Independence Giving or Autonomy Taking? Childhood Predictors of Decision-Sharing Patterns Between Young Adolescents and Parents

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Abstract

This article reports on a study of whether young adolescents make decisions autonomously, share decisions with their parents, or have decisions made for them by parents. Using a sample of 2,620 12- and 13-year-olds from the National Longitudinal Survey of Youth – Child Study we examine how childhood behavior and competence influence decision patterns in young adolescence. Individual models are used to test whether individual traits predict decision patterns while sibling fixed-effects models allow us to estimate effects of child characteristics net of common family contributions. In both individual and sibling fixed-effects models, children with higher verbal ability share more decision-making with parents. Children with greater mathematical aptitude and children who are impulsive are more likely to make decisions without consulting parents. The impulsivity effect is stronger in families with fewer resources. These results suggest that children influence household decision-sharing patterns directly, as well as indirectly through parent responses to growing competence.

[151 words]

Independence Giving or Autonomy Taking? Childhood Cognitive and Behavioral Predictors of Decision-Sharing Patterns Between Young Adolescents and Parents

How young adolescents and parents share – or do not share – decisions about aspects of youth and family life is considered an important indicator of family process and a contributor to later development (Dornbusch *et al.*, 1985). Although its relational and interactive aspects are recognized, decision-making is considered part of the set of family processes that comprise parenting. The processes whereby parents and children negotiate decisions are characterized as "autonomy granting" or "independence giving" (Bulcroft *et al.*, 1996; Bumpus *et al.*, 2001), reflecting a normative assumption that the right and power to make decisions is initially held by parents and then transferred to children via a parent-controlled process. Accordingly, research on the determinants of decision patterns (e.g. Bulcroft et al., 1996; Dornbusch *et al.*, 1987; Lamborn *et al.*, 1996) has largely focused on parental, family-level and environmental factors, and the assumed relationship is that the decision-making patterns shape, rather than reflect, children's behavior (one exception is the work of Smetana and colleagues (2004), whose work focuses on the development of healthy behavioral autonomy). Recent attention to the role of children as active agents within their environments (e.g. Crouter & Booth, 2003; Maccoby, 2000; Magnusson & Stattin, 1998; Sameroff, 1994, 2000) suggests that questioning the assumption that sharing of decisions is a parent-led process is warranted. This brief report summarizes a study of the ways in which children's characteristics and actions may shape family decision-making processes. Specifically, we examine how family decision patterns reported by young adolescents vary as a function of prior socio-cognitive functioning and behavior.

Framework and hypotheses

This study's outcomes of interest are whether decisions about young adolescents' lives are made autonomously by the young adolescents, jointly by parents and youth, or solely by their parents. Children may influence who makes decisions indirectly or directly, and the indirect and direct

pathways may interact. First, parents may respond to their child's traits or actions, choosing whether to take part in decision-making based on a parental assessment of the child's cognitive ability, maturity, or worthiness. For instance, parents may allow a child to make decisions about some matter autonomously if they judge that child to be competent for the task. Parents may judge competence based on children's cognitive functioning or moral reasoning. Physical maturity also may matter if parents are more likely to allow autonomy for youth who appear more adult-like. Bumpus and colleagues (2001) found that pubertal advancement positively predicted girls' autonomous decision-making in some families. Finally, parents and children may engage in a quid pro quo, in which autonomy is granted as a reward for desired or helpful behavior. These pathways, while clearly influenced by the child, remain consistent with the interpretation of decision-making as a parent-controlled process, although the last, autonomy as a reward, does require some purposeful action from the child.

A second way that children may influence decision-making is through direct assertion of autonomy in which a child claims the right to make a decision. Such a claim may be followed by a period of child-parent negotiation. Alternatively, children can also act without seeking parental input, in which case they claim decision power by default. This may happen in cases in which parents choose not to exert preferences (for instance, the child turns on the television in the presence of a non-objecting parent) or are not given the opportunity to weigh in (a child turns on the television while parents are not present). Finally, children may act in knowing defiance of parents' preferences, succeeding by fiat if parental capacity to intervene is hindered by availability or power. Children's reasons for autonomy-claiming likely vary. In some cases, children may base their claim for power on the same types of capacities or behaviors that parents would use to judge their worthiness. For instance, children who help around the house may feel justified in asking for additional power.

