

# Do families vacation more in the summer when school starts after Labor Day?

**A STUDY COMPARING ACTUAL TRAVEL PATTERNS IN FIVE STATES**

Elton Mykerezi, Assistant Professor, Department of Applied Economics, University of Minnesota  
Genti Kostandini, Assistant Professor, Department of Agriculture and Applied Economics, University of Georgia



Tourism Center

UNIVERSITY OF MINNESOTA

A collaboration of the College of Food, Agricultural and Natural Resource Sciences and University of Minnesota Extension Service



# Do families vacation more in the summer when school starts after Labor Day?

A STUDY COMPARING ACTUAL TRAVEL PATTERNS IN FIVE STATES

**July 23, 2012**

Elton Mykerezzi, Assistant Professor, Department of Applied Economics, University of Minnesota

Genti Kostandini, Assistant Professor, Department of Agriculture and Applied Economics, University of Georgia

**Editors:**

Joyce Hoelting, University of Minnesota Extension Center for Community Vitality

Ingrid Schneider, University of Minnesota Tourism Center

**This study was sponsored by the University of Minnesota Tourism Center, with funds from the Carlson Chair for Travel, Tourism and Hospitality.**



A collaboration of the College of Food, Agricultural and Natural Resource Sciences and University of Minnesota Extension Service

© 2012 Regents of the University of Minnesota. All rights reserved. University of Minnesota Extension is an equal opportunity educator and employer. In accordance with the Americans with Disabilities Act, this material is available in alternative formats upon request. Direct requests to the Extension Store at 800-876-8636. ♻️ Printed on recycled and recyclable paper with at least 10 percent postconsumer waste material.

# Table of Contents

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>DO FAMILIES VACATION MORE IN THE SUMMER WHEN SCHOOL STARTS AFTER LABOR DAY</b>	<b>2</b>
<b>Current State Policies and School Start Dates</b>	<b>3</b>
<b>Testing the Assumption</b>	<b>4</b>
<b>Study Data</b>	<b>4</b>
<b>Methods</b>	<b>5</b>
<b>Results</b>	<b>7</b>
<b>CONCLUSIONS</b>	<b>7</b>
<b>REFERENCES</b>	<b>9</b>
<b>TABLES</b>	<b>10</b>

## EXECUTIVE SUMMARY

Community interests often collide when it comes to school start dates. Stakeholders interested in educational outcomes, family leisure time, and economic development each make cases about the effects of school start dates. Most debate on the issue settles on whether schools should start before or after Labor Day.

States have struggled to accommodate these competing interests, instituting post-Labor Day start mandates, repealing and reinstituting those mandates, or creating mandates but monitoring waivers.

Arguments against pre-Labor Day starts assert that families travel less when school starts earlier. However, to date no empirical evidence documents the actual number of trips that families take in both circumstances.

This study provides information about actual travel pattern differences using data on family leisure travel available from the American Time Use Survey (ATUS) – a national study sponsored by the Bureau of Labor Statistics and conducted by the US Census Bureau. The ATUS is the nation’s largest effort to document how those in the U.S. spend their time. Because it is impossible to create a random treatment and control group to learn about travel patterns (school schedules cannot be randomized), ATUS data is a useful substitute. This study uses a quasi-experimental method that taps ATUS data in five states that have a mandate regulating when schools start, and examines differences in family travel across each of five years from 2005 to 2010. Due to state mandates and the variation in the date Labor Day lands each year, some states start school before Labor Day in some years and after in others. This variation creates an opportunity to compare family travel under each situation.

The study also takes the opportunity to compare the travel of families with children to that of others in the same state and calendar

year to verify whether families constrained by pre-Labor Day starts act differently than families that are not.

This study finds that:

(a) the post-Labor Day school start increases the likelihood that families report at least one trip of two or more nights away from home in the month of August or September by 50%.

(b) The likelihood of reporting such a trip in any month between (and including) May and September is 30% higher as a result of schools starting after Labor Day. This may reflect families planning ahead when they know that they won’t have the opportunity to travel in late summer. The overall effect on the number of trips still remains substantial.

(c) This effect is completely absent in families without children that have statistically identical demographic (e.g. race, ethnicity, age, overall household size, urban status, etc.) and economic (e.g. income, education, home ownership, etc.) characteristics and live in the same states in the same calendar year.



