

Parental Involvement and Child's Behavior at School: Time Spent with Child for Cultural Activities

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Introduction

Parents play an important role in a child's development. Izzo et al. (1999) suggested that better parental involvement may lead to a better school performance. Many previous studies focus on the relation between parental involvement and child's academic achievement. However, parental involvement also has a great impact on child's social, emotional cognitive and physical well-being.

Therefore, the purpose of the study is to identify the important features, including child's or parent's characteristics and parental involvements, that will affect child's behavior at school with a focus on the time parents spent with their child for cultural activities.

How would the time that parent spent with their child for cultural activities affect child's behavior at school?

Data

National Center of Education Statistics. (2018). 2016 Early Childhood Program Participation Survey, 2016 Parent and Family Involvement in Education Survey

- 14,075 children (kindergarten ~ 12th grade)
 - 13,523 students in public/private school
 - 552 students for homeschooling
- Characteristics of child, parent/guardian and household
- Parents and family involvements: at school and outside of school

Data Preprocessing

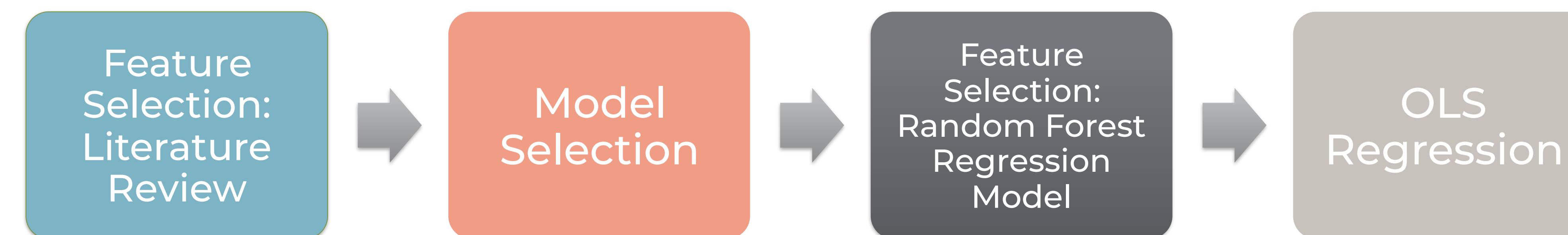
- Converted all binary variables to 0 and 1
- Imputed missing values using the mean of given variable
- Dependent variable:

$$y = \frac{\text{Time contacted about good behavior}}{\text{Time contacted about good behavior} + \text{behavior problems}} \times 100$$

- Independent variable of interest:

Time spent with child for cultural activities (in the past month)
= *visited a library* + *visited a bookstore* + *gone to a play*
+ *visited art gallery* + *visited a zoo* + *attended a religious event*
+ *attended a sporting event*