Alternatively, children's desire for autonomy may stem from a distaste for authority and may be related to other anti-social behavior.

We believe that parent decision-ceding and child autonomy-claiming are more often interactive, rather than independent, processes. Parent reaction to child assertion of autonomy may itself depend on child characteristics. For instance, if a child demands control, the parent may assent to this assertion if the child is likely to make what the parent deems a "good" decision or if the parent feels the child has earned the right to make a decision. On the other hand, parents may resist relinquishing power to a child who exhibits troublesome behavior or poor reasoning skills. In the empirical work that follows, we examine a set of child characteristics. Our empirical question is: do these traits and behaviors predict how decisions are shared between parents and children? Our approach cannot clearly distinguish between the parent judgment, child assertion, or child assertion-parent reaction pathways, but it can provide some suggestive evidence by testing whether decision patterns vary systematically by factors likely to be associated with capable – or less capable – decision-making. We predict greater cognitive capacity, physical maturity, and pro-social behavior will be related to more autonomy when parents lead the process; while problem behavior and impulsiveness will be related to less decision autonomy. A second question is whether traits and behaviors matter uniformly across child gender or family socioeconomic status. Previous research (Bumpus et al., 2001) suggests that child gender moderates decision-sharing patterns. Parent socioeconomic status may also moderate any effects because parents' possible responses to children's characteristics and demands will vary across families with different levels of resources (McLoyd, 1998; Duncan and Magnuson, 2003). Parents with more resources (more education, greater income, two parents relative to one) may be more able to respond to inappropriate assertions of autonomy.

This study makes two unique contributions to our understanding of decision-making patterns within the dynamic and bidirectional nature of parent-child relationships. First, to our knowledge it is

the first use of longitudinal data on the childhood determinants of decision-making during early adolescence. We show how childhood characteristics are related to later decision-making patterns. Second, the data contain multiple siblings with the same mother, allowing us to compare children with different personal characteristics who face similar family-level environments. This allows for the use of fixed-effects models that can separate parent-effects from child- and transactional contributions. This is particularly helpful at drawing conclusions about how family resources, such as higher socio-economic status or the presence of a second parent, affect parents' ability to respond proactively to child capabilities or demands.

Methods

Sample

The sample consists of young adolescents whose mothers are respondents of the 1979 National Longitudinal Survey of Youth which began with a nationally representative sample of men and women who were age 14 to 21 in 1979. Beginning in 1986, data have been gathered about the children of the women in the 1979 cohort (Chase-Lansdale *et al.*, 1991). Child and family interviews take place every two years and include parent reports on children's environments and well-being, some brief developmental measurements of children, and young adolescent self-reports. The present sample is drawn from 3202 children who were of age 12 or 13 when their mothers were interviewed in the 1994 through 2000 waves. Of those, 2804 (87.6%) completed the portion of the survey containing the key dependent variables of interest. Eliminating cases with missing variables on other key covariates (n=172) gives a final analytic sample of 2632 young adolescents. Analysis of selection shows that youth excluded from the sample because of missing data are marginally more likely to be boys, are half a month older on average, have an average of 1.81 siblings relative to the included cases' 1.74 siblings, and have mothers who scored lower on the Armed Forces Qualifying Test (a measure of intellectual abilities administered in 1980) and are less likely to be employed. There were no significant selection differences in race, family structure or mothers' completed education. Because

the longitudinal study tracks children born to a sample of women, it includes many sibling groups. For 648 families the data contain observations at age 12 or 13 for two or more children.

