

# Eating Patterns, Activities, and Obesity



Sandra L. Hofferth

University of Maryland

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# Increased Prevalence of Overweight and Obesity

- Adults 20+ - NHANES 1999-2002
  - 34.7% overweight (BMI 25-29)
  - 30.4% obese (BMI 30+)
- Children - 95+ percentile=overweight
  - 2-5 - 10.4%
  - 6-11 - 15.3%
  - 12-19 - 15.5%



# Research on Time and overweight

## ■ Food consumed

- Data show no change in energy intake b. 1965 and 1990, although weight increased by 5 kg
- Underreporting of intake, increased portion sizes
- Consumption of more food away from home:
  - 30% increase in meals consumed outside the home
  - 57% of meals consumed at restaurants, fast food outlets, cafeterias and vending machines

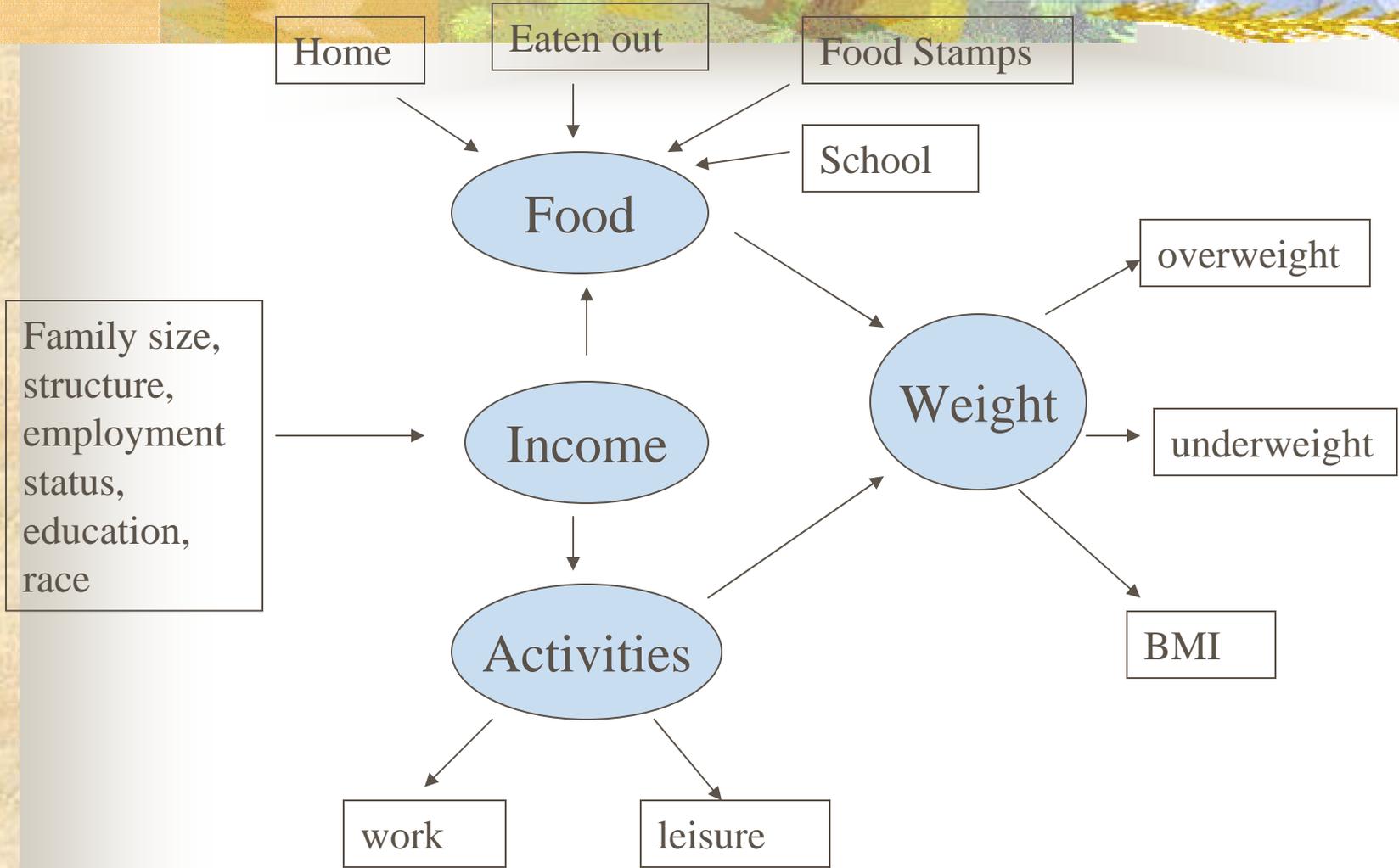
## ■ Activity level

- And, little evidence for decreases in physical activity
- But emphasis on leisure time, not all other domains



# Data Limitations

- Food diaries – problems with portion size
- Stylized activity reports
  - Don't have information on length of time
  - Also lack measure of energy expenditure
- Missing non-leisure time and context
  - Increased use of automobiles for travel
  - Reduced activity at work and at school





# ATUS

## ■ Food

### ■ Mealtime

- When are meals eaten?
- How long does it take?
- With whom do people eat?