## DO FAMILIES VACATION MORE IN THE SUMMER WHEN SCHOOL STARTS AFTER LABOR DAY?

Schools in the U.S. have traditionally started their academic year after Labor Day. During the 1940s and 50s, starting school in August was impractical because of high temperatures so it became natural to start school in September after Labor Day (Good, 2011). Recently, an increasing number of districts in the U.S. have been starting in mid or even early August (e.g. Denver, Colorado and Cleveland, Ohio among others). In fact, according to a survey from Market Data Retrieval, 75 percent of students in the U.S. head back before Labor Day week (Good News Magazine 2011).

School district incentives to start school early may have become stronger in recent years due to the increasing importance of standardized test scores since the No Child Left Behind Act was passed in 2001. As a result, there is now a perennial debate about whether state government should regulate when school starts. School districts cite a number of reasons to start early, including a need for flexibility for teacher training and the need for instructional time to prepare students for mandatory standardized test dates (including both state assessments and college prep tests such as SAT and ACT (personal communication, 2012).

Proponents of a mandatory post-Labor Day start argue that longer school years negatively affect family time<sup>1</sup> and the tourism economy, noting that post-Labor Day starts lead to more family summer vacation time and more predictable annual demand patterns.

In response, some states have given school start dates considerable policy attention. As of the summer of 2012, 12 states regulated school starts or enacted mandates that require schools to begin after Labor Day for at least

---

<sup>1</sup> e.g. "Texans for a traditional school year", "Summer is for Families (Arizona)"

part of the past decade. Most states with mandates implemented them after 2000 and some states have repealed existing mandates (e.g. West Virginia). Groups in other states (e.g. Minnesota, Virginia) have made attempts to repeal an existing mandate with no success.



From the perspective of the tourism industry, school year start date is a public policy "bottom line" issue for several reasons. First, the hospitality industry has made significant investments in infrastructure to supply summer tourism opportunities to families who are a willing market for these opportunities. School schedules can constrain that economic activity, creating an inefficient distortion in this particular market.

Second, the hospitality and tourism industry is characterized by substantial fixed and semi-fixed costs, relative to their variable costs (e.g. Harris, 1995). Tourism industry leaders contend that having a predictable yearly schedule such as the one created by a mandated post-Labor Day start improves their efficiency. There are obvious fixed costs in buildings and infrastructure, and the industry faces high constraints in hiring and negotiating with suppliers, especially when resorts are not located near heavily populated areas. Many resorts have to contract labor seasonally and

provide room and board for workers. Unpredictable schedules make it more difficult for remote establishments to plan their use of labor and perishables (mostly food), inducing additional risk and reducing efficiency in the hospitality industry (personal communication, 2012). These barriers to efficiency are likely to affect not only the profits of many small to medium size businesses, but may also reduce consumer welfare if shifts result in higher prices or lower quality of service.

These are all valid arguments for the position that a consistent and predictable post-Labor Day school year start may generate social and economic gains. However, each of these arguments rests on one premise – that families travel more when school starts after Labor Day.

### **Current State Policies and School Start Dates**

Several states have mandates that do not allow schools to start classes before Labor Day. Minnesota has such a mandate, although several attempts have been made to repeal it. Recent proposals include a Minnesota House committee bill that would give schools the discretion to start classes before Labor Day (Collins, 2009). Individual schools have sometimes obtained waivers from the Minnesota mandate (e.g. Southwest Minnesota districts starting in 2010). Similarly, Virginia and Michigan mandate a post Labor Day start. In Virginia, several unsuccessful attempts have been made to repeal the law (known as The King's Dominion Mandate). The most recent attempt in 2012 failed (Huffington Post, 2012). Virginia also issues waivers from the mandate to school districts, mostly to compensate for days lost due to inclement weather conditions. Michigan signed a law to mandate post-Labor Day starts in 2005, and implemented it in the 2006-2007 school year. It was a provision sought mainly by tourism interests and the agricultural industry (The Associated Press, 2009).