Although the original 1979 data could be weighted to represent the young persons living in the U.S. at that time, the current longitudinal sample is not nationally-representative. Children in this data were born to women in their early years of fertility, ages 16 to 32. First-born children and children of young mothers are over-represented relative to their population prevalence. Additionally, the sample does not include any children of immigrant women who have arrived since the sample began. This means that the Hispanic children in the current sample are born to long-term residents or US-born women, and findings based on this sample cannot be generalized to the current population of Hispanic youth. Despite these limitations, the longitudinal and national nature of the data and its economic diversity make this a valuable sample for developmental questions (Chase-Lansdale et al., 1991).

Decision-Making Indexes

Our dependent variables are three indexes created from child self-reports about decision-making within the household. These questions, modeled after those used by Dornbush and colleagues (1985), cover common domains of children's lives: buying clothes, spending money, friends to go out with, curfew, television watching, and religious training. For each area, youths responded to the question, "Who usually makes the decisions about…" by selecting all applicable responses from the set of "you" (the respondent), mother, father, stepfather, friends or someone else. For each of the six domains listed, we collapse the possible decision patterns for each domain to one of three options: the child makes the decision and the parent or parents do not ("sole"), both the child and one or more parents make the decision ("shared"), or the parents are the sole decision-makers ("parent"). The sole choice of "someone else" is coded as a parent and "friend" as a child; both these choices appear rarely in the data. We then sum the across the six domains to get a count of how often each decision pattern occurs. This results in the sole, shared and parent indexes, each with a possible range of 0-6. Reliability for these three variables was modest (Kuder-Richardson $\alpha = .64$ for sole child

decisions, K-Rα =.76 for shared, and K-Rα =.63 for parents), but sufficient to allow these indexes to be used as overall measures of child decision power.

Key Predictors: Child characteristics and Behaviors

Because the children in our sample have been assessed biennially since birth, we can select measures collected before the decision indexes. Current parenting practices or family circumstances likely simultaneously shape child behavior and decision-making processes, making it hard to parcel out the child's contribution to decision-making when both are observed at the same time. For instance, suppose a correlation is found between troubled behavior and parent-only decision-making. It might be the case that parental authority is causing rebellious action. Or it may be that the youth's behavior has triggered a recent tightening of parental control. The former would be a negative side effect of parenting; the latter would be a parental reaction to child action. To address this simultaneity, we rely on child measures collected two or more years before the decision indexes. When possible, we tried to use measures collected before entry into adolescence, although data constraints sometimes override this preference. For instance, we use math achievement and problem behavior measures collected at age 6 or 7, an age that precedes pubertal development and transitions into middle school. However, the schedule by which sample members were administered other measures necessitated using responses from age 10-11 for some. Age of measurement collection is given for each key predictor below.

Physical maturity. We include physical attributes of the child that may be correlated with developmental outcomes or that may affect the ability or incentive to act independently. The variable for height is a z-score standardized by month of age and gender using U.S. growth charts. The third maturity variable is an indicator of whether menarche has occurred for girls.

Helpful and problem behavior. Children's helpful or problem behavior may affect decision autonomy. Parents may reward helpfulness with greater autonomy or the maturity associated with contributing to a household may lead to better decision-making. We use child reports as to whether they do chores or spend time with younger siblings, the latter of which is used as a rough proxy for

providing childcare. These reports were collected at age 10 or 11, two years before the decision indexes. Problem behavior may lead to greater parental control or inappropriate demands for autonomy may be part of a larger pattern of problem behavior. We use the Behavior Problems Index (Peterson & Zill, 1986), a behavior check-list completed by mothers. We include the externalizing behavior problem scales collected at age 6 or 7. These scores are standardized by age and sex.

Cognitive ability. Children with more developed reasoning ability may choose to or be allowed to make more decisions on their own. To test this, we use two cognitive measures. The Peabody Picture Vocabulary Test Revised (Dunn & Dunn, 1981) measures aptitude based on verbal ability. Verbal ability scores are from tests administered when the youth were age 10 or 11. The Peabody Individual Achievement Test Math test (Dunn & Markwardt, 1970) is designed as a measure of math achievement, although scores likely reflect a mixture of achievement and aptitude. We use the math achievement scores collected at age 6 or 7. Both scores were age-normed against national samples (Center for Human Resource Research, 2004) and converted to z-scores for regressions.

