

Candy under Constraints¹

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Abstract:

Using a survey conducted during trick-or-treating at Halloween, we explore whether parental rules serve merely to restrict children's undesirable behavior or also to teach them values. We use two questions to identify children whose parents have rules for eating candy: Are they told they cannot eat any candy until they get home? Are there rules for how they should eat their candy after they get home? After administering the survey, we give children a choice of fruit or candy. We find that children whose parents set candy-eating rules are more likely to choose fruit. We argue that this is evidence that rules serve to create values, which children act on even when not directly monitored by their parents. We also find that having rules is correlated with children's lack of self-control, suggesting that parents may put rules in place specifically to counteract their children's self-control deficits. We also discuss alternative interpretations, for which there are many.

Introduction

Ability of children to maintain self-control has been shown to predict later life outcomes (e.g., seminal marshmallow work by Mischel et al 1972). Given this correlation, many parents may set rules in order to instill certain values in their children and promote the development of self-control. We examine two related questions. First, does rule-setting teach values, or does it merely constrain otherwise errant behavior and instincts due to direct monitoring and enforcement? Second, are rules endogenous to the child? Specifically, is rule-setting by parents correlated with a lack of self-control in children?

Survey Design and Results

We surveyed 323 children while trick-or-treating in the East Rock neighborhood of New Haven, Connecticut⁵. Each child was given a one minute survey prior to getting a treat. This was not perceived as strange by most of the children as this porch has been used for surveys and experiments for six years prior to this one. The survey asked each child the following: (1) How old are you? (2) Have you eaten any of your candy yet? (3) Are you told by your parents to wait until you get home to eat any of your candy? (4) How many days do you think it will take you to finish your candy? (5) How many days did it take you last year to finish your

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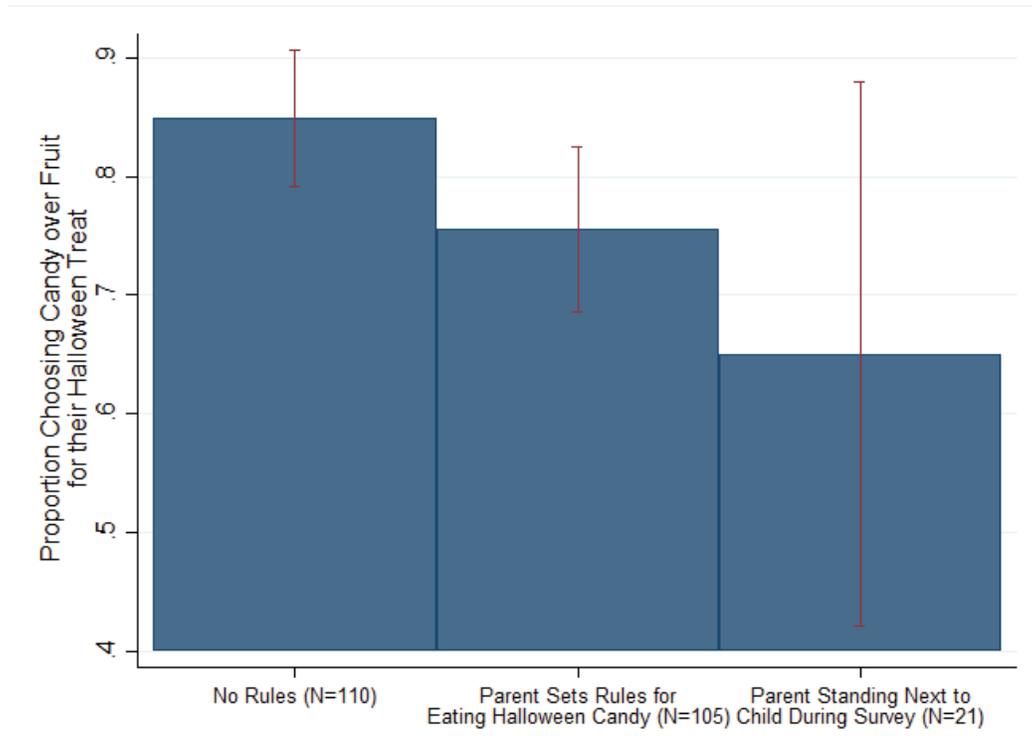
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⁵ Children were excluded from the dataset if they were too young to answer questions coherently or left before finishing the survey.

candy? (6) Do your parents set rules about how to eat your candy?⁶ After the survey, surveyors asked the child whether they would like candy or fruit as his or her treat. In most cases, we also observe and record whether a parent is standing next to them during the survey.

Our results are shown in the graph below.



Hypothesis #1: Children whose parents set rules for eating candy are more likely to choose fruit instead of candy as their treat when trick-or-treating.