### ■ Sources of food?

- Prepared at home?
- Carryout or fast food?
- School food program?

## ■ Physical activities and ordinary activities



# Exemplary findings to date

Report on Two Studies:

1) Activities and child overweight

“Leisure Activities and Child Overweight”

2) Food and child overweight

“Income, Food Programs, and Obesity among U.S. Children”

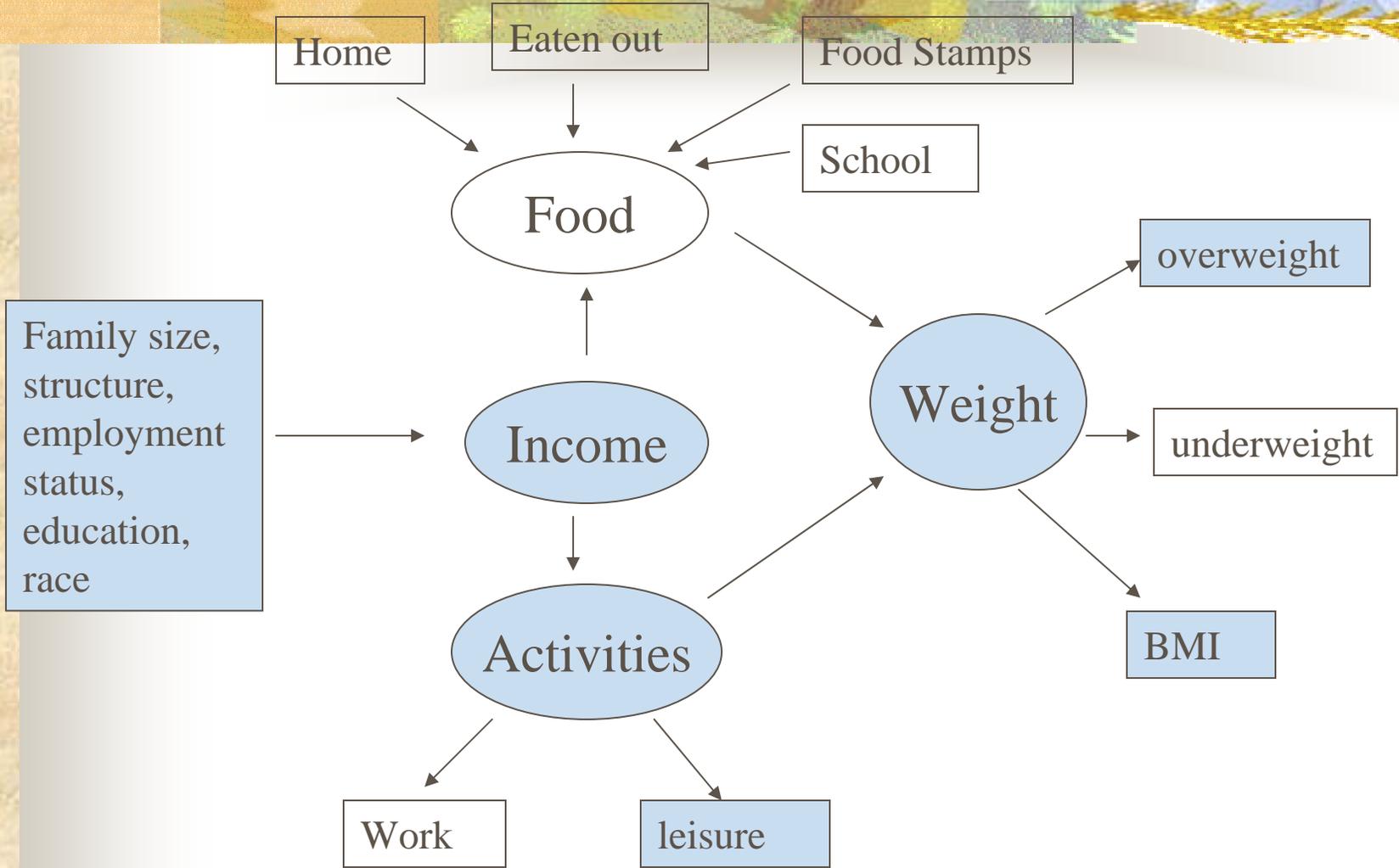
For full papers see:

[http://www.popcenter.umd.edu/people/hofferth\\_sandra](http://www.popcenter.umd.edu/people/hofferth_sandra)



# 1997 PSID-CDS Home Time Diary

- Nested in a very extensive study of children, parents, other caregivers, teachers and administrators
- PSID is a 35-year longitudinal study of families
- The CDS collected data from 3,563 children in 2,500 families in 1997
- Two 24-hour time diaries: 1 weekday, 1 weekend
  - diary days randomly assigned in office and mailed out
  - must collect within 3 days of designated weekday, within 1 week of designative weekend day
  - interviewer reviews diary with R or administers it in the home to Respondent & child
  - data are coded and entered in survey services lab
  - <http://psidonline.isr.umich.edu/>

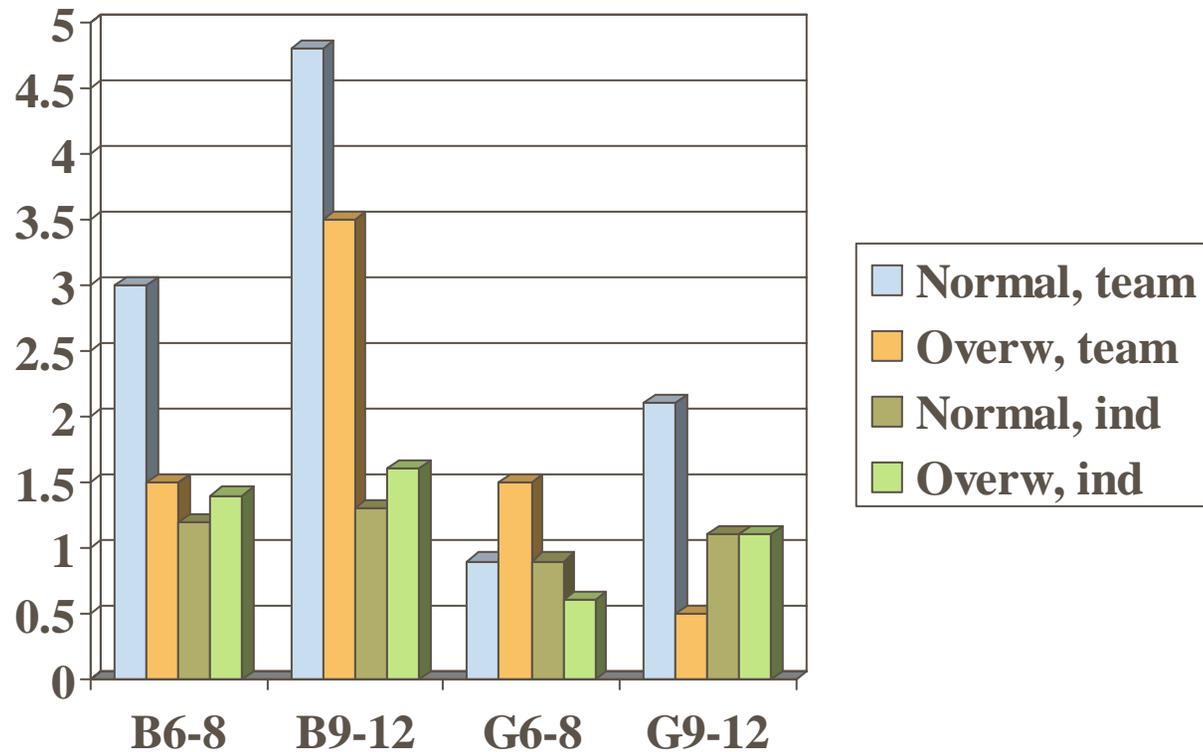




# Leisure Activities and Child Overweight

- Examined the association between child overweight and children's leisure time.
- The advantage is that we have all of children's time, not just some activities. Of all children's categories of activities, only time in *sports* was linked to lower risk of overweight for both boys and girls. Time spent *studying* was linked to less overweight for boys. *Computer time* was associated with more overweight for boys.
- Adjusted for race/ethnicity, education, age of mother, number of children in the family, type of family, income, and child age and birthweight.