Iowa has had a mandate requiring that schools start no earlier than the Monday of the week that includes September 1. However, the

State grants exceptions rather generously. Most districts get a waiver from the Department of Education to start in mid-August (Gazette, 2012). All that is required for districts in Iowa to receive the exemption is a school board vote before July 1 on the school year for which the waiver is requested. Waivers, however, have to be issued every year so the mandate may still present a barrier for districts not willing to go through administrative hurdles. In April of 2012, a bill passed in the Iowa Senate that, if passed by the house, will remove the waiver process and set a school start date of no earlier than the fourth Monday in August (Noble, 2012). The earliest start date allowed by the mandate (absent any waivers) will in most years be before Labor Day, but when Labor Day is very early in September the mandate would require a post Labor Day start.

Wisconsin requires that schools start no earlier than September 1 and issues very few waivers from the mandate. The actual start date in Wisconsin can vary between September 1 and 5 when September 1 falls on a weekend. In years when the Labor Day weekend happens to be early in September the overwhelming majority of schools in Wisconsin start after Labor Day, while in years when Labor Day is towards the end of the first week in September Wisconsin school start before Labor Day.



Several other states also mandate start dates. For example, since the early 2000s, North Carolina has required that schools start no

earlier than August 25. Arkansas requires that schools start no earlier than August 19 (18 if it is a Monday). West Virginia mandated a starting date of no earlier than August 26, until the mandate was repealed in June 2010 (Corio, 2010).

States that have made relatively recent changes in school start date policy include Texas, South Carolina, Florida and Alabama. Texas had a mandate requiring that schools start no earlier than the third Monday of August (implemented in the 1990s) but it allowed many waivers. In 2006, new legislation was enacted to set the earliest possible starting date on the fourth Monday of August and restricted the reasons under which waivers could be issued. South Carolina adopted legislation requiring that schools start no earlier than the third Monday of August beginning in the 2007-2008 school year. Florida enacted a mandate that sets 14 days before Labor Day as the earliest possible starting point for the school year beginning with the 2007-2008 school year. Finally, Alabama implemented a mandate requiring that schools start no sooner than August 20 beginning in the 2012-2013 school year.

### Testing the Assumption

The premise that families travel more with post-Labor Day starts is difficult to test, and the authors found no studies that tested the assumption rigorously. The inherent difficulty in providing a reliable estimate of how the traditional school schedule affects families rests in the lack of experimental data. If families could be randomly assigned to school schedules, their travels could be compared reliably. In reality, school schedules are affected by district or state level policies that may, in part, reflect the travel preferences of their constituents. This makes it difficult to estimate the causal effect of school schedules on travel.

A few studies have attempted to quantify the effects that a post Labor Day

school start would have on travel, and subsequently on the hospitality and tourism industry (e.g. TrippUmbach, 2006). However, these studies rely on hypothetical questions to families that do not live in areas with a pre-Labor Day school schedule asking what effect a post Labor Day start *might have* on their travel should it be implemented. Hypothetical questions may suffer from a number of well-documented biases (Murphy and Stevens, 2004). A second drawback in these studies rests in the fact that some studies only cover the period surrounding the Labor Day week. This study timing does not account for the possibility that families can take more trips earlier in the summer if the week before Labor Day is not available to them.



### Study Data

To better test the premise that pre-Labor Day starts affect family travel, this study used data from the 2005-2010 rounds of the American Time Use Survey (ATUS). The ATUS data is a strong fit for this study because respondents provide information on household travels, demographic and economic characteristics and state of residence. The ATUS is the most substantial effort to collect time diary data on U.S. households, with over 125,000 interviews conducted over its life span (2001-2010). ATUS interviewers collect data via telephone calls. The questionnaire is intended



to collect information on how and with whom respondents spent their days.

In 2005, a “trips” supplement was added to the ATUS that asked respondents whether they had been away from home for two nights or more over the month preceding the ATUS interview.<sup>2</sup> The trips supplement is equipped for studying the effects of a post Labor Day mandate on leisure travel for several reasons. First, monthly data are available, making it possible to examine travel behavior near Labor Day as well as for broader time periods. Second, even though detailed travel data were not collected, the purpose for the reported trip(s) was, making it possible to isolate leisure trips. Third, ATUS is administered to respondents who are already sampled in the Current Population Survey (CPS) which is the primary source of labor force statistics in the United States. The study took advantage of available data on family size and composition, demographic information, location of residence (state and MSA), economic circumstances and human capital that are available from the CPS about ATUS respondents. This assures that reliable demographic information is available so that similar families can be compared, as well as to discover if travel patterns of otherwise similar families with and without children respond to school start dates differently.

