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Abstract Principles and Concrete Cases in Intuitive Lawmaking

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Citizens awaiting jury service were asked a series of items, in Likert format, to determine their endorsement of various statements about principles to use in setting child support amounts. These twenty items were derived from extant child support systems, from past literature and from Ellman and Ellman's (2008) *Theory of Child Support.* The twenty items were found to coalesce into four factors (principles). There were pervasive gender differences in respondent's endorsement of the principles. More importantly, three of these four principles were systematically reflected, in very rational (if complex) ways, in the respondents' resolution of the individual child support cases they were asked to decide. Differences among respondents in their endorsement of these three principles accounted for differences in their patterns of child support judgments. It is suggested that the pattern of coherent arbitrariness (Ariely et al., Q J Econ 118(1):73–105, 2003) in those support judgments, noted in an earlier study (Ellman, Braver, & MacCoun, 2009) is thus partially explained, in that the seeming arbitrariness of respondents' initial support judgments reflect in part their differing views about the basic principles that should decide the cases.

Keywords: child support, decision-making, judgments, family law, moral intuition

Many legal rules apportion finite resources among competing parties. The allocated resource is most often money, but not always (as in allocating parental time between separating parents). The allocative rule necessarily embodies criteria that determine the necessary trade-offs as between the parties. How well do such rules accord with the moral, cognitive, and affective intuitions of ordinary lay people? And do citizens' intuitions coherently reflect some consistent set of principles across the cases they consider?

In an earlier article, we examined these questions by looking at the child support amounts favored by a sample of citizens in a series of vignettes or cases that were identical but for the incomes of the parents (Ellman, Braver, & MacCoun, 2009). We found considerable variation among our respondents in the absolute amount of child support they favored in any given single case, but much less variation among them in the case-to-case *adjustments* they made to respond to changes across cases in the parental incomes, illustrating what Ariely, Loewenstein, and Prelec (2003) have called "coherent arbitrariness".

This study continues this inquiry by adding an examination of the abstract principles endorsed by the same respondents who considered these vignettes. In particular, we consider: (a) whether there are clear patterns in their views about possible abstract principles to which one might appeal in deciding on the support amount in particular cases; (b) whether individual differences in their views about these abstract principles are related to their demographic characteristics; and, especially, (c) whether individual differences in their views about abstract principles are systematically reflected in their judgments of the appropriate support amount in particular cases.

It is not entirely clear that ordinary citizens, or professional judges, actually employ principled or rule-based reasoning when evaluating actual cases. Abstract attitudes are often relatively poor predictors of actual behavior (Ajzen & Fishbein, 1977). Our preferences and beliefs are often constructed "on the fly" in real time (see Lichtenstein & Slovic, 2006) or even inferred from watching our behavior (Bem, 1972). Haidt (2001) argues that even in the moral domain, our judgments are largely intuitive and emotional, and only rationalized after the fact into stated principles or rules.

The argument that legal and moral judgments are not rule-based might find further support in the many demonstrations of the impact of stimulus properties, task demands, and information-processing strategies that are basically orthogonal to dimensions of morality and justice; e.g., demonstrations of framing effects, hindsight bias, or psychophysical effects that influence lay judgments in legal settings (e.g., Sunstein, Hastie, Payne, Schkade, & Viscusi, 2003). Indeed, in previous work (Braver, MacCoun, & Ellman, 2008) we documented both a high level of variance in child support preferences as well as robust anchoring and scaling effects. At the same time, however, we also found that the consistency of our respondents' *relative* support judgments—the coherent part of our coherent arbitrariness findings—survived these same manipulations. This "coherent" part of our story might indicate that our

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respondents might have had at least some principled core underlying their judgments.

In this article, we explore this possibility further, by looking at the relationship between respondents' endorsement of abstract, verbal, declarative principles of justice and their more intuitive reactions to legal resolutions in specific instances. While it is tempting to set this up as a contrast between a traditional perspective (PRINCIPLES → CASE JUDGMENTS) and a more reconstructive perspective (CASE JUDGMENTS → PRINCIPLES), an increasingly popular third view is that case judgments reflect a mix of both rule-based or principled factors and associative or idiosyncratic considerations emerging from a constraint satisfaction process (see Robbennolt, Darley, & MacCoun, 2003; Robbennolt, MacCoun, & Darley, 2010; Simon, 2004; Simon, Krawczyk, & Holyoak, 2004).

Legal and Policy Background

The children of separated parents usually reside the majority of time with their mother (Fabricius, Braver, Diaz, & Velez, 2010), who, as "custodial parent" (CP), is typically entitled to an order requiring the "noncustodial parent" (NCP) to pay her child support. Legal changes in recent decades have produced more success in enforcing support orders (Legler, 2003). One of those changes was a federal law, which became effective in 1989, that required states to replace the traditional system, in which judges exercising broad discretion decided child support amounts individually, with statewide child support. Federal law imposed no substantive standards on the states, but did specify that these guidelines needed to be "based on specific descriptive and numeric criteria" that led to the computation of a specific monetary child support award in each case (45 C.F.R. § 302.56(c)(2) (2010)).

State guidelines invariably focus on two key factors in computing the dollar support amount: the number of children, and their parents' incomes. Implementation nonetheless varies within this restrictive framework. Some states use gross parental income in their formula while others use net income; most adjust support amounts to changes in *either* parent's incomes, but in about 10 states, only the NCP's income matters in the guideline calculation. Even when neighboring states employ the same method, they may nonetheless have guidelines that set very different support amounts in identical cases (Pirog, Grie-shop, & Elliot, 2003). Finally, states differ in how they adjust the basic support amount set in their guidelines to take account of a few other facts (including the allocation of custodial time). The basic support based on parental incomes and the number of children remains, however, the core calculation in every state.

Federal law also requires states to bar their judges from making orders that deviate from the guideline amount unless they write an opinion to explain why deviation is required to avoid an "inappropriate or unjust" result in that particular case. In fact, support orders conform to the formulaic guidelines in 85% or more of the cases (Venohr & Griffith, 2003). So while child support obligations are set forth in judicial orders, their content usually reflects the clerical exercise of applying the formula in the state guidelines, rather than a judge's individualized determination. The important policy decisions are made by those who choose the guideline formula, often an ad hoc committee that includes some ordinary citizens.

Accordingly, our purpose in this study was not to model judicial decision-making in child support cases, because there isn't much. We are instead interested in understanding the core principles that ordinary citizens believe should determine the child support amounts specified in a state guidelines formula. Our prior article captured those principles by asking our lay respondents to decide the correct support amount in a series of case vignettes. We thus used their judgments in individual cases as a tool for uncovering their implicit preferences about the underlying rules that should decide them. We found their decisions exhibited clear patterns from which underlying rules of decision could be inferred, and we compared their implicit rules to the rules currently employed by the guideline formulas of several representative states.

This study extends that work by examining the relationship between the *implicit* rules our respondents employed to resolve individual cases, with these same respondents' views about *explicit* but abstract principles taken from the law and the existing legal literature on child support. Each of our respondents indicated their preferred support amount in each of nine different vignettes (cases) with varying parental incomes, effectively creating his or her own mini-guideline. Each respondent also completed 20 Likert items; each item asked the respondent to indicate the level of agreement or disagreement with a possible child support principle. Each principle stated a reason for requiring child support payments, or a purpose or policy goal that the support award should be designed to further. We report here not only their ratings of the various support principles, but more importantly, the *relationship* between those ratings and their support judgments in the cases. We hypothesized that a given respondent's set of support judgments in individual cases would likely reflect the interplay or balancing of the strengths of their endorsement of the multiple principles at stake.