Impulsivity. Children who tend to make decisions or take actions with little or no deliberation, may be less likely to seek or tolerate parental guidance, while parents may have more incentive to restrict their behavior. To measure impulsivity we use an index created from four items on the child self-administered section of the interview. Respondents were asked how strongly they agree (four choices) with statements including, "I think that planning takes the fun out of things." These items are similar to questions derived by Buss and Plomin (1975) and Dickman (1990). Numeric values of responses are combined into a single index with higher values indicating greater impulsivity ($\alpha = .66$). The index is standardized by sex and month of age.

Covariates

Empirical models include characteristics of the child's mother and household composition. The mother's highest grade completed (three dummy variables, high school only omitted) is included as a rough measure of family socioeconomic status. We also include the mother's score on the Armed Forces ability test and a dummy variable for current employment. Household income and the

presence of the child's father or stepfather in the household are additional indicators of total household resources. The number of siblings is based on children currently in the household, including step-siblings. The year of observation is included in all models to capture trends in children decision-making over time and any otherwise unobserved effects of the over-representation of children born to young mothers in earlier waves. Models also include dummy variables for missing values. The year and missing dummy coefficients are not reported.

Results

Do child characteristics predict decision-sharing patterns?

Our first goal was to see if decision patterns in early adolescence are systematically related to individual traits and relationship characteristics observed earlier in childhood. We predicted the outcomes using negative binomial regressions estimated with a maximum likelihood procedure. We estimate and present results for all three indices even though each one is the residual of the other two. Modeling all three separately simplifies both computation and interpretation at the price of a slight increase in the risk of accepting the null hypothesis (of no difference) when we should reject it. In Table 1 we report incidence rate ratios (IRRs), which give the ratio of expected responses for a one-unit change in x. When the right-hand-side variable has a standard error of 1, the IRR reflects the change in frequency associated with a one standard-deviation change in the underlying scale. Statistical significance is based on p-values adjusted for the hierarchical structure of data.

Results in Table 1 confirm that the current sample shows the same patterns observed in previous research on decision-making (Bulcroft et al., 1996; Dornbusch et al., 1985; Flanagan, 1990; Lamborn et al., 1996). Girls report sharing more decisions with parents than do boys, in this case about 32% more likely to share decisions in an additional area (IRR 1.321, $p<.001$). Boys report more decisions are made by parents. Older children report more decision-making autonomy, with a 1.4% increase in sole decision-making associated with each month of age ($p<.001$), while first children report fewer sole and more parent-only decisions. Relative to non-Black, non-Hispanic children, both

African-American and Hispanic children report more parental decision-making and fewer child-only decisions. Living with a biological father means more shared and parent-only decision-making and fewer child-only decisions.

Our main focus is on whether childhood behavior and characteristics predict decision-making patterns in young adolescence. Several measures of physical maturity and behavior predict forms of decision-making. Using an age- and sex-adjusted measure of height, taller young adolescents report more autonomous decisions and fewer parent-only decisions. Children who regularly do chores report less decision autonomy and children who spend time with siblings including younger siblings report more shared decision-making. Children's emotional and cognitive characteristics also predict decision-making. More impulsive children report making more decisions autonomously, with impulsivity associated with significantly lower levels of both shared and parent-only decisions. Higher verbal ability scores are associated with fewer parent-only decisions and more shared decisions. Children with higher math achievement scores report more sole or shared decision-making. Separate analyses (not shown) on single-gender sub samples reveal that these main effects are similar for boys and girls. Problem and helpful behavior earlier in childhood are not significantly associated with decision-making patterns. This suggests that parents are neither particularly restrictive nor lenient to children with high levels of externalizing misbehavior. The measure of helpful behavior was, at best, a proxy, so the lack of a significant relationship is unsurprising.