This study used data from all households that were interviewed at some point between June and October (therefore, asking whether any trips were taken between May and September) and that were located in states with either a mandate to always start school after

<sup>2</sup> This supplement (ATUS-Trips) was not primarily intended to collect detailed information on travel, but to adjust the regular ATUS interviews for bias. The ATUS conducts the survey by calling people at their residence. Because individuals/households involved in more travel are far less likely to be available at home for interviews, the ATUS would under-represent frequent travelers. Data from ATUS-Trips are used to adjust for such bias.

Labor Day, or another mandate that could potentially cause a Post Labor day start in some years. These states include Minnesota, Virginia, Michigan, Iowa and Wisconsin.

YEAR	POST-LABOR DAY STARTS	PRE-LABOR DAY STARTS
2005	MN, VA	MI, IA, WI
2006	MN, VA, MI	IA, WI
2007	MN, VA, MI, WI	IA
2008	MN, VA, MI, WI, IA	---
2009	MN, VA, MI	IA, WI
2010	MN, VA, MI	IA, WI

Years and states studied

Data on each state’s policy were collected from various formal (government) and public media publications (Table 1). Additionally, data on actual school starts by county for several states were collected from their respective departments of education.

Descriptive statistics on study variables as well as sample sizes are presented in table 2.

## Methods

First, the earliest date that each state’s policy would allow schools to start in each year between 2005 and 2010 was determined based on the policy language. For example, Minnesota and Virginia always start after Labor Day, so they are assumed to have started on September 6 in 2005, September 5 in 2006, September 4 in 2007, etc. As noted, in 2005, Michigan had no mandate, but joined the same schedule as Minnesota and Virginia starting with the 2006-07 school year.

A thorough search was then conducted to obtain data on actual school starts by district in each state for each year to verify that actual starts were complying with the implied start dates of the policy. The overwhelming majority of districts (with the exception of waived districts in Iowa, Virginia, Minnesota and very

few in Wisconsin) did appear to comply with the policy. Further, policies typically set earliest start dates possible but rarely regulate the latest start date. This implies that districts may choose to start later than the policy date. If a substantial number of districts did so, the policy would be non-binding and the effect of treatment weakened. The authors verified that most districts, while compliant, do start on the earliest date allowed or very close to it.

The impact of a pre-Labor Day start was then examined in a multivariate regression framework. The basic challenge that this evaluation tackles can be viewed as one of estimating household travels in “two hypothetical parallel universes” – one where all schools start after Labor Day and one where they start before. Theoretically, the interest lies in the differences between travel patterns of each individual family under a post Labor Day start, relative to what they themselves would have done if their district did not start after Labor Day. The problem is that only one of these conditions is empirically observable for each household -- either their behavior under a post Labor Day or a pre Labor Day start (depending on the state and year). It is not possible to observe the same household in both the actual and counterfactual scenario.

This study defines parents facing a pre-Labor Day start as “the treatment group”, while the control group is drawn from parents facing a post-Labor Day school start.<sup>3</sup> Ideally, these treatment and control groups would differ from each other *only* by the fact that they were exposed to a different school start schedule, and should be otherwise statistically identical. Of course, true randomization (of households into school regimes) can produce such treatment and control groups because the two groups would be statistically identical by virtue of randomization.

---

<sup>3</sup> The group of parents labeled as “the treatment” as opposed to “the control” is somewhat arbitrary in this setting. Assigning the pre-Labor Day start parents as the “treatment” and post as “the control” was favored because most households in the data are persistently in post Labor-Day settings, while some switch between settings by year. Assigning the larger steady group as the control maximizes statistical power.

Absent the ability to conduct such an experiment, empirical methods are adopted that mimic this scenario as closely as possible. The concern of policy evaluation with non-experimental data is that there may be factors that are correlated with the adoption of a certain policy, such as a school start mandate, that are also independently correlated with the outcome of interest (i.e. travel in this case).

The study addressed this by holding constant anything that is unique about each state, and anything that is unique about each year in the analysis. And so, there was a 2008 and 2009 control, and these capture the average effect that 2008 conditions and 2009 conditions had on all families. (e.g., economic downturns) Then the model isolates changes in travel behavior that can be uniquely attributed to instances when families are exposed to pre-Labor Day or post-Labor Day starts – either because the rule changed (for example, in Michigan) or because the earliest possible start date happened to be before or after Labor Day that year.