Prior Studies of Lay Judgments About Child Support

We provide here a summary review of prior studies that is based on the fuller description contained in our earlier piece (Ellman et al., 2009). The small number of earlier studies seeking citizen views on child support asked respondents about either cases or principles but not both. They therefore could not relate respondent views on principles with their decisions in cases. Those that inquired about cases used phone surveys or mailed survey forms in formats that placed significant limits on the number of case vignettes put to any one respondent. In contrast, our earlier article (Ellman et al., 2009) reported vignette data from a survey of citizens waiting to be called for jury service in Pima County, AZ, a setting that allowed relatively long written survey instruments, presenting each respondent with many more vignettes than did the earlier work. Our study was thus the first to be able to examine how vignette judgments of individual respondents related to one another—a within-subjects design—resulting in comparatively small, and accurate, standard errors.

We found that while judgments of the appropriate support amount in any given case varied considerably across respondents, there was great consistency across respondents in the *structure* of their personally created support guideline—in both *whether*, and by *how much*, support amounts should change in

response to changes in the income of either parent. Moreover, when both parental incomes were near the median, the mean support amount our respondents favored was essentially identical to the amount called for in a representative state guideline, but when parental incomes diverged from the median, the mean support amount departed from those guideline amounts in consistent and important ways. Our respondents thus favored a guideline structure that was different than the structure exhibited by the guidelines adopted in most states. Finally, while we also found that women, and those with more education, favored somewhat higher support amounts than other respondents for wealthier NCPs, we found no relationship between respondents' favored support amounts and the other demographic variables we considered, including age, income, divorce status, and having had children. We recall further findings of the prior study in the "Results" section, to the extent necessary to provide context for the current results.

The present analysis is based on previously unreported items from the same data set, items that explored our respondents' endorsement of child support principles as assessed by Likert scales. As all respondents were presented with *both* all Likert items *and* all the items asking for particular support amounts for each vignette, we were able to examine the relationship of the entire pattern of a respondent dollar judgments for the vignettes (in essence, the respondent's own guideline table) to that same respondent's ratings of abstract principles (as well as to other respondent characteristics). This is the first study to examine that relationship.

Method

Respondent Pool and Survey Distribution

The sample was fully described in Ellman et al. (2009). Briefly, respondents were citizens called to serve on the jury panel in Pima County (Tucson), Arizona and show less self-selection and bias than jury pools in some other jurisdictions. After arriving and signing in at the jury assembly room, our research assistant was introduced by the Commissioner staff and asked the jurors to voluntarily assist the researchers and the court by participating in a "university-based" survey about child support. Approximately 75% of panel members ($N = 863$) accepted the invitation and completed the survey form they were given, a high response rate from a reasonably representative cross-section of the community.

Of those completing the survey, 55% were women, 62% were married, 35% had been divorced, and 69% had children. The education levels of the respondents were higher than national averages: only about 3% had failed to graduate from high school, 25% had a Bachelor's degree, and nearly 16% a graduate or professional degree. The high level of graduate degrees may reflect the location in Pima County of the University of Arizona. Nearly half (46%) of our respondents earned above $60,000 (vs. 39% for the US), and 5.6% of our respondents earned less than $15,000 (vs. 14.6% for the US, Current Population Survey, 2006).

The Survey Instrument

The survey instruments contained three sections. The final section sought demographic information about our respondents: their gender, whether currently married, whether they have ever been divorced, have children, have ever paid child support, or received it (all dummy coded), and their age and education. A second section presented 20 Likert attitude items. Respondents were instructed to "indicate whether you agree or disagree with each of the following statements by circling a number from 1 (strongly disagree) to 7 (strongly agree)."[1] We provide more detail about the individual Likert items below, in the "Results" section.

The third section contained the cases (vignettes) for which respondents indicated the dollar amount they believed the support order should specify. The vignettes contained the four facts needed to calculate the basic child support amount in the typical state guideline: the number of children, the approximate allocation of custodial time, and each of the two both parents' incomes. A separate methodological study we conducted (Braver et al., 2009) examined whether our results were importantly affected by whether we asked respondents to indicate the support amount they favored by *naming* a number; naming a number after having their response *anchored* by the suggestion that some courts ordered some particular amount, even though other courts did not always agree; *choosing* a number from a range of 18 possible values we supplied (including "zero" and "more than $3,500"); or *rating* on a scale (from "much too low" to "much too high") various potential support amounts we supplied. That study found that the "name" and "choose" formats produced nearly identical mean responses in each scenario we examined (as indicated by a variety of parametric and non-parametric tests), as well as similar standard deviations. We therefore used combined results from both methods ($N = 260$) for the vignette questions examined in this article. Orders were counterbalanced; some subjects began with questions about higher-income parents and worked toward lower incomes, while an equal number were presented with the vignettes in the opposite sequence.

For both vignettes and Likert items, respondents were told to assume that there was one child, a 9-year-old boy, who "lives mostly with Mom, but Dad sees him often, and the child frequently stays with Dad overnight". The vignette section further explained:

> We want to know the *amount* of child support, if any, that *you* think Dad should be required to pay Mom every month all things considered. What will change from story to story is how much Mom earns, and how much Dad earns. There is no right or wrong answer; just tell

[1] We do not here present, analyze or discuss 3 additional Likert items that did not relate explicitly to child support principles. Four of the principles were drawn from Ellman and Ellman (2008), while six others captured views from other publications as well as mother's and father's groups. We used twenty items to measure the ten different principles because we intentionally stated most of the principles in more than one format. (E.g., not only a positive but also a negative version, in which disagreement with the statement would indicate agreement with the principle, as well as otherwise identical versions in which reference was, or was not, made to the custodial mother along with the child.).

> us what *you* think is right. Try to imagine yourself as the judge in each of the following cases. Picture yourself sitting on the bench in a courtroom needing to decide about what should be done about ordering child support in the case and trying to decide correctly. To do so, you might try putting yourself in the shoes of Mom or of Dad or both, or imagine a loved one in that position.

The information about parental incomes varied with the vignette: the father's (obligor's) take-home pay was either 2, 4, or 6 thousand dollars per month, and the mother's (obligee's) take-home pay was either 1, 3, or 5 thousand per month. There were thus nine possible income combinations, and every respondent was asked to make a judgment about all nine.

Results

Reducing the Likert Item Data into Discrete Principles

The exact wording of the 20 relevant Likert items is set out in Table 1. To reduce them to a smaller set of thematic factors (so as to be able to relate them to our respondents' resolution of the cases), we submitted them to an Exploratory Factor Analysis (EFA).

We used the version of EFA most recommended (Floyd & Widaman, 1996), Principal Components Analysis, applying the rotation technique (Varimax rotation with Kaiser normalization) deemed "most popular" (Harris, 2001, p. 417). The analysis extracted four factors with eigenvalues greater than 1. Scree plots showed little additional systematic variation that was interpretable, supporting that four factors are the correct number to extract. Together the factors accounted for 52% of the variance of the items, slightly exceeding the 50% criteria Streiner (1994) recommends as minimum. However, the sample size for this analysis (over 850; over 40 cases per item) far exceeded that regarded as adequate ($N = 200$; 10 per item; Gorsuch, 1983; Streiner, 1994). Guadagnoli and Velicer's (1988) Monte Carlo analysis found that when factor loadings were in the .60 range, solutions that were highly stable across replicated samples were obtained with sample sizes greater than 150, or with still smaller samples when each component contained at least four variables loading at .60 (our results fit both criteria; see below).