These findings suggest that child characteristics are associated with patterns of young adolescent decision-making, although the direction of any causal relationship cannot be known. It may be that unobserved parenting or family patterns both shape children's development and determine how decisions are made. For instance, parents who foster verbal competence in their children may also be more likely to share decisions with their children, in which case the observed relationship between high verbal scores and shared decision-making is driven by parenting actions rather than child competence or will.

Do differences between siblings' characteristics predict within-family differences in decision sharing?

To the extent that unobserved characteristics of the parents or household are correlated with the independent variables and relevant to the decision-making processes, bias in the coefficients of the cross-section model will be reduced by sibling fixed-effects models (Duncan *et al.*, 2004). These models relate differences between siblings on the outcome measures (the decision indexes) to differences in predictor variables, and so require within-family variation in the dependent and right-hand side variables. Because these models cannot estimate the effects of characteristics that are common to all siblings, such as race, we do not report family-level predictors. Observations are dropped if a sibling pair has the same response, resulting in different sample sizes across the three indexes. Some family-level characteristics, such as mother's employment or total household income, vary over time and will hence be different when different children are observed at age 12-13. However, these changes may be associated with disruptions or transitions in the family that affect the decision-making patterns. The fixed-effect models control for common family-level determinants of decision-making, but cannot control for non-shared and unmeasured elements of siblings' environments.

Table 2 contains parameters from a set of sibling fixed effects models estimated by the conditional maximum likelihood method using a Poisson specification. As in the individual models above, IRRs are reported and have the same interpretation. Estimated coefficients associated with key demographic predictors, namely child sex and age, are comparable in size and significance between the individual and sibling models, suggesting that the coefficients in the individual model are not strongly biased. Note that standard errors are higher in the fixed effects models; fixed effects models are less powerful because they rely on intra-group variation (and are estimated on the smaller "sibling group" sample).

For the key predictors, the direction and magnitude in the individual models is generally maintained in the fixed effects models, although some effects are no longer statistically significant due to the decreased power of the model. As in the individual-level model, higher verbal ability scores

predict more shared decisions and greater impulsivity predicts more child-only decision-making. The positive relationship between math achievement and child-only decision making is stronger in the fixed effect model, with more mathematically competent children 12% more likely to make more decisions autonomously. The preservation of key findings across model specifications suggests there is a causal relationship between these child traits and decision-making, net of any consistent influence of parent or family characteristics.

Three predictors are significant in both the individual and sibling fixed effect models, suggesting that these relationships are robust. Children with high verbal aptitude share more decisions with their parents. Children with high mathematical aptitude make more decisions autonomously. More impulsive children are more likely to make decisions without consulting parents.

Because the fixed effects models cannot estimate the effects of any family characteristics that are constant across children we also estimate models (not shown) separately for high or low levels of maternal education and for families with a biological father present versus families with a single mother (models for stepfather families generally fall between these two but were less stable over changes in specification). As in the full sample, verbal ability scores predict more shared decisions and math achievement scores are positively related to autonomous decision-making. The direction of these results holds across all subgroups although the estimates are not always precise enough to yield statistical significance. The impulsivity effects vary across subgroups. Among mothers with a high school degree or less, impulsive children are more likely to make decisions by themselves (IRR 1.094, $p<.10$) and less likely to share decisions with parents (IRR .875, $p<.10$). For children of mothers with at least some college, there is no such impulsivity effect. Point estimates for impulsivity are about twice as large in single-mother families as in two-parent families, but neither of these coefficients are significant due to the imprecision of the estimates.

The contrast between math competence and impulsivity in these family resource subgroups is interesting. Presumably parents would want smarter kids to make decisions but would not want more

impulsive kids to exercise this autonomy. Both math achievement scores and the impulsiveness index predict greater decision-making autonomy in the full sample. The math achievement effect holds regardless of maternal education and family structure (two-parent versus single-mother households).