## Time spent in Team vs Individual Sports, by Gender and Age of Child, Over vs. Normal Weight





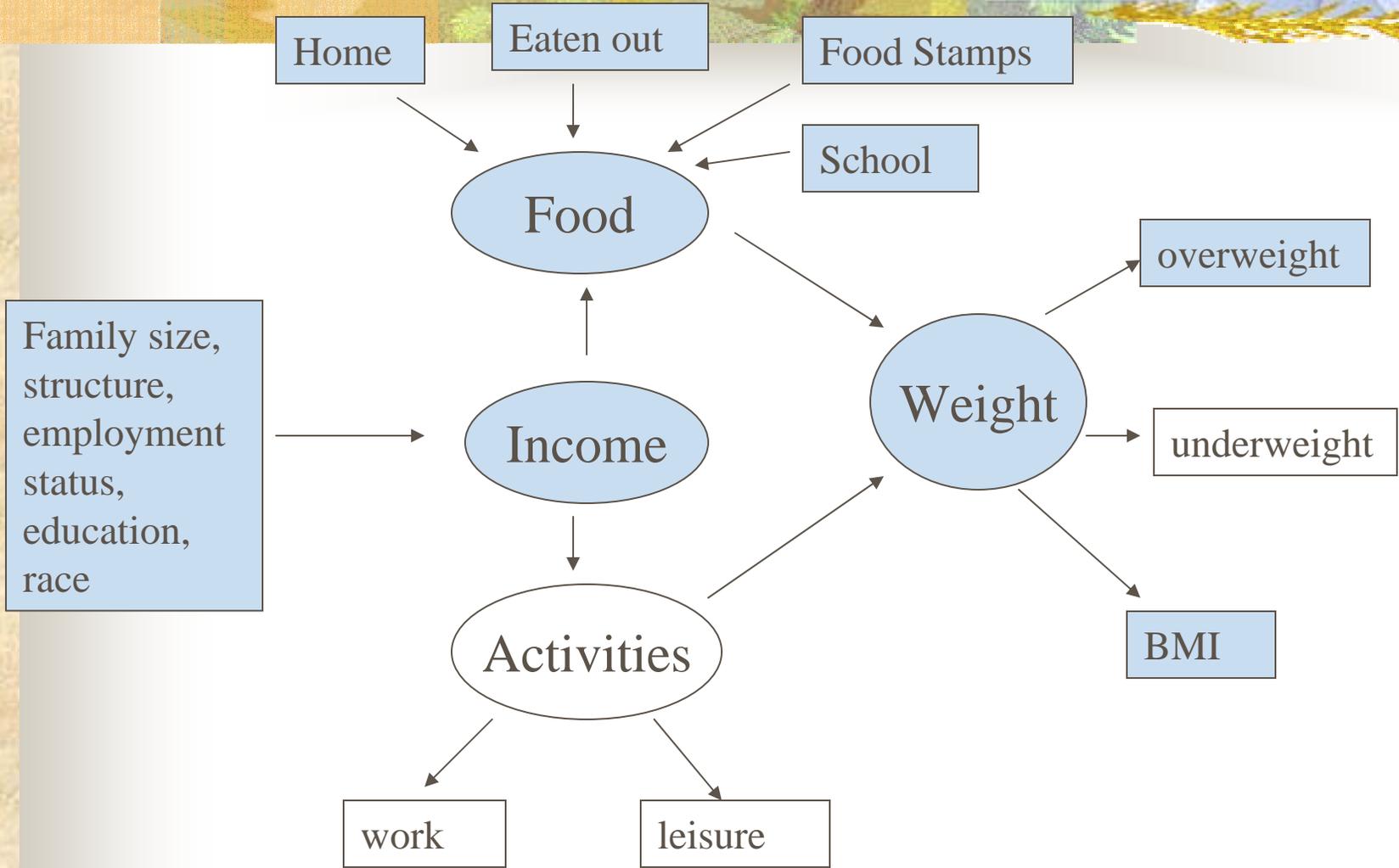
## ATUS application

- Category 13, Sports, exercise, and recreation
- Sum the times for all activities that fall within this category. This provides an overall amount of time spent in physical activity. Compare with time spent watching television or working on the computer.
- Regress BMI/overweight on time spent in different categories of activities.
- Could use the Ainsworth MET intensities several ways:
  - To select activities
  - To weight the times by intensity of activity