We code children as having rules if they answered “yes” to either question 3 or 6 above (i.e., if they either could not eat their candy before going home, or they had candy-eating rules once home). Our results support the hypothesis that children whose parents set rules about candy consumption are less likely to choose candy over fruit than children for whom rules are not set, even when their parents are not present ($p=0.025$). When rule-setting parents are present, i.e. the child is making this decision with parental monitoring, candy consumption falls still further, suggesting that the presence of the rule-setter does increase compliance. However, this difference is not statistically significant (the confidence interval is large due to the small number of children who had parents present during questioning).

We estimate a logistic regression which controls for variables collected during surveying (children’s age; gender; when they decided on, bought or made their costume; and the number of days it took for them to consume their candy from last Halloween). Candy-eating rules still

⁶ Questions were also asked regarding costume planning and candy consumption strategy, specifically (1) When did you decide what costume to wear? (2) When did you buy or finish making your costume? (3) Was this your first choice of costume? These questions don’t factor into the main hypothesis, but are discussed briefly in the Related Questions section.

predict whether a child will choose candy or fruit ($p=0.01$).⁷ Whether a child was wearing his or her first choice of costume was also a significant predictor of candy choice ($p=0.039$). In addition, the coefficient on one of the dummy variables for survey station was positive and statistically significant, suggesting that there was an inadvertent candy pusher present as an experimenter (assuming the survey station assignment process was sufficiently random: children were in something resembling a line on the sidewalk leading up to the porch, with a research assistant at the stairs to the porch who assigned children to survey stations on the porch whenever there was a vacancy).

Hypothesis #2: Children who have a pattern of lack of self-control are more likely to have rules set by their parents for eating candy.

Children were asked how long their candy lasted in the previous year as well as how long they expected their candy to last for the current year. Under the assumption that the volumes of candy collected in the two years do not differ significantly, and that last year's behavior is likely to be repeated this year, children can be considered to lack self-control if they expect their candy to last longer this year than it lasted the year before. (In other words, the "lacking self-control" children can be viewed as eating their candy faster than intended).⁸ Indeed, those who lack self-control are more likely to have rules in place for how to eat their candy (p -value on two-sided t -test = 0.016). This observation is consistent with the hypothesis that parents give rules to children who are lacking in intrinsic self-control.

Alternative Explanations

An alternative explanation for the observed correlation between choice of fruit and rules is that rules may alter the relative benefits of fruit versus candy. In other words, if children have an imposed limit on how much candy they can eat per day, and if they receive some positive utility from consuming fruit, they may choose fruit simply because they will not be allowed to eat their optimal amount of candy in any given day anyhow. This would generate the correlation we find, but the correlation would not be a byproduct of rules teaching children about values and mechanisms for healthy choice.

Another alternative explanation is that children whose parents set rules are also tightly monitoring their children. Children may have anticipated that their parents would ask about what happened on the porch or what choices they were given. In anticipation of questioning, and not wanting to lie about something trivial (perhaps for personal self-satisfaction, perhaps because siblings or friends may then observe them lying), children may have chosen fruit over candy.

For our second hypothesis, the correlation between rules and self-control could be a by-product of reverse causality or omitted variable bias. For example, children with many household rules may be more likely to rebel, which exhibits itself as lack of self-control in our survey.

Related Questions

In addition to examining the relationship between rules and the choice of candy versus fruit, we examined whether or not a lack of self-control in one aspect of a child's life is observable

⁷ In this analysis, rules about how candy could be eaten after it was brought home and rules about whether candy could be eaten before the child got home were considered separately, and only the former had a statistically significant effect on the candy versus fruit decision.

⁸ We note the interpretation could be the opposite: children who expect their candy to last longer this year than last may be responding to their lack of discipline the prior year, and thus putting in place plans this year for a more disciplined eating pattern. We have no data to distinguish these stories. However, our intuition is that this alternative interpretation is unlikely, and thus are including it only in a footnote.

in other aspects. To do this, we test whether children who had either decided what costume to wear late, made their costume late, or had procrastinated during the making of their costume (and thus had to change their decision to an easier costume) were more likely to choose candy over fruit. We find no evidence of such correlations ($p = 0.64, 0.80, 0.32$ respectively).

Conclusion

The persistence of in-group rules, even in the absence of enforcement, has been found previously in studies of the behavior of UN diplomats, who continue to conform to the culture norms about law-breaking of their home countries when abroad (Fisman and Miguel 2007). In the case of law-abiding nations, such as Norway, this is in spite of diplomatic immunity removing penalties for misbehavior.

We find similar evidence with respect to children and candy-eating rules in the context of Halloween. Specifically, we have two key results. First, by setting rules for their children's candy consumption, parents are also helping to instill healthier eating values in their children – values that their children follow even when not under the guise of the rule. Second, parents are more likely to create rules when their children demonstrate less self-control. Both results are subject to several caveats and alternative explanations, as discussed above.

References

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