The model examines differences within states by year. In years when Wisconsin goes from a post Labor Day start to another post Labor Day Start, it is expected to behave exactly like Minnesota because Minnesota always goes from post-Labor Day to other post Labor Day starts; while in years when Wisconsin transitions from a post-Labor Day to a pre-Labor Day start, its growth in travel should fall short of that in Minnesota. The model checks all such possible transitions across states and years and finds meaningful comparisons.

Finally, the survey has data on both households with children and those without. School start dates are expected to have their primary effect on households with children; households without school-aged children should largely remain unaffected.<sup>4</sup> Therefore,

---

<sup>4</sup> Theoretically, the possibility for “spillover” effects exists, but it is suspected to be highly unlikely. These effects could be positive, if families without children make vacation plans jointly with families with children (e.g. Grandparents). Alternatively, vacationing may become more pleasant to households without children after school starts due to congestion.

the study estimates the same specifications as above only for households with no children. This approach adds confidence because it identifies the effect based on data from within the same state and year. The approach has been referred to as a “placebo test” (Tuddle & Beaty 2012), a “difference in differences in differences” or “triple diffs” (Angrist & Pishke 2008).

If respondents report they took any trips for leisure, their case is set equal to one. If they do not, they are set as a zero. Attention was first restricted to the two months around Labor Day (August and September) then expanded to interviews that were collected in the months of May to September. Models appropriate for binary outcomes (logistic regressions) were used. Standard errors are clustered at the state level.

## Results

Among households interviewed in the months of August or September, 21 percent reported at least one trip of two nights or more in duration, while among households interviewed in the months of May to September, 24 percent reported at least one trip of two nights or more in duration in the month (Table 2).

Table 3 presents estimates of the effect of pre-Labor Day start on travel during the month of August or September for households with children. Model 1 presents a cross-sectional model with only year-fixed effects held constant; model 2 adds state fixed effects, model 3 only uses individual controls (no state fixed effects) and model 4 adds both controls and fixed effects. Marginal effects associated with logistic regressions are presented so that each estimate can be interpreted as a percentage point change from the population mean.

All four models show a negative and statistically significant impact of an early start on the incidence of trips taken in the months of August or September (row one of the tables). The estimates are very robust to the

specification used and range from 10 to 13 percentage points. This marks between a 50 and 60 percent reduction in travel likelihood relative to the sample average.

Results on the incidence of a trip for those interviewed between May and September are presented in table 4. These estimates are important because they fully take into account trips that may have been scheduled earlier in the summer because of prior knowledge of the calendar. If households are able to shift time around with ease, it is entirely possible for all trips that were foregone in August or September (documented in table 3) to have been taken early in the summer.

Indeed, estimates imply that there was some substitution from late summer to early summer in early start state-years. The estimated effect is still negative and statistically significant, but smaller in size (between 6.7 and 8.0 percentage points). This marks nearly a 30-33% reduction in travel likelihood from the sample average.

Tables 5 and 6 repeat the exercise for households with no children. The association between an early start and travel in families with no kids is zero, further validating the impact of the school start on travel among families with children.

## CONCLUSIONS

This study used ATUS (American Time Use Survey) data from five states with mandates that require schools to start after Labor Day in at least some years, along with secondary data also from the American Time Use Survey, to estimate the effect that a post Labor Day school start has on household leisure travel. This is the first study to compare actual family travel when their children’s schools started before Labor Day to that of similar families whose children’s school started after Labor Day. Variation in when schools started came either as a result of policy changes or because Labor Day coincided with different dates during each year in the study period, therefore this variation was quasi-random.

Among households interviewed in the months of August or September, 21 percent reported at least one trip, while among households interviewed in the months of May to September, 24 percent reported at least one trip in the month of the interview. The study presents strong evidence of a 10 percentage point treatment effect (equal to 50% of the sample mean) of a post Labor day start for travels taken during the months of August or September. In other words, families whose children's school started after Labor Day were 10 percentage points more likely to take a trip during the interview month than were other observationally identical families.