Discussion

Before considering the meaning of these results, three important limitations should be considered. First, as is often the case when using data sets designed for secondary analysis, we rely on rough or abbreviated measures of key concepts. For instance, the four-item impulsivity index is better thought of as a checklist of beliefs linked to impulsiveness rather than a validated measure of an underlying trait. Second, our decision indexes are based on child reports, which have been shown in other surveys to diverge significantly from parent reports (Bumpus et al., 2001; Dornbusch et al., 1985). We cannot rule out the possibility that the observed relationships stem from reporting differences rather than differences in the underlying phenomena. Impulsive children may be more likely to report being the sole decision-maker (the first option listed). However, it is unlikely that this pattern should be more pronounced in some families than others, suggesting that this possible bias does not influence the findings that family resource levels moderate responses to impulsivity. Finally, while our data are longitudinal, the two-year windows are too wide to meaningfully capture changes in how decision-making power develops and changes hands over time. We can only say how childhood traits and behavior are related to a point-in-time observation of decision-making at adolescence. Limitations such as these are trade-offs associated with the benefits of having a large, longitudinal sample (McCall & Appelbaum, 1991). This secondary analysis should be considered a complement to more intensive researcher-designed studies.

Despite these data weaknesses, we find strong and systematical relationships between children's characteristics and subsequent family decision-making patterns. Our key findings – about math achievement, verbally measured cognitive aptitude, and impulsivity – are consistent across both

lagged cross-sectional and family fixed-effects models, suggesting that results are free from omitted variable bias. Recall that children's influence may be exercised either indirectly through invoking parental response, directly through claiming power, or both indirectly and directly. As answer to our title question, "Independence giving or autonomy taking?" we find evidence to support both independence giving and autonomy taking.

Results linking decision-sharing patterns to math achievement and cognitive aptitude are consistent with the idea that parents cede or partially cede decision-making power based on parental assessment of child capacity. The finding that children who are better at math make more decisions autonomously and their lives are less governed by parent-only decisions makes sense given that math achievement requires logical reasoning and spatial awareness, skills that parents may view as linked to good decision-making. Controlling for math ability, children who score high on a language-based measure of cognitive ability are more likely to share decisions with parents, a fact that holds both across and within families. It may be the case that these verbal-smart children have skills that make it easier for parents to talk with them or these children may seek out parental consultation. These results are not inconsistent with the interpretation of child autonomy claiming, but it is not possible to distinguish parent-led from child-led processes for these measures of child competence.

The final relationship found in both the individual and sibling models is that impulsiveness leads to greater decision-making autonomy. Children who are one standard deviation above average on our measure of impulsivity make 7% to 10% more decisions by themselves. We believe this reflects autonomy claiming, as it is unlikely that parents want more impulsive children to make more decisions on their own. Furthermore, the extent to which impulsiveness matters is moderated by family resources. Recall that the impulsiveness effect is only significant in families likely to have less resources. We interpret this as meaning that more resources allow parents to keep impulsive children in check through strategies unavailable to resource-strained households.

Our conclusions do not contest the finding in earlier work (Dornbusch et al., 1985; Dornbusch *et al.*, 1990; Lamborn et al., 1996; Smetana et al., 2004) that decision autonomy and subsequent delinquent behavior are linked. However, they do add more information about how decision-sharing patterns may arise and as such suggest that this linkage between autonomy and delinquency may be more nuanced than previously acknowledged. First, because both normatively positive and negative characteristics are associated with greater autonomy in decision-making, it may be the case that the autonomy-delinquency effect is concentrated in children who claim autonomy out of an unwillingness to accept reason or authority. Because prior research did not consider the heterogeneity of child attributes, the extent to which child-initiated decision autonomy may lead to delinquency may have been understated. Secondly, earlier work on single-parent families and the "control" of adolescents suggested that family structure mattered, and that single-mothers were less likely to be able to "control" adolescents. Our findings reveal that control matters when a counteracting force is necessary. Some claims for autonomy are made by children who are competent to make decisions. When claims for autonomy are made by impulsive children, mothers likely to have lower resources are unable to counteract young adolescents' desires for autonomy. Through highlighting the influence of children on family decision-making, we hope this work contributes to a growing understanding of child agency in within families.

