survey are two-parent, two-child families. These families are classified by age of youngest child (less than one year, one year, two to five years, six to eleven years, and twelve to seventeen years) and equal numbers of families have been sampled in each category. Interviews and time diaries have been gathered over all seven days of the week and all four seasons of the year. Two 24-hour time diaries are included on all family members age 6 and older (Sinclair and Lewis 2002; Walker 1983). In this paper, the time diaries of the 504 adolescents who are age 15-17 in 1977-78 will be analyzed.

[3] Time diaries are generally considered to be more valid and reliable measures of time (Bianchi, Robinson, and Milkie, 2006; Robinson, 1985) than are recall questions of the type used by Tepper (2001) and Zill, Nord, and Loomis (1995).

The second time diary data set is the 2003-2005 merged files of *The American Time Use Survey* (ATUS) (Statistics 2006). The ATUS is the first annual American time-diary survey conducted by the U.S. Bureau of Labor Statistics. Each year a sample is drawn from those households who have completed their final interview for the Current Population Survey. The ATUS respondent is randomly selected from among each household's members who are age 15 or older. Respondents are asked a series of questions that focus on household composition, employment status, etcetera. They are also asked to complete one 24-hour time diary. Half of the respondents complete a diary for a weekday and half of the respondents complete a diary for a weekend day. To make the ATUS sample comparable to the FTUS sample, the ATUS sample is restricted to respondents, age 15-17 living in two-parent, two-child households. The resulting sample size is 545 adolescents.

The FTUS diaries included 19 categories of time use. The ATUS diaries are much more detailed with over 400 diary activity codes. Harmonization of the two types of diaries is done by recoding all activities in both data sets to six common domains: personal care (e.g., sleeping, dressing, bathing, eating), housework (including care of other children), paid work, school work (time spent in the classroom and doing homework), organization time (e.g., scouts, church), and all residual leisure (e.g., television/video viewing, computer time unrelated to homework, hanging out with friends, talking on the phone).

Why focus on adolescents age 15-17? Conceptually, 15-17 is an interesting age range on which to focus because it represents a time when supervision of adolescent time begins to wane. Admittedly, it is a time when most adolescents are still enrolled in school and still living at home. Yet, it is also a time when adolescents begin to exercise greater control over their time use (e.g., they begin to drive, date, and/or often work for pay). Thus, it is an interesting age to focus

on from a developmental standpoint. On a practical level, the FTUS includes adolescents age 13-17 while the ATUS includes adolescents age 15-19. Thus, the overlap across the two surveys is ages 15-17.

Descriptive Results

Tables 2 and 3 contain mean minutes per day spent in the six activity categories for boys and girls for weekdays and weekends in both surveys. In 1977-78, on weekdays (Table 2), girls and boys both averaged approximately 10.5 hours of personal care, 5 hours of leisure, 4.5 hours of school work[4], a little more than 1 hour of housework, and less than half an hour in organizational activities. Boys averaged more than 2 hours of paid employment while girls averaged a little more than an hour of paid employment. By 2003-05, both adolescent boys and girls are spending significantly less time in paid employment and significantly more time in leisure activities. Other time use categories changed little.

For weekend days (Table 3), the shifts across time are more dramatic. In 1977-78, both adolescent boys and girls averaged roughly 12 hours per day in personal care, 6-7 hours per day engaged in leisure, 1.5 hours doing school work, more than an hour doing housework, about an hour doing organizational related activities, and 1.5 hours in paid employment. By 2003-05, average time spent in school work and in organizational activities both had declined by over 30 minutes per day for girls.[5] The time girls no longer spent in school work and organizational activities appears to have been spread fairly evenly across the other time use categories – with girls' personal care, housework, and leisure each increasing by 20-30 minutes per day (although none of these increases is statistically significant). Turning to boys in 2003-05, we see that there

[4] Recall that in both surveys diaries are gathered across all twelve months of the year. Thus, roughly one-fourth of the weekday observations are non-school days.

are statistically significant declines in both paid work and school work with paid work declining on average by about 30 minutes per day and school work declining by almost an hour per day. The time boys are no longer spending in paid work and school work appears to be redirected to leisure (increasing by more than an hour on average) and housework (increasing by about 20 minutes on average).

Table 4 presents a closer look at the activities that comprise the adolescents' leisure time in 2003-05.[6] The largest sub-category of leisure time for adolescent girls and boys on both weekdays and weekends is television/video viewing. On average, girls (boys) are spending over 1.8 (2.3) hours per day watching tv/videos on weekdays and these figures increase by roughly half an hour on weekends. Exercising or playing sports consumes the next most time for boys followed by time spent socializing/communicating. For girls, the order is reversed. Recall that developmentally enriching activities are those that are thought to promote challenge, concentration and motivation. Within the range of time-use categories in Table 4, those activities that are most likely to fall under of the heading of challenging, requiring concentration, and motivating are reading/writing for personal interest, exercising/playing sports, engaging in hobbies, and listening/playing music. Of these, only exercising/playing sports falls within the top three categories for adolescent boys and girls.