For Minnesota, this implies that if a mandate requiring schools to start after Labor Day were waived and districts chose to start before Labor Day, the share of households taking a leisure trip during the months of August or September would likely be cut in half. But not all of these trips would be cancelled; some would be transferred to earlier in the summer. The estimated effect of a pre-Labor Day start on the monthly probability of taking a trip for families with children interviewed in any month between and including May-September is smaller, at about 7-8 percentage points (amounting to nearly 30 percent of the sample mean).

All in all, if Minnesota were to switch to a pre-Labor Day start, the number of families taking a trip in any given summer month would drop by one third, and one in five households<sup>5</sup> with a preference for late summer travel would re-schedule it for earlier in the summer. Better knowledge about the potential impact can be weighed against all interests in this issue as school districts and policy makers at the state level weigh options.

---

<sup>5</sup> The effect on August and-September travel is 50% (1 in 2 families). The effect on the overall summer is 30% (one in three families). The difference (20%) indicates that one in five households re-scheduled their trips.

## REFERENCES

- The Associated Press. (2009, December 2). School start date could change under Michigan plan. MLive. Retrieved from [http://www.mlive.com/news/index.ssf/2009/12/school\\_start\\_date\\_could\\_change.html](http://www.mlive.com/news/index.ssf/2009/12/school_start_date_could_change.html)
- Collins, B. (2009, March 9). The Labor Day standard. Minnesota Public Radio. Retrieved from [http://minnesota.publicradio.org/collections/special/columns/news\\_cut/archive/2009/03/when\\_should\\_school\\_in\\_minnesot.shtml](http://minnesota.publicradio.org/collections/special/columns/news_cut/archive/2009/03/when_should_school_in_minnesot.shtml)
- Corio, E. (2010, June 20). New law allows WV schools to start sooner. West Virginia Public Broadcasting. Retrieved from <http://www.wvpubcast.org/newsarticle.aspx?id=15238>
- Dwyer, L. (2011, September 6). Why the day after Labor Day no longer means the first day of school. Good Education. Retrieved from <http://www.good.is/post/back-to-school-the-myth-of-the-post-labor-day-start/>
- Later school start date bill unlikely to reach Iowa Senate this session. (2012, April 13). The Gazette. Retrieved from <http://thegazette.com/2012/04/13/later-school-start-date-bill-unlikely-to-reach-iowa-senate-this-session/>
- Garmiene, A., Zemaitiene, N., & Zaborskis, A. (2006). Family time, parental behaviour model and the initiation of smoking and alcohol use by ten-year-old children: An epidemiological study in Kaunas, Lithuania. *BMC Public Health*, 6, 287
- Good News Magazine. 2011. "Why the Day After Labor Day No Longer Means the First Day of School." Good News Magazine, September 6. Retrieved from World Wide Web 07 15 2012. <http://www.good.is/post/back-to-school-the-myth-of-the-post-labor-day-start/>
- Granado Alcon, M. C., & Pedersen, J. M. (2001). Family as a child development context and smoking behaviour among schoolchildren in Greenland. *International Journal of Circumpolar Health*, 60, 52-63.
- Harris, P. J. (Ed). (1995). Accounting and finance for the international hospitality industry. Oxford, UK: Butterworth-Heinemann.
- Hochschild, A. R. (2000). The time bind: When work becomes home and home becomes work. New York: Henry Holt and Company, LLC.
- Virginia 'Kings Dominion Law' repeal rejected: Schools still start after Labor Day to support tourism. (2012, July 1). Huffington Post. Retrieved from [http://www.huffingtonpost.com/2012/01/30/virginia-kings-dominion-l\\_n\\_1241726.html](http://www.huffingtonpost.com/2012/01/30/virginia-kings-dominion-l_n_1241726.html)
- Murphy, J. J., & Stevens, T. H. (2004). Contingent evaluation, hypothetical bias, and experimental economics. *Agricultural and Resource Economics Review*, 332, 182-192.
- Noble, J. (2012, April 10). Bill setting late-August school start date passes Iowa House; heads to Senate. Des Moines Register. Retrieved from <http://blogs.desmoinesregister.com/dmr/index.php/2012/04/10/bill-setting-late-august-school-start-date-passes-iowa-house-heads-to-senate/>
- Roggman, L. A., Moe, S. T., Hart, A. D., & Forthun, L. F. (1994). Family leisure and social support: Relations with parenting stress and psychological well-being in head start parents. *Early Childhood Research Quarterly*, 9(3), 463-480.
- Schor, J. B. (1991). The overworked American: The unexpected decline of leisure. New York: BasicBooks.
- Sweeting, H., & West, P. (1995). Family life and health in adolescence: A role for culture in the health inequalities debate? *Social Science & Medicine*, 40(2), 163-175.
- TrippUmbach consulting. (2006, September). The cost to Pennsylvania's economy resulting from school starting before Labor Day: Report to Pennsylvania's Legislative Budget and Finance Committee. Pittsburgh, PA: Author.
- Thomas, L. T., & Ganster, D. C. (1995). Impact of family-supportive work variables on work-family conflict and strain: A control perspective. *Journal of Applied Psychology*, 80(1), 6-15.
- Yeung, W. J., & Stafford, F. (2003). Intra-family child care time allocation: Stalled revolution or road to equality? Paper presented at the International Sociological Association meeting, Australia, 2002. Retrieved from <http://depts.washington.edu/crfam/seminarseries02-03/Yeung.doc>