Results from an EFA are most interpretable when examining a Rotated Component Matrix, which indicates which items "load" most strongly on which underlying factors (Floyd & Widaman,

Table 1
Rotated Factor Matrix of Endorsements of Child Support Principles

Principle	Factor 1	2	3	4
The father should be required to pay enough to make sure that the child and mother live as well as he does	.804			
The father should be required to pay enough child support to protect the mother and child from suffering any financial loss from divorce	.786			
The father should be required to pay enough child support to make sure that the child lives as well as he or she did during the marriage	.758			
The father should be required to pay enough to make sure that the child lives as well as he does	.739		−.168	
If the father has a lot more money than the mother has, he should pay enough child support to make sure the child doesn't live too much worse than he lives	.706		−.198	
The father should be required to pay enough child support to protect the child from suffering any financial loss from divorce	.678	.243		.196
Child support should not be limited to the amount needed to make sure a child's basic physical and educational needs are met. If the father can afford it, he should be required to pay more	.544	.237	−.389	
The mother should receive child support payments from the father even if she can meet the child's basic physical and educational needs without them	.162	.685	−.176	.173
Even if the mother has enough money to provide the child with everything that might be important to the child's well-being, the father should still have to pay some child support	.210	.675		.216
The father should be required to pay child support even if he is in poverty		.666		−.162
The more income the mother earns, the less the father should have to pay in child support		−.665		.314
Even if the mother's income goes up a lot, the father's required child support payments should stay the same.	.257	.659	.229	−.304
When the mother has enough money to support the child fully, the father should not have to pay child support at all		−.604	.401	
We should only require enough child support to make sure a child's basic physical and educational needs are met. There should be no additional child support required beyond that	−.196	−.205	.656	
Parents should support their children, but the law should never force one parent to pay child support to the other.		−.237	.629	−.172
The father should be required to pay only the child support amount needed to make the child completely comfortable, even if the father has a high income and lives much better than the child	−.262		.616	.221
The purpose of child support is not to make sure the child lives as well as the father	−.204		.302	
While child support is very important, the father should be able to keep enough of his earnings to be able to feed himself and pay for a decent place to live				.697
The most important reason to require child support payments is to ensure the well-being of children			−.244	.517
The father should not have to pay so much child support that his children live better than he lives				.510

1996). This matrix ($N = 863$) is presented in Table 1 (loadings less than ± .15 are eliminated for readability).

Factor 1 comprises 7 items with high positive loadings. These items all propose support principles that are very generous toward the residential household. We call this factor "Gross Disparity Plus", following on the "Gross Disparity" principle, identified in Ellman and Ellman (2008), which calls for a support order that ensures the child's post-separation living standard is not "grossly disparate" from the living standard of a higher-income support obligor. This is a fairness-based claim on behalf of the child. The mean agreement with the items comprising this factor was 4.99 (on the seven-point Likert scale), which seems consistent with our previously reported finding that our respondents favored child support amounts that were higher than most current state guidelines for cases in which custodial parent incomes are low (Ellman et al., 2009). (In order to obtain average agreement, rather than weighting by the factor loadings, we followed the common alternative of unit-weighting the items comprising each factor, after reverse coding any with negative loadings.)

Factor 2 comprises 6 items, all with comparable loadings near .6. We call this the Dual Obligation factor. Three of the six items were intended to capture a principle by that name, identified by Ellman and Ellman (2008), which emphasizes that both parents (hence "dual") should support the child, in contrast with alternative rationales for requiring support that emphasize ensuring the child an acceptable living standard. The remaining three items also emphasize the father's obligation to support the child. A principle like Dual Obligation is needed to explain why a high-income custodial parent, financially able to alone provide the child a comfortable living standard, should ever receive any child support from the other parent.

Average agreement with Dual Obligation is 4.82 on the seven-point Likert scale, a bit lower than for Factor 1, but still rather strongly endorsed, on average. While EFA requires that items loading on a factor have higher correlations with one another than with items loading on other factors, it does not require zero correlations between items on distinct factors. Table 2, which provides the Factor means, standard deviations, and correlations, shows that Factor 1 correlates reasonably highly (.36) with Factor 2 (prior to rotation), implying that people who believe in generous support awards also tend to believe in dual obligation. This is entirely plausible, since the factors do not usually conflict, even though they do tap distinct reasons for requiring support.

The common thread of the three items that comprise Factor 3 seems to be a limit on the father's obligations, by not requiring child support at all, or to require only enough support to meet the child's "basic needs" or to make the child "completely comfortable," even if the father has the income to do much more. We, therefore, label it "Limiting Father's Responsibility." Table 2 shows that Factor 3 correlates negatively with Factor 1 (−.37) and Factor 2 (−.33), which is not surprising. Overall agreement with Limiting Father's Responsibility is far lower than with the first two factors, averaging 2.81 (representing slight disagreement, on average).

Finally, Factor 4 comprises 3 items. We call it the Earner's Priority Principle, after Ellman and Ellman (2008), because that phrase seems to capture the sense of the highest loading item. Average agreement with the Earner's Priority Principle is the highest of all the factors (5.69), and is largely uncorrelated with the other Principles, except for a slight negative association with Dual Obligation.

Relating Endorsement of Principles to Demographic Factors

Table 2 also presents each Principle's relationship to various demographic variables. Some demographics were not significant at all: the degree to which respondents endorsed any of the four principles was unrelated to whether they were currently married, ever divorced, or had children. Education level, income, and age were related (negatively) to Limiting Father's Responsibility only. Gross Disparity Plus was negatively associated with respondents' income but positively associated with respondent age. All these associations were quite small, but were significant because of the large *N*.

Gender, the only remaining demographic variable, had, by contrast, comparatively large and highly significant associations with the first three principles. The differences between the responses of men and women are not surprising. A distinction has been drawn between neutral areas of law (in which people asked to think about possible rules of adjudication have no reason to assume they would likely be one or the other side of potential disputes) and non-neutral areas (in which they do) (Eisenberg, 1983). Family law is clearly non-neutral with respect to gender: men and women are likely to imagine themselves in different positions with respect to the law's possible application to them. Twelve percent of the respondents in our study said at some point there had been a court order requiring them to pay child support, and 18% said that at some point there had been a court order requiring someone to pay support to them. Nearly all the support obligors were men, and nearly all the obligees were women.

Accordingly, we decided to break out the findings by a combination category: females who *have* received child support; females

Table 2
Factors of Child Support Principles: Overall Mean Endorsement, Correlations Among Factors, and Correlations With Respondents' Demographic Characteristics

Factor	Mean (*SD*)	Factor 2	Factor 3	Factor 4	Gender	Married	Ever divorced	Children	Education	Household income	Age
1	4.98 (1.39)	.36**	−.37**	−.03	−.30**	−.05	−.05	−.01	−.04	−.08**	.12**
2	4.82 (1.31)		−.33**	−.09**	−.35**	.01	−.01	−.01	.02	−.01	.05
3	2.82 (1.38)			.06	.22**	.03	.04	−.02	−.14**	−.11**	−.07*
4	5.69 (1.36)				.04	−.04	−.07	−.02	.03	.07	.07

* Correlation significant at .05 level (2-tailed). ** Correlation significant at .01 level (2-tailed).

who *have never* received child support; males who *have never* paid child support; and males who *have* paid child support.[2] The results are shown in Table 3. Gross Disparity Plus and Dual Obligation both show a regular and significant decline going from group to group; Tukey tests showed that each mean was significantly different from each other mean, suggesting consistently decreasing levels of endorsement of the respective principle from group to group of those listed above. Limiting Father's Responsibility had a reverse pattern; Tukey tests showed that the two female categories were each different from the two male categories, but the differences within males and within females were not significant. For the last factor, Earner's Priority Principle, Tukey tests showed that only the two most extreme groups, male payers and female receivers, were significantly different.

Relating Endorsement of Principles to Resolution of Individual Cases

The primary purpose of the EFA was to provide measures of our respondents' endorsements of abstract child support principles, so that we could then examine the relationship between those principles and the respondent's judgments in particular support cases. Our measure of each respondent's views about abstract principles was the average rating, on the 1–7 Likert scale, that respondent gave the set of items that comprised each of the four principles revealed by the EFA. Our measure of each respondent's view about an individual case was the amount of child support the respondent named or chose for that case.

Recall that each respondent was asked to provide the support amount he or she believed appropriate in all nine of the income combinations generated by assigning the father a take-home pay of either two, four, or six thousand dollars per month, and the mother a take-home pay of either one, three, or five thousand dollars per month. Below is sample language describing this additional income information for one of the nine cases given every respondent:

> **Mom's** monthly take-home pay is **$5,000 a month**, and **Dad's is $6,000**. How much should Dad be required to pay Mom every month for child support, all things considered?

We reported fully on the vignette results in our earlier article (Ellman et al., 2009), but we review the basic findings again here in order to lay the foundation to explore their relationship to the endorsement of principles.[3] Our approach for analyzing the vignette data used Hierarchical Linear Models (HLM), appropriate when variations are both within and between subjects (Bryk & Raudenbush, 2002). Thus, each subject has a *series* of child support judgments (these vary *within* subjects), but *only one* attitude on, for example, the Dual Obligation principle (instead, these attitudes vary *between* subjects). To analyze such data, the HLM approach requires formulations of one regression model at "Level 1," *within* each subject, and a second regression model at "Level 2," *between* subjects.

Our fundamental Level 1 model, using standard HLM notation, is below:

$$CSAmount_{ij} = b_0 + b_1 CPIncome_j + b_2 NCPIncome_j + b_3 CP_j x NCP_j + \varepsilon_{ij} \quad (1)$$

To translate, we want to predict the Child Support Amount (CSAmount) respondent *i* will produce for the *j*th vignette. Our Level 1 model specifies that this is a function of a constant, b_0, plus an amount based on the custodial parent's income (CPIncome) we provide for that *j*th vignette, plus another amount due to the non-custodial parent's income (NCPIncome) of the *j*th vignette, plus an amount based on their interaction, plus a random error term ε_{ij}.

All three *b* coefficients were found in our previous article to be significant; its results are depicted in Figure 1. As can be seen by the upward slope of the lines (due to the positive value of b_1), respondents thought that as NCP's income increases, the amount of child support should increase significantly, a principle indeed represented in all current state guidelines. The fact that three different lines are required for the three different CP incomes—that the three lines are not on top of one another—illustrates that our respondents disagree with the guidelines of those states that don't vary support amounts with CP's income as well as NCP income. In particular, the value of b_2 was significantly negative, which implies they believe that as CP's income increases, the amount of child support should decline, for any given level of NCP income. Finally, the three lines are not parallel, but instead fan out as NCP income increases. This is due to the interaction between the two parents' incomes (significant b_3). Our respondents believed that the lower the income of the CP, the more rapidly the support amount should increase with NCP income, a principle about which state guidelines differ.

The bare vignette findings presented in Figure 1, taken from our previous article, are *average* results, averaged over *all* respondents, without regard to their views about child support principles. The primary purpose of this article is to disaggregate this average by taking into account systematic individual differences in these vignette judgments. Thus we are here asking whether there is a systematic relationship between variations in our respondent's beliefs about the four principles revealed in the EFA of the Likert factors, and variations in the support amount they name in response to the vignette questions. That is, are the results of Figure 1 an average of distinct and systematically differing respondents?

This question requires recognition that any given respondent might prefer a system of child support guidelines that differs from another respondent's. In other words, the two respondents might have different child support equations, i.e., values for the *b* coefficients in (1). Some respondents may prefer higher child support amounts in general across all incomes; some respondents may increase child support more with NCP's income increases than others, etc. This eventuality can be handled parsimoniously and simultaneously by incorporating HLM's Level 2 equations (Bryk & Raudenbush, 2002), in which one

[2] This procedure discarded the 34 respondents (4%) whose status as support obligor or obligee was gender-atypical, or who had experience as *both* support obligor and support obligee.

[3] The following analyses were based on the 260 respondents in the Name and Choose conditions who completed *both* the Likert and the scenario portions of the survey with no missing data. This subset of respondents yields average values for Figure 1 that are slightly different than the analogous ones reported in Ellman et al. (2009).

Table 3
Mean Endorsement of Likert Factor Principles of Child Support, by Gender and Whether Respondent Had Ever Paid or Received Child Support (SD in Parentheses)

Likert factor principle	Name	Females receive but not pay	Females neither receive nor pay	Males neither pay nor receive	Males pay but not receive
1	Gross disparity plus	5.63[a] (1.00)	5.18[b] (1.32)	4.58[c] (1.39)	4.13[d] (1.42)
2	Dual obligation	5.54[a] (1.06)	5.10[b] (1.20)	4.41[c] (1.24)	4.03[d] (1.31)
3	Limiting fathers' responsibility	2.26[a] (1.07)	2.63[a] (1.35)	3.19[b] (1.39)	3.20[b] (1.31)
4	Earner's priority	5.48[a] (1.00)	5.87[ab] (0.92)	5.81[ab] (1.87)	5.99[b] (0.99)

Note. Any two mean values *within a given row* that do *not* share a common superscript *are significantly different* by Tukey test. 1 = strongly disagree, 4 = neutral, 7 = strongly agree.

first adds an *i* subscript to each *b* coefficient. Thus, the Level 1 Eq. (1) becomes:

$$CSAmount_{ij} = b_{0i} + b_{1i}CPIncome_j + b_{2i}NCPIncome_j + b_{3i}CP_jxNCP_j + \varepsilon_{ij} \quad (2)$$

The new *i* subscript allows individual respondents to differ from one another in the four coefficients that underlie or describe their child support guideline system. Then we formulate four Level 2 equations, each saying that one of the above 4 *b* coefficients in (2) for a certain respondent is itself predictable from specified characteristics of that respondent. For example, we can examine whether any or all of the four Likert factors relate to the general height or intercept (b_0) a respondent gives for the lines in Figure 1 by setting up a Level 2 equation specifying the following four predictors for the b_0 (intercept) coefficient for respondent *i*:

$$b_{0i} = u_{10} + u_{11}Likefact1_i + u_{12}Likefact2_i + u_{13}Likefact3_i + u_{14}Likefact4_i + \varepsilon_{ij} \quad (3)$$

Equation 3 specifies that the intercept preferred by respondent *i* for his or her guideline system is an additive function of that respondent's endorsement of the four Likert principles. In an analogous way, we created Level 2 equations for each of the remaining 3 b coefficients (i.e., b_{1i}, b_{2i}, and b_{3i}.) Then we substituted the right side of these equations into Eq. 2 for each of the *b* coefficients and got one large "combined" equation that we then estimated with a single HLM analysis (which solved for all 20 coefficients simultaneously). This analysis revealed many non-significant terms. As is recommended for HLM (Raudenbush & Chan, 1993), all the non-significant terms were then deleted and the equation was analyzed a second time allowing only the remaining, initially significant terms, to be re-estimated simultaneously; doing so leads to a more parsimonious "final" equation with fewer coefficients, but all were (and in our case remain) statistically significant. Table 4 presents these coefficients (the intercept was retained though non-significant in order to estimate values in the correct scale). Table 4 shows that none of the Principles had a significant "main effect", that is, predicted the b_0 coefficient or

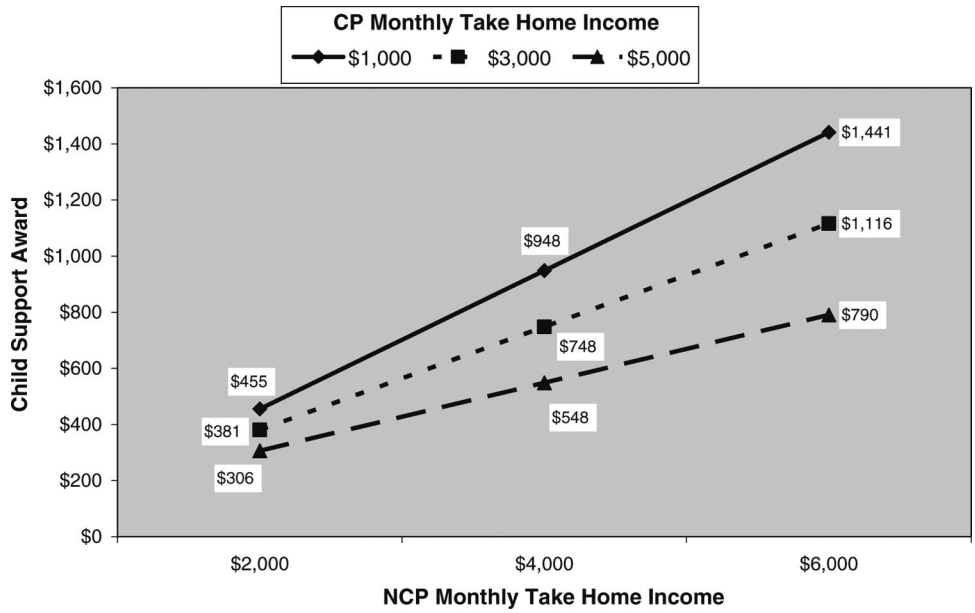

Figure 1. HLM analysis from respondents' support amounts.