Methodology



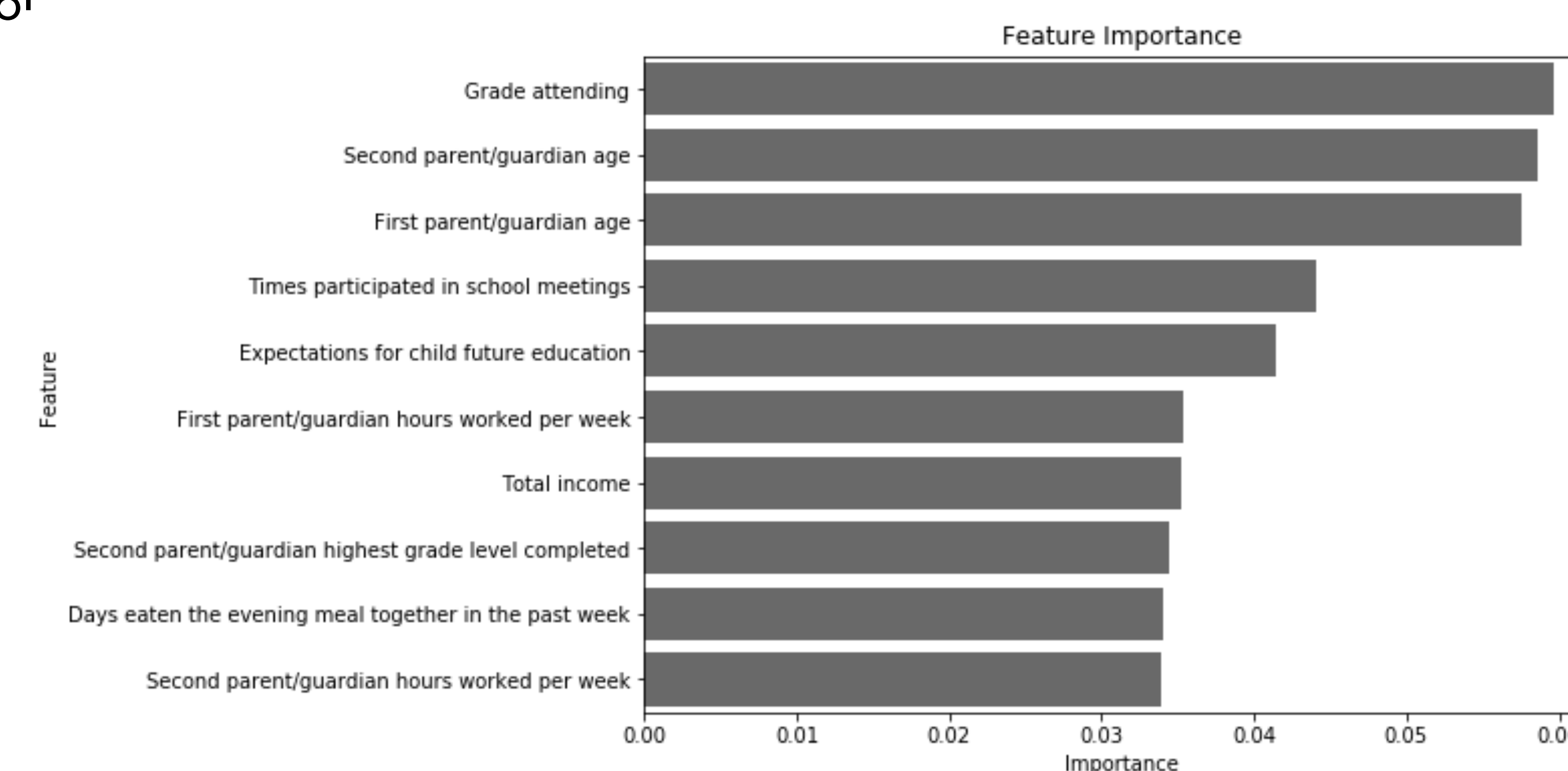
Feature Selection

Literature Review: selected 84 predictors from 823 variables including:

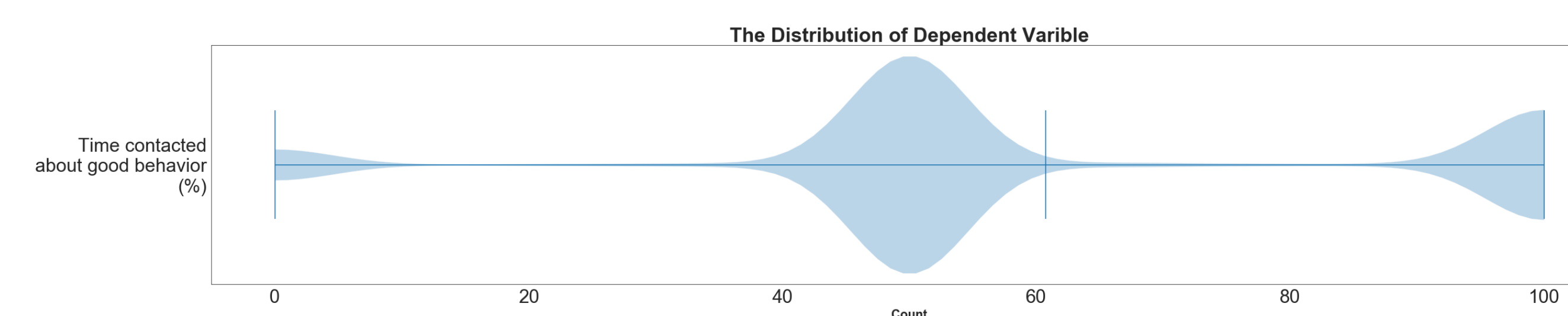
- **Child basic information:** race, grade, health condition, native language, school behavior
- **Parents and family characteristics:** socioeconomic status, race, marital status, family structure
- **Parental involvement:** at school and outside school

Random Forest Regression Model:

- Choose the best random forest model:
 - Split the data into train and test set with test set size = 0.3
 - Use randomized search on hyper parameter with 5-fold cross validation
 - Select the best random forest regressor model with lowest mean square error
- Select top ten important features