## TABLES

**Table 1. Post Labor Day Starts by State and Year**

Post Labor Day Start		
Year	Yes	No
2005	MN, VA,	MI, IA, WI,
2006	MN, VA, MI	IA, WI
2007	MN, VA, MI, WI	IA
2008	MN, VA, MI, WI, IA	---
2009	MN, VA, MI	IA, WI
2010	MN, VA, MI	IA, WI

**Table 2. Descriptive Statistics**

Variable	August-September				May-September			
	No Kids		Kids		No Kids		Kids	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Share reporting trips Before Labor Day	0.22	0.41	0.21	0.41	0.24	0.43	0.24	0.43
Metro not central	0.28	0.45	0.24	0.43	0.26	0.44	0.26	0.44
Metro other	0.36	0.48	0.44	0.50	0.36	0.48	0.41	0.49
Non Metro	0.21	0.41	0.19	0.40	0.20	0.40	0.21	0.41
Hispanic	0.22	0.42	0.21	0.41	0.24	0.42	0.23	0.42
African American	0.04	0.20	0.06	0.24	0.04	0.19	0.05	0.23
Other Non-White	0.12	0.33	0.08	0.27	0.13	0.34	0.08	0.27
Household Size	0.03	0.17	0.06	0.24	0.03	0.16	0.05	0.23
# of children	1.68	0.82	3.98	1.10	1.67	0.78	3.99	1.14
Age Youngest Kid			1.89	0.93			1.90	0.95
Age (Respondent)			7.63	5.31			7.58	5.31
Family Income	55.62	17.48	37.45	11.29	55.40	17.47	37.12	11.37
Years of education	2.85	1.56	2.89	1.34	2.86	1.62	2.89	1.33
Family Business Owns Home	13.66	2.79	13.92	2.92	13.54	2.78	13.82	2.94
	0.15	0.36	0.18	0.39	0.13	0.34	0.19	0.39
	0.76	0.43	0.82	0.38	0.73	0.44	0.83	0.38
N	757		770.00		1961		1928	

**Table 3. Effect of Pre-Labor Day Start on August-September Travel (Households with Children)**

VARIABLES	(1)	(2)	(3)	(4)
Before Labor Day	-0.103*** (0.030)	-0.129** (0.066)	-0.101*** (0.029)	-0.131** (0.064)
Metro not central			0.037 (0.026)	0.032 (0.029)
Metro other			0.041 (0.036)	0.041 (0.039)
Non Metro			0.013 (0.050)	0.011 (0.060)
Hispanic			-0.086 (0.062)	-0.098 (0.081)
African American			-0.028 (0.048)	-0.037 (0.054)
Other Non-White			-0.131*** (0.049)	-0.147** (0.063)
Household Size			-0.041 (0.041)	-0.047 (0.049)
Number children under 18			0.037 (0.051)	0.043 (0.053)
Age Youngest Kid			0.008*** (0.002)	0.009*** (0.003)
Age (Respondent)			-0.005*** (0.001)	-0.006** (0.003)
Ln Family Income			-0.009 (0.006)	-0.011 (0.009)
Years of education			0.022*** (0.006)	0.025* (0.013)
Family Business			0.084*** (0.027)	0.097*** (0.027)
Owns Home			0.037 (0.053)	0.041 (0.058)
Year Fixed Effects	X	X	X	X
State Fixed Effects		X		X
Observations	757	757	757	757