Multivariate Analysis Plan

To gain insights about the socio-economic correlates of American adolescents' time use and how their effects may have changed over time, the next step will be to undertake a

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[5] The decline in paid employment was more modest and does not meet conventional tests for statistical significance.

multivariate analysis. The first step in this analysis will be to use the CPS samples of adolescents age 15-17 to estimate hourly wage equations for 1977 and 2004 that correct for sample selection bias following the procedures developed by James Heckman (Heckman 1979). Independent variables in the wage equations will include gender, ethnicity, region of residence, rural/urban location, and year-specific age dummies. Coefficients from the 1977 equations will be used to generate predicted wage rates for all adolescents age 15-17 in the FTUS sample. Likewise, coefficients from the 2004 equations will be used to generate predicted wage rates for all adolescents age 15-17 in the ATUS sample.[7]

The second step will be to estimate six-equation systems of time use for the FTUS and ATUS samples using the six time-use categories identified in Tables 2 and 3. Independent variables in these equations will include socio-economic characteristics (e.g., the adolescent's predicted wage, family income, parents' education), demographic characteristics (e.g., the adolescent's gender, race/ethnicity, and birth order relative to the other child living at home), and structural factors that are known to influence time use (e.g., weekend/weekday, season, region of residence, urban/rural residence). In the case of the FTUS where respondents contributed two diaries, the estimation will adjust for the correlation across observations. Statistical tests will be undertaken to determine if the estimated coefficients differ across the FTUS and ATUS samples.

A final analysis will focus on the estimation of a system of time-use equations using the ATUS sample and the sub-categories of leisure presented in Table 4. Again, the focus will be on

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[6]Recall that the FTU survey does not provide sufficient detailed categories within its diaries to allow for such a breakdown of adolescent leisure activities in 1977-78.

[7]This wage imputation strategy has been used by the author in a previous ATUS-based analysis (Zick, Bryant, and Srisukhumbowornchai, 2006).

assessing the role that soci-economic characteristics play in adolescent time use holding demographic and structural factors constant.

Table 1. Descriptive Information on Paid Work for Adolescents age 15-17.

	Females		**Males**	
	1977	2004	1977	2004
Percent Working for Pay	46.3%	39.4%	36.4%	37.7%
Mean Hours Worked per Week for Those Employed	22.3	20.0	26.6	22.7
Mean Hourly Wage Rate for Those Employed	$9.48*	$7.85	$10.37*	$9.93
N	4,261	2,196	4,454	2,239

Source: Author's computations from the Annual Social and Economic Supplement to the Current Population Survey.

*Adjusted to 2004 dollars using the Social Security Administration's Average Wage Indexing Series.

Table 2. Mean Minutes per Day Spent by Adolescents Age 15-17 in Various Activities on Weekdays, 1977-78 and 2003-05

	1977-78	**2003-05**	**t-test**
Girls			
Personal Care	669	645	-1.7*
Housework	85	82	-.25
Paid Work	85	43	-2.3**
School Work	281	296	.82
Organization	24	27	-.38
Leisure	296	346	1.8*
Boys			
Personal Care	650	633	1.49
Housework	61	43	1.03
Paid Work	142	52	-5.33**
School Work	269	296	1.01
Organization	17	11	-1.46
Leisure	301	403	4.77**

Source: Author's computations from the ATUS and the FTUS.

Table 3. Mean Minutes per Day Spent by Adolescents Age 15-17 in Various Activities on Weekends, 1977-78 and 2003-05

	1977-78	**2003-05**	**t-test**
Girls			
Personal Care	706	746	1.56
Housework	105	128	1.48
Paid Work	91	73	-1.52
School Work	97	59	-2.0**
Organization	78	40	-2.5**
Leisure	364	391	1.39
Boys			
Personal Care	701	725	.87
Housework	76	95	1.65*
Paid Work	95	62	-2.39**
School Work	102	37	-3.68**
Organization	54	38	-1.35
Leisure	411	480	2.36**

Source: Author's computations from the ATUS and the FTUS.

Table 4. Means for Sub-Categories of Adolescent Leisure Time in 2003-05

Leisure Activities	**Weekdays**		**Weekends**	
	Girls	**Boys**	**Girls**	**Boys**
Watching TV/Videos	109	139	148	162
Using the Computer for Leisure	24	20	23	20
Reading/Writing for Personal Interest	12	11	9	5
Exercising/Playing Sports	36	56	37	65
Attending Sporting/Recreational Events	20	14	15	21
Talking on the Telephone	25	15	14	6
Socializing and Communicating	46	51	59	56
Working on Hobbies	6	2	0	0
Listening to or Playing Music	5	12	7	7
Attending Arts/Entertainment Events (including movies)	6	2	23	18
Residual Leisure*	48	82	78	123

Source: Author's computations from the ATUS.

*Residual leisure consists of attending/hosting social events, thinking, relaxing, using tobacco/drugs, playing games, and waiting or travel associated with all leisure activities.

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