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TABLE 1

Individual-level analyses predicting decision-making patterns at age 12-13

Incidence-rate ratios (IRR) reported, N=2632

	Sole Decisions		*Shared Decisions*		*Parent Decisions*	
	IRR	p<|z|	IRR	p<|z|	IRR	p<|z|
Girl	1.014	.605	1.321	.000 ***	.861	.000 ***
Age in months	1.014	.000 ***	.998	.687	.990	.000 ***
Race / ethnicity (non-black, non-Hispanic omitted)						
Black	.873	.001 **	.941	.434	1.149	.000 ***
Hispanic	.923	.056 *	1.022	.783	1.063	.093 *
First child	.947	.092 *	.934	.270	1.073	.009 **
Height	1.024	.049 *	.994	.813	.983	.084 *
Chores (age 10-11)	.877	.000 ***	1.105	.159	1.087	.006 **
Time with siblings (age 10-11)	.968	.343	1.173	.022 *	.968	.251
BPI external (age 6-7)	.980	.187	1.002	.938	1.009	.488
Impulsivity (age 10-11)	1.067	.000 ***	.905	.000 ***	.974	.039 *
PPVT (age 10-11 or most recent)	.994	.777	1.238	.000 ***	.923	.000 ***
PIAT mathematics (age 6-7)	1.052	.005 **	1.100	.003 **	.931	.000 ***
Mom education (high school omitted)						
less than high school	.945	.234	.852	.153	1.053	.182
some college	1.001	.981	.872	.039	1.086	.007
college graduate	.896	.057 *	1.040	.683	1.057	.233
AFQT score (year 1981)	1.000	.897	1.003	.047 *	.998	.006 **
Mother employed	1.024	.454	.982	.768	1.006	.835
Household income ($10,000)	.995	.156	1.004	.439	1.002	.536
Father in household	.889	.001 **	1.141	.052 *	1.072	.016 *
Step-father in household	.979	.604	1.066	.460	1.001	.985
Number of siblings	.996	.822	.905	.002	1.030	.014

***p<.001, **p<.01, *p<.10 *Note:* Models are estimated using negative binomial estimated with maximum likelihood procedure. Models also include indicator variables for year of observation and imputed missing values. Robust p-values are adjusted for multiple children within families.

TABLE 2

Sibling fixed effects analyses predicting decision-making patterns at age 12-13

Incidence-rate ratios (IRRs) and p-values reported

	Sole Decisions		*Shared Decisions*		*Parent Decisions*	
Full sample	IRR	p<|z|	IRR	p<|z|	IRR	p<|z|
Girl	1.042	.411	1.219	.003 **	.881	.006 **
Age in months	1.011	.002 **	1.004	.443	.990	.003 **
First Child	.983	.800	.963	.691	1.051	.421
Height	1.033	.183	.929	.030	1.016	.473
Chores (age 10-11)	.898	.127	1.080	.437	1.052	.450
Time with siblings (age 10-11)	.992	.896	.908	.274	1.040	.490
BPI external (age 6-7)	.992	.800	1.056	.263	1.008	.795
Impulsivity (age 10-11)	1.066	.029 *	.931	.091 *	.981	.460
PPVT (age 10-11)	.946	.209	1.252	.000 ***	.942	.124
PIAT mathematics (age 6-7)	1.117	.002 **	.928	.133	.963	.268
N children (N families)	1422	(627)	1058	(460)	1449	(640)

***p<.001, **p<.01, *p<.10 *Note:* Models are estimated using Poisson regression estimated with a conditional maximum likelihood procedure. Models also include indicator variables for year of observation and imputed missing values. P-values are based on robust standard errors, adjusted for multiple children within families. Sample sizes vary by outcome due to lack of within-family variation on outcomes.