Table 4
Significant Coefficients From Combined Level 1 and Level 2 HLM Equation

Parameter	*b* estimate	*df*	*t*	Sig.
Intercept	−63.60	1907.84	−1.46	.144
NCPIncome	149.34	1478.82	6.56	.000
Gross Disparity Plus × CPIncome	−14.92	1963.50	−2.88	.004
Gross Disparity Plus × NCPIncome	38.67	1088.96	11.01	.000
Gross Disparity Plus × CPIncome × NCPIncome	−3.00	2272.55	−2.51	.012
Dual Obligation × CPIncome	23.22	2169.20	3.73	.000
Dual Obligation × CPIncome × NCPIncome	−4.74	2318.86	−3.29	.001
Limiting Father's Responsibility × NCPIncome	−22.08	1802.77	−6.23	.000
Limiting Father's Responsibility × CPIncome × NCPIncoe	1.32	2210.25	1.93	.054

intercept. Thus the Principles (or Factors) were not related to the overall elevation of the lines. Instead, Principles 1, 2, and 3—Gross Disparity Plus, Dual Obligation, and Limiting Father's Responsibility (but not Principle 4, Earner's Priority Principle, which was nowhere significant)—all make statistically significant contributions to the child support judgments by interacting with the level of custodial parent's income in the vignette, non-custodial parent's income, or both. Moreover, since these coefficients shown in Table 4 were significant in the context of a simultaneous analysis, each Factor can be said to make an *independent unique contribution* to the pattern.

Importantly, Factors 1–3 relate to the vignette judgments in three distinguishable patterns. As seen in Table 4, Gross Disparity Plus interacts with or moderates all three coefficients (b_1, CPIncome; b_2, NCPIncome; and b_3, their interaction); Dual Obligation moderates the CPIncome main effect and the interaction, but not the NCPIncome effect; while Limiting Father's Responsibility moderates the NCPIncome effect and the interaction, but not the CPIncome effect. That three distinct patterns were found is remarkable and described more fully below.

As recommended by Aiken and West (1991), we elucidate these patterns further by comparing the average child support judgments, as estimated or computed from the coefficients of Table 4, for someone who strongly endorses one of the first three principles, to the support judgments for someone whose support for that same principle is much weaker (and temporarily assume both people are average in their endorsement of the other two principles). Figure 2 present the first of these analyses, comparing respondents who strongly endorse the Gross Disparity Plus principle, but are average in their support of the other two principles, with respondents whose support for Gross Disparity Plus is weaker (but who are also average in their support of the other two principles).[4]

One can see that the basic patterns revealed in Figure 1 are repeated in Figure 2 for both strong and weak supporters of Gross Disparity Plus. (Indeed, the Figure 1 values are the average of the two corresponding Figure 2 values. For example, the average of $1,707 and $1,176 in Figure 2 is the $1,441 of Figure 1.) That is, for both strong and weak supporters of Gross Disparity Plus, there are three distinct lines at different heights, with an upward slope to each, and with some fanning out. But one can also see that strong supporters of Gross Disparity Plus (that is, individuals strongly in favor of reducing income disparities between the CP and NCP households) preferred higher child support amounts, as all three lines for them are higher than the corresponding lines for the weak supporters, exactly as might be expected.

But in addition, Table 4 shows a significant interaction between Gross Disparity Plus and CP income, with a *negative* coefficient. That is, strong supporters of the Gross Disparity Plus principle increase their support amounts significantly more rapidly, with declining CP income, than do weak supporters. One can see this illustrated in Figure 2 by comparing the distance across the three lines plotting support amounts for strong supporters to the shorter distance across the three lines plotting the support amounts for weak supporters. One can also look at particular examples, such as the three cases with the highest NCP income, $6,000 (the rightmost *solid* markers in Figure 2): those high on Gross Disparity Plus favored, on average, child support awards of $880, $1,293, and $1,707, for CP incomes of $5,000, $3,000, and $1,000, respectively, thus increasing support by about $414 for each $2,000 reduction in CP Income. For the same set of cases, those low on Gross Disparity Plus (the *open or unfilled* markers) favored values of $701, $938, and $1,176, thus increasing support by a significantly smaller amount of $238 for each $2,000 of additional CP Income.

There was also a significant interaction between Gross Disparity Plus and NCP income with a *positive* coefficient. That is, the child support awards also increase substantially more with rising NCP income for strong supporters of Gross Disparity Plus, than for weak supporters. This point is illustrated in Figure 2 by comparing the slopes of the three lines plotting support amounts for weak endorsers of Gross Disparity Plus to the significantly steeper slopes of the three lines plotting support amounts for the strong endorsers. Or one can look at particular examples, such as the three cases with the lowest CP income, $1,000 (solid two lines in Figure 2): Those high on Gross Disparity Plus (solid markers) favored child support amounts of $530, $1,118, and $1,707 for NCP's incomes of $2,000, $4,000, and $6,000, respectively, thus increasing the amount by $589 for each $2,000 of additional NCP income, while those low on Gross Disparity Plus (open unfilled markers) favored amounts of $380, $778, and $1,176, for a significantly

[4] Following Aiken and West (1991), these values were computed by inserting into the final equation implied by Table 4 the mean values over all respondents for Dual Obligation and Limiting Father's Responsibility, while for Gross Disparity Plus we inserted either the mean value (M = 4.92) plus the standard deviation (SD = 1.33), for strong supporters (=6.25), or the mean value minus the standard deviation (=3.59), for weak supporters. "Weak supporters" in this case were thus in mild disagreement with the principle, as the midpoint in the seven-point Likert scale was 4.

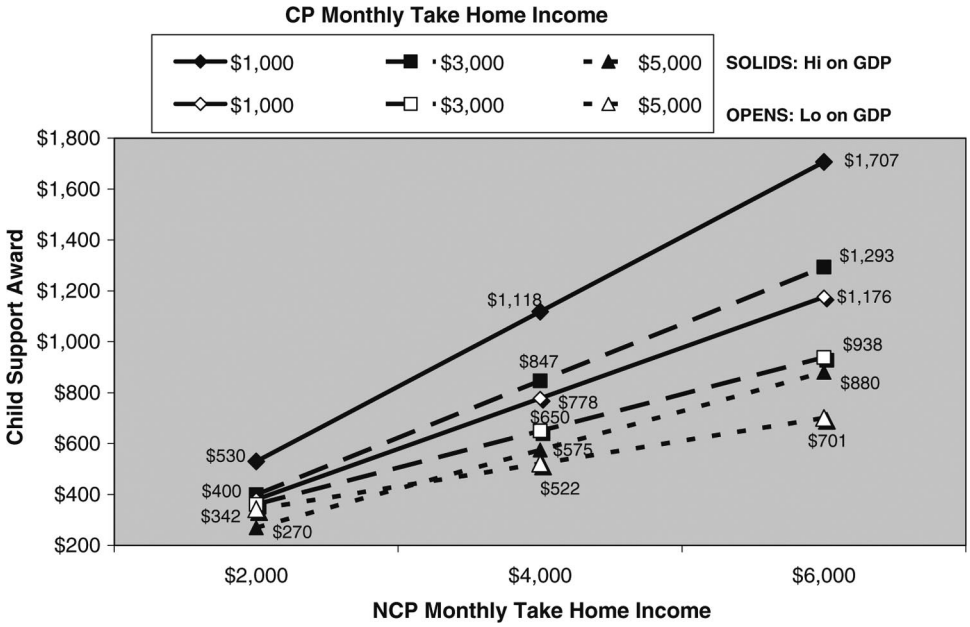

Figure 2. Child support judgments of those high and low on Gross Disparity Plus (GDP).

smaller increase of $398 for each additional $2,000 of NCP take-home income.

Both the steeper slope of the three lines plotting support amounts for strong endorsers of Gross Disparity Plus, and the greater distance across them, follow logically from the differences between these respondents in what they tell us they believe about the principles: in every case, the child support awards favored by strong supporters of Gross Disparity Plus reduce the parental income disparity more than do awards favored by weak supporters of this principle. (There was also a significant negative coefficient for the three-way interaction, but it was small (−3.0), and not interpreted further here for simplicity sake.)

Figure 3 presents the analogous analysis for strong and weak endorsers of the Dual Obligation principle (Likert Factor 2). This is the principle that emphasizes the father's support obligation as the rationale for child support orders, rather than the importance of providing the child a better living standard. Strong supporters of Dual Obligation should be more resistant than weak supporters to arguments for relaxing the child support obligation when it is not needed to maintain a decent living standard for the child. So they should set higher support amounts than weak endorsers in vignettes that combine a high income for the custodial mother with a low income for the father. But there is no apparent reason why strong and weak endorsers of Dual Obligation should differ very much with respect to vignettes that combine low custodial mother

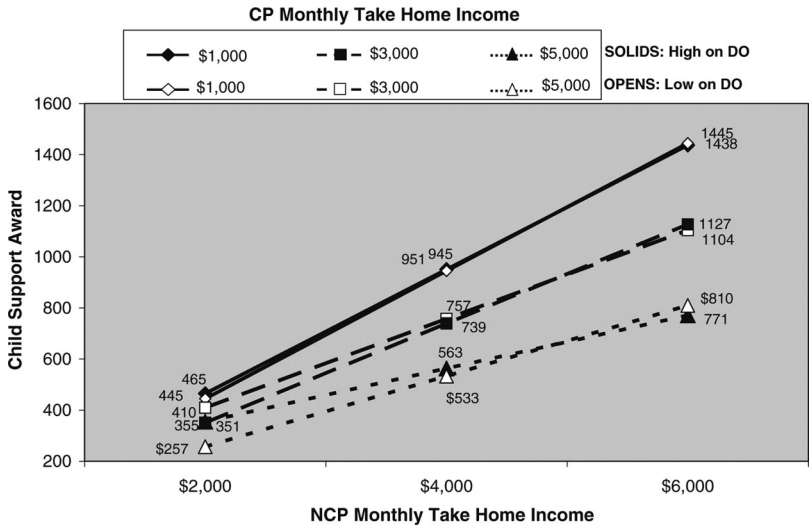

Figure 3. Child Support judgments of those high and low on Dual Obligation (DO).

income and high father income, given that they share an average endorsement of the principle that is more important in such cases, Gross Disparity Plus (because in these cases, unlike the first group, the child's living standard depends very much on the support payment).

That is just what we find. For the case of the CP with lowest monthly income ($1,000), and the NCP with the highest ($6,000), the fitted support amounts for the two groups are essentially identical, $1,445 and $1,438. (Recall that the comparison is between the fitted support amounts for those high or low in their support for Dual Obligation, but average in their support for both other principles.) By contrast, the largest difference between the two groups arises when the CP has the highest income we asked about ($5,000) and the NCP the lowest ($2,000)—$355 in support for the high Dual Obligation respondents, and $257 for the low. One can also see two more general phenomena in Figure 3 that are consistent with this difference. First, the largest difference within any pair of high and low Dual Obligations lines occurs for the pair at the bottom of the graph–the highest income CP's. Second, within each pair, divergence between the lines increases as one moves to the left, from the highest income NCP to the lowest. These patterns all follow logically from the difference between these groups in the strength of their support for the Dual Obligation principle.

Finally, note that each pair of lines crosses, so that the weak endorsers of Dual Obligation favor higher support amounts at the high NCP income (on the right side of the graph), while the strong endorsers of Dual Obligation favor higher support amounts at the low NCP income (on the left side of the graph). This is visually apparent in Figure 3 for the two lowest pairs of lines that plot the amounts for the high and middle income custodial mothers. It is also true for the pair at the top that plots the lowest income custodial mothers, although it is visually less apparent because this pair of lines generally diverges less than the other two pairs. It is not entirely obvious why weak believers in Dual Obligation should generally favor higher support amounts than strong believers, at high paternal incomes. Perhaps their weaker commitment to the Dual Obligation principle makes the Gross Disparity Plus principle more salient for them, even when (as here) we are comparing respondents who are all average in the strength of their belief in the Gross Disparity Plus principle. In any event this difference in support amounts favored by high and low endorsers is relatively small.

Figure 4 presents the same analysis for strong and weak believers in Limiting Father's Responsibility (Likert Factor 3). It is apparent from Figure 4 that strong believers in Limiting Father's Responsibility favor smaller child support awards than weak believers, as logically they should. Figure 4 also shows that, for any given CP income, the support amounts favored by the strong and weak believers increasingly diverge as NCP income increases because strong believers in Factor 3 raise support amounts less as the father's income increases. The largest gap between strong and weak believers ($328) occurs in the case with the highest paternal income ($6,000) and lowest CP income ($1,000)—the case which generally yields the highest support awards. Strong supporters of Factor 3 particularly part with other respondents in their resistance to these high support amounts, as they logically should.

The preceding analysis compared respondents who are strong supporters of one of the three principles predictive of support amounts to respondents who are weak supporters of the same principle. Figure 5 presents a different window into the data. It shows the support amounts favored by those high on each of the first three factors (but average on the other two) as ratios to the support amounts favored by respondents average on all the factors. It thus provides a measure of the *relative* support amounts favored by strong endorsers of each principle. Notice how the relative

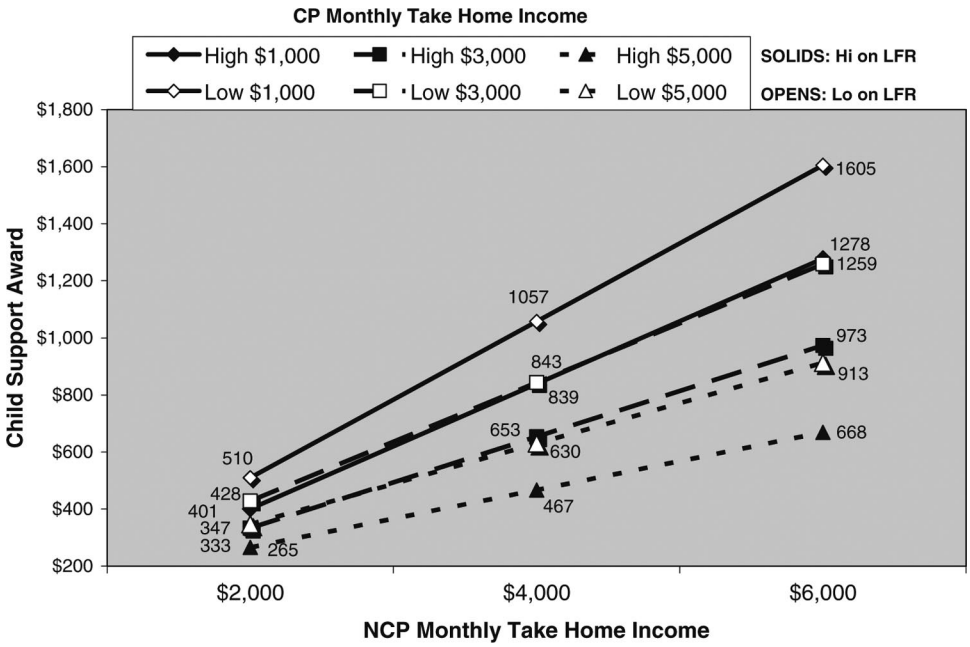

Figure 4. Child support judgments of those high and low on Limiting Fathers' Responsibility (LFR).

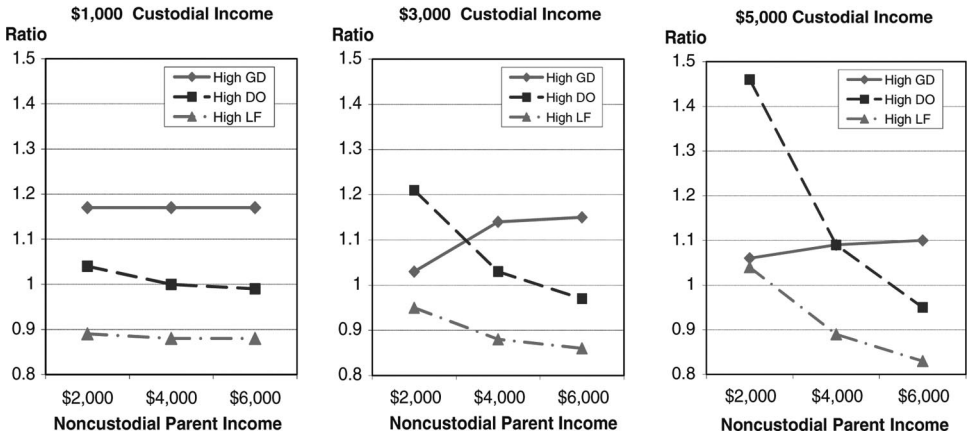

Figure 5. Estimated Average Support Amounts Favored by Those High on Each Factor, As a Ratio to the Estimated Average Support Amount for Respondents Average on All Three Factors. *Source.* Pima County Jury Pool. $N = 260$. High GD = respondents whose mean rating of Likert attitude items comprising the Gross Disparity Plus factor are one standard deviation higher than the mean rating of all respondents; High DO = respondents whose mean rating of Likert attitude items comprising the Dual Obligation factor are one standard deviation higher than the mean rating of all respondents; High LF = respondents whose mean rating of Likert attitude items comprising the Limiting Father's Responsibility factor are one standard deviation higher than the mean rating of all respondents. Support amounts are the HLM fitted amounts for a respondent with the stated mean ratings of the Likert attitude items. Ratio = the ratio of the support amount for the group in question to the HLM fitted amount for a respondent whose mean rating of the Likert items are average for all three factors.

support amounts favored by strong endorsers of Gross Disparity Plus and Dual Obligation reverse position as one moves from Figure 5a–c, in a pattern that follows logically from the views about child support these respondents say they have.

Clearly, then, our respondents' views about abstract principles of child support law were related in powerful and sensible ways to the child support amounts they chose in specific cases.

Study Limitations

Before discussing the implications of our results, we note three possible limitations of the study. First, our respondents were drawn from one county in Arizona. The absence of important differences in attitudes or case resolutions among demographic groups within our sample, apart from gender, may suggest that geographical differences could also be fairly minimal, at least within the United States, but further research could reveal whether the relationship between respondents' attitudes and their case resolution is different for citizens who live elsewhere. Second, we cannot know whether those 25% of the jury pool who declined the survey differed in some relevant and systematic way from those who completed it. Our response rate is nonetheless far higher than many survey studies obtain, and the survey's demographic section allowed us to identify relationships between demographic factors and respondent answers. Third, our EFA accounted for just over half of the variance. However, the variance left unexplained by the three main factors is less important to this study's purpose than is the fact that those three factors predict our respondents' case judgments.

Discussion and Policy Implications

Our earlier article (Ellman et al., 2009) examined the tradeoffs implicit in the judgments of ordinary citizens asked to set child support amounts that allocate a finite resource (money) among the two parents and their child. This article extends the inquiry by asking the same citizens to rate each of 20 statements that could be offered to guide decisions about these trade-offs, and examining whether their ratings cohere into a smaller set of factors capturing basic principles that predict their judgments in particular cases. We found three principles that did, showing the relationship in two ways: (a) by comparing the estimated support amounts favored by strong endorsers of each principle with the amounts favored by its weak endorsers, and (b) by comparing the estimated support amounts favored by strong endorsers of each principle to the strong endorsers of the other principles. Both methods revealed a logical connection that was nuanced, as well as strong, between respondent views about basic principles and their resolution of particular cases. E.g., not only did strong believers in Gross Disparity Plus consistently favor larger child support awards than did weak believers, that gap grew with the father's income advantage, whether it resulted from rising paternal income or declining maternal income. In a nutshell, those who cared the most about economic disparities in the abstract did the most to address them in the cases.

Moreover, the same pattern was evident in comparing the support amounts favored by strong supporters of Gross Disparity Plus with the amounts favored by strong supporters of the Dual Obligation principle. Strong believers in Gross Disparity Plus favored higher awards whenever the father's income was greater than the mother's income, but when the mother's income was significantly greater than the father's, strong believers in Dual Obligation favored the higher award. This pattern follows logically from the relatively stronger belief of Dual Obligation supporters in ensuring that every father contributes to his child's support, and their relatively weaker belief in reducing income disparities that favor the non-custodial parent. Finally, strong believers in Limiting

Father's Responsibility generally favor lower support amounts and, like strong believers in Dual Obligation, are relatively insensitive to increases in paternal income. But at the lowest paternal income, strong believers in Limiting Father's Responsibility favor lower support amounts than the strong believers in Dual Obligation.

The substantial and differentiated correspondence between our respondents' endorsement of abstract principles and their resolution of specific cases is all the more striking because they were not asked to resolve the cases by reference to principles. To the contrary, they were told there was no right or wrong answer, that in each case they were just to choose or name the dollar support amount that they believed "right." Only after completing that task were they asked to think about support principles, when the Likert items were presented to them. They may have decided cases using unarticulated and intuitive principles that were then revealed, at least in part, by the Likert items they later completed. Or perhaps the task of resolving a series of cases sharpened their intuitive sense of the appropriate principles and increased the correspondence between their endorsement of principles and their resolution of the cases.

Our earlier article (Ellman et al., 2009) inferred our respondents' decision rules from their answers to the vignettes. The inferred rules reflected the structure of their support guidelines, which was remarkably consistent across respondents. For example, our respondents consistently favored support amounts that increased more rapidly with NCP income when CP income was lower. On the other hand, there was considerable dispersion in the absolute amounts of our respondents' child support judgments. We observed that this combination of dispersion and consistency is similar to judgment patterns found in other domains that Ariely et al. (2003) called "coherent arbitrariness": arbitrariness in absolute judgments, or their starting point, combined with coherence in relative judgments from that starting point. Our current analysis finds that much of the apparent arbitrariness in our respondents' monetary judgments is reduced once their attitudes toward a set of child support principles are taken into account. Their monetary judgments thus appear less arbitrary and more coherent. Of course, some apparently arbitrary variation remains, as Ariely et al. would predict. They followed earlier arguments by Kahneman and his colleagues (e.g., Kahneman, Ritov, & Schkade, 1999; Kahneman, Schkade, & Sunstein, 1998) in attributing the arbitrariness to the inherent psychometric and psychophysical difficulties citizens encounter in using a dollar metric lacking clear anchor points, and our earlier anchoring and scaling analyses (Braver et al., 2008) demonstrate that this is an important part of the story for child support judgments as well.

One might speculate that incommensurability problems are greater for individuals asked to measure pain or blameworthiness in dollars, than for respondents asked to allocate child support obligations between parents. The income gain to one parent and the income loss to the other share a common metric of dollars, perhaps providing respondents with anchor points. Yet incommensurability difficulties surely remain. Our respondents may not believe the well-being value of a dollar is the same for each party, nor are the moral judgments one must make in setting support amounts measured in dollars. At least in our study, respondents who shared a relevant moral sentiment dealt with the incommensurability problems more similarly to one another than to those with a different moral view. Whether this would occur in domains with more obvious problems of incommensurability would seem a useful subject for further research.

One would expect our respondents' judgments in individual cases to be made by cognitive System 1 (associative and holistic), rather than a cognitive System 2 application of principles to the facts (Chaiken & Trope, 1999; Sloman, 1996; Stanovich, 2004; Wegner & Bargh, 1998). But there is no reason to assume a post hoc examination of a series of related System 1 judgments would exhibit no principled consistency. Robbennolt et al. (2003) have argued that legal decision-making routinely requires fact finders to pursue multiple goals, and have identified four principles of cognitive goal management to deal with this complexity. They concluded that System 1 architecture is particularly well suited to this goal management task. While legal decisions require justification in terms of rules and principles, the common law method traditionally derives those principles inductively from a series of individual judgments, in contrast to the deductive method of the civil law system.

Classic descriptions of the common law method (e.g., Levi, 1949) portray a process reminiscent of what philosophers call reflective equilibrium (Daniels, 2008), in which the rules are refined as additional cases are presented for decision. We speculate that our respondents, too, began our survey with some sense of the appropriate norms to apply to the familiar problem of allocating resources among family members, even if they had had no reason to articulate it. We cannot tell whether our respondents then engaged in a process akin to reflective equilibrium, modifying their initial (and still unarticulated) views as they worked through the vignettes. But that seems more plausible than the alternative hypothesis that they a brought a set of fully formed principles of child support with them to the task, and proceeded to apply them systematically and unamended to each of the nine vignettes presented to them in turn.

Many areas of law require trade-offs between competing claims; the public's views of these trade-offs are surely of interest to policy-makers. Some might guess that little could be learned from asking citizens their views about such trade-offs, thinking either that their choices would be random or at least unsystematic, or would simply reflect the balance most favorable to their self-interest. Yet even though child support is a non-neutral area of law, our first study showed there is in fact great consistency across our respondents in their resolution of key issues about the structure of child support rules. This study, by revealing the logical consistency in the relationship between our respondents' choice of absolute amounts, and their views about more abstract principles of decision, suggests even more strongly that their choices are quite systematic and coherent. Inquiries such as this, conducted among the citizens of any jurisdiction, would therefore seem an important and helpful input into that jurisdiction's law-making process.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84,* 888–918. doi:10.1037/0033-2909.84.5.888

Ariely, D., Loewenstein, G., & Prelec, D. (2003). Coherent arbitrariness:

Stable demand curves without stable preferences. *Quarterly Journal of Economics, 118*(1), 73–105. doi:10.1162/00335530360535153

Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 1, pp. 1–62). New York: Academic Press.

Braver, S. L., MacCoun, R., & Ellman, I. M. (2008). Converting sentiments to dollars: Scaling and incommensurability problems in the evalution of child support payments. *Social Science Research Network,* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1121240

Bryk, A. S., & Raudenbush, S. W. (2002). *Hierarchical linear models: Applications and data analysis methods.* Thousand Oaks, CA: Sage Publications, Inc.

Chaiken, S., & Trope, Y. (Eds.). (1999). *Dual-process theories in social psychology*. New York: Guilford Press.

Current Population Survey. (2006). U.S. Census Bureau, Annual Social and Economic Supplement, Table HINC-01, *Selected Characteristics of Households, by Total Money Income in 2005.* Retrieved from http://pubdb3.census.gov/macro/032006/hhinc/new01_001.htm

Daniels, N. (2008). Reflective equilibrium. In E. N. Zalta (Ed.), The *Stanford encyclopedia of philosophy* (Fall 2008 Edition). Retrieved from http://plato.stanford.edu/archives/fall2008/entries/reflective-equilibrium/

Eisenberg, M. A. (1983). The modernization of corporate law: An essay for Bill Cary. *University of Miami Law Review, 37*(2), 187–212.

Ellman, I. M., Braver, S., & MacCoun, R. J. (2009). Intuitive lawmaking: The example of child support. *Journal of Empirical Legal Studies, 6*(1), 69–109. doi:10.1111/j.1740-1461.2009.01138.x

Ellman, I. M., & Ellman, T. (2008). The theory of child support. *Harvard Journal on Legislation, 45*(1), 107–164.

Fabricius, W. V., Braver, S. L., Diaz, P., & Velez, C. (2010). Custody and parenting time: Links to family relationships and well-being after divorce. In M.E. Lamb (Ed.), *Role of the father in child development* (5th ed.) (pp. 201–240). New York: John Wiley & Sons.

Floyd, F. J., & Widaman, K. F. (1996). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*(3), 286–299. doi:10.1037/1040-3590.7.3.286

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Erlbaum.

Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component patterns. *Psychological Bulletin, 103,* 265–275. doi:10.1037/0033-2909.103.2.265

Guidelines for setting child support awards, 45 C.F.R. § 302.56(c)(2) (2010).

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108,* 814–834. doi:10.1037/0033-295X.108.4.814

Harris, R. J. (2001). A primer of multivariate statistics (3rd ed.). New York: Psychology Press.

Kahneman, D., Ritov, I., & Schkade, D. (1999). Economic preferences or attitude expressions? An analysis of dollar responses to public issues. *Journal of Risk and Uncertainty, 19,* 220–242. doi: 10.1023/A:1007835629236

Kahneman, D., Schkade, D. A., & Sunstein, C. R. (1998). Shared outrage and erratic awards: The psychology of punitive damages. *Journal of Risk and Uncertainty, 16,* 49–86. doi:10.1023/A: 1007710408413

Legler, P. (2003). *Low-income fathers and child support:* Starting off on the right track. Denver: Policy Studies Inc.

Levi, E. H. (1949). An introduction to legal reasoning. Chicago: University of Chicago Press.

Lichtenstein, S., & Slovic, P. (Eds.). (2006). The construction of preference. New York: Cambridge University Press.

Pirog, M., Grieshop, T., & Elliot, B. (2003). Presumptive state child support guidelines: A decade of experience. *Policy Currents, 12,* 16–32.

Raudenbush, S. W., & Chan, W. S. (1993). Application of hierarchical linear models to study adolescent deviance in an overlapping cohort design. *Journal of Clinical and Consulting Psychology, 61*(6), 941–951. doi:10.1037/0022-006X.61.6.941

Robbennolt, J. K., Darley, J. M., & MacCoun, R. J. (2003). Symbolism and incommensurability in civil sanctioning: Decision-makers as goal managers, symposium on responsibility and blame: Psychological and legal perspectives. *Brooklyn Law Review, 18*(4), 1121–1158

Robbennolt, J. K., MacCoun, R. J., & Darley, J. M. (2010). Constraint satisfaction and judging. In D. Klein & G. Mitchell (Eds.), *The psychology of judicial decision making* (pp. 27–40). Oxford. doi:10.1093/acprof:oso/9780195367584.003.0002

Simon, D. (2004). A third view of the black box: Cognitive coherence in legal decision making. *University of Chicago Law Review, 71*, 511–586.

Simon, D., Krawczyk, D. C., & Holyoak, K. J. (2004). Construction of preferences by constraint satisfaction. *Psychological Science, 15*, 331–336. doi:10.1111/j.0956-7976.2004.00678.x

Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin, 119*(1), 3–22. doi:10.1037/0033-2909.119.1.3

Stalans, L. J. (1993). Citizens' crime stereotypes, biased recall, and punishment preferences in abstract cases: The educative role of interpersonal sources. *Law and Human Behavior, 17*, 451–470.

Stanovich, K. E. (2004). *The robot's rebellion: Finding meaning in