Marginal effects of logistic regressions presented; Standard errors in parentheses (clustered at State level); \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Table 4. Effect of Pre-Labor Day Start on May-September Travel (Households with Children)**

VARIABLES	(1)	(2)	(3)	(4)
Before Labor Day	-0.070*	-0.076**	-0.067*	-0.081**
	(0.038)	(0.035)	(0.035)	(0.038)
Metro not central			0.015	0.023
			(0.031)	(0.030)
Metro other			0.041	0.039
			(0.032)	(0.030)
Non Metro			0.101***	0.102***
			(0.033)	(0.036)
Hispanic			-0.151*	-0.152*
			(0.084)	(0.090)
African American			-0.020	-0.009
			(0.043)	(0.040)
Other Non-White			0.077***	0.077***
			(0.012)	(0.012)
Household Size			-0.014	-0.013
			(0.023)	(0.021)
Number children under 18			0.013	0.012
			(0.034)	(0.031)
Age Youngest Kid			0.007**	0.007**
			(0.003)	(0.003)
Age (Respondent)			0.005***	0.005***
			(0.001)	(0.002)
Ln Family Income			-0.001	0.000
			(0.009)	(0.009)
Years of education			0.016**	0.016**
			(0.006)	(0.008)
Family Business			0.079***	0.074***
			(0.027)	(0.028)
Owns Home			0.072	0.071
			(0.047)	(0.048)
Year Fixed Effects	x	x	x	x
State Fixed Effects		x		x
Observations	1,928	1,928	1,928	1,928

Marginal effects of logistic regressions presented; Standard errors in parentheses (clustered at State level); \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 5. Effect of Pre-Labor Day Start on August-September Travel (Households without Children)**

	(1)	(2)	(3)	(4)
Before Labor Day	0.002 (0.015)	0.001 (0.040)	-0.012 (0.014)	0.006 (0.037)
Metro not central			-0.073 (0.055)	-0.078 (0.054)
Metro other			-0.004 (0.040)	-0.011 (0.045)
Non Metro			-0.017 (0.022)	-0.028 (0.026)
Hispanic			-0.119 (0.096)	-0.129 (0.110)
African American			-0.110** (0.051)	-0.116* (0.061)
Other Non-White			-0.072 (0.082)	-0.072 (0.087)
Household Size			0.030** (0.012)	0.032** (0.016)
Age (Respondent)			-0.002 (0.001)	-0.002 (0.002)
Ln Family Income			0.004 (0.012)	0.004 (0.013)
Years of education			0.023* (0.012)	0.023 (0.018)
Family Business			-0.115** (0.054)	-0.118* (0.068)
Owns Home			0.000 (0.057)	0.000 (0.058)
Year Fixed Effects	x	x	x	x
State Fixed Effects		x		x
Observations	770	770	770	770

Marginal effects of logistic regressions presented; Standard errors in parentheses (clustered at State level); \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 6. Effect of Pre-Labor Day Start on May-September Travel (Households without Children)**

VARIABLES	(1)	(2)	(3)	(4)
Before Labor Day	-0.004 (0.020)	0.015 (0.025)	0.024 (0.023)	0.030 (0.023)
Metro not central			-0.032 (0.024)	-0.020 (0.025)
Metro other			-0.003 (0.043)	0.016 (0.040)
Non Metro			-0.061*** (0.023)	-0.026 (0.016)
Hispanic			-0.109*** (0.033)	-0.078** (0.035)
African American			-0.092*** (0.022)	-0.073*** (0.022)
Other Non-White			-0.036 (0.044)	-0.035 (0.036)
Household Size			0.016 (0.013)	0.021 (0.016)
Age (Respondent)			-0.003 (0.002)	-0.002 (0.002)
Ln Family Income				-0.001 (0.007)
Years of education				0.020 (0.014)
Family Business				-0.041 (0.030)
Owns Home				0.007 (0.012)
Year Fixed Effects	x	x	x	x
State Fixed Effects		x		x
Observations	1,961	1,961	1,961	1,961

Marginal effects of logistic regressions presented; Standard errors in parentheses (clustered at State level); \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.