# SAS program to sum across activity records

- Determine which activity times to sum (eating, sleeping)
- Make sure that duration (end-begin time) is calculated
  - Hopefully each *activity* record will have a *duration* associated with it.
- SAS Program: (NB: italicized variables need the real variable names substituted)
- Data test.test1 (keep=*caseid* eat sleep); set test.origdata;
  - By *caseid*; (note- data should initially be sorted by *caseid*)
- Format the output times to make sure they are in a time format, such as time5.
  - format eat time5. sleep time5.;
  - If first.*caseid* then do;
    - sleep=0;
    - eat=0;
    - end;
  - If (*activity*=010101 or *activity*=010199) then sleep+*duration*;
  - Else if (*activity*=110101 or *activity*=110199 or *activity*=119999) then eat+*duration*;
  - If last.*caseid* then output;
  - Proc print; (test your results)
  - run;





# Eating Patterns and Overweight

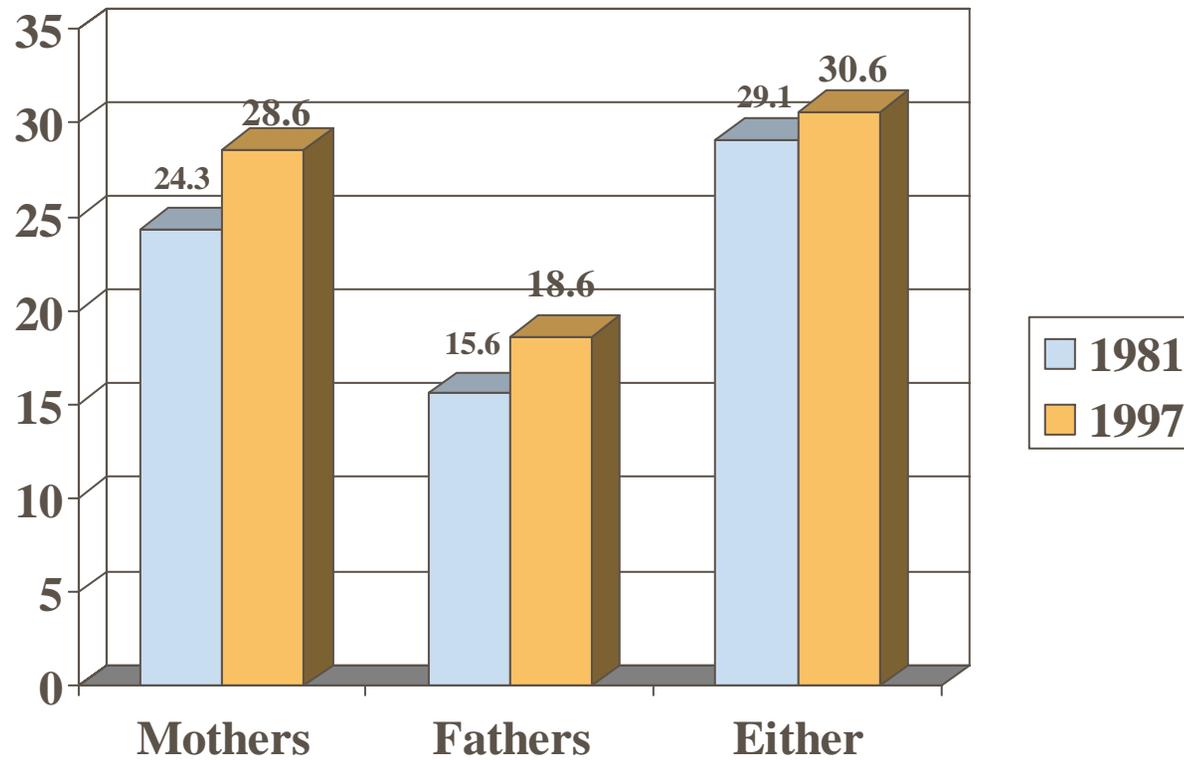
- Increased consumption of food eaten out or fast food may be associated with greater chance of being overweight. There are several ways to get at this:
  - Expenditures on food purchased and eaten out or carried in. This is likely to underestimate these expenditures.
  - Can also get at it by examining the amount of time spent preparing and eating meals at home, time spent working.
  - Can also include “with whom” in the selection so that you get, for example, only meals eaten together with one’s child and spouse, or only meals eaten alone.



## Preliminary Studies

- Recent research suggests that the amount of money spent eating out per month is associated with a greater chance of child overweight.
- In contrast, total food expenditures on food prepared at home are not linked to overweight.
- We find children spending more time with parents in 1997 than they did in 1981. However, data shows that mealtimes declined, and this may be bad for children's behavior.

## Children's Time with Parents, 1981-1997





# Summary and Conclusion

- These are only a few suggestions for ways to think about analyzing the American Time Use Survey.
- Remember that an activity file has multiple records per individual. These need to be summarized so that there is one indicator such as duration of an activity for an individual.
- The time diary is one of the most flexible data collection tools in existence.
- Have Fun!!