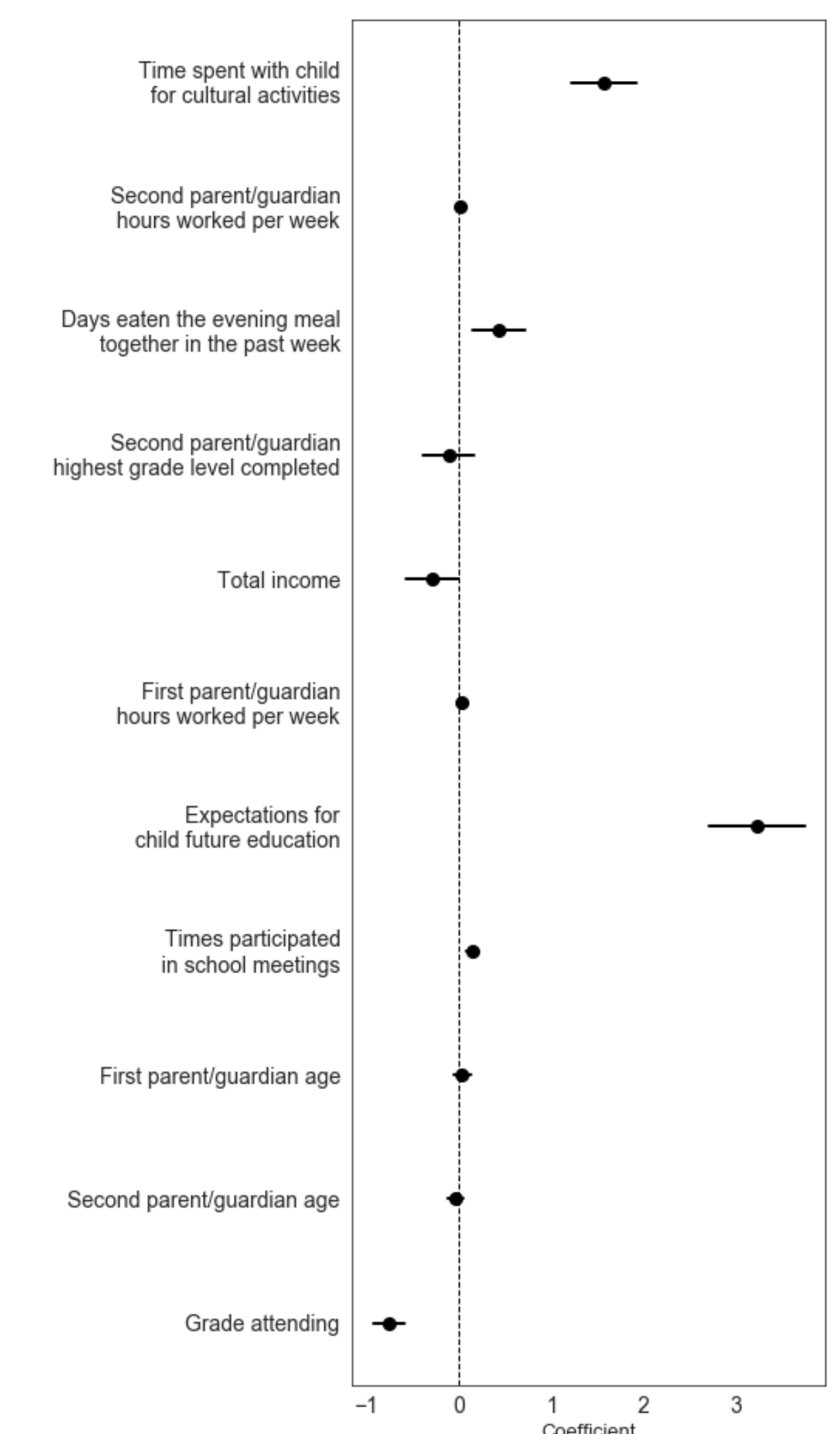
Dependent Variable: Time Contacted about Good Behavior



Results

The significant independent variables:

- Grade ($\beta = -0.7639$, $p < 0.001$)
- Time participated in school meetings ($\beta = 0.1407$, $p < 0.001$)
- Expectation for child future education ($\beta = 3.2217$, $p < 0.001$)
- Times spent with child for cultural activities ($\beta = 1.5724$, $p < 0.001$)
- Days eaten the evening meal together in the past week ($\beta = 0.4378$, $p < 0.01$)
- Total income ($\beta = -0.2953$, $p < 0.05$)



Conclusion

- When parents spend more time with child for cultural activities, child tends to have better behavior at school.
- The time spent with child for cultural activities declines as the grade child attends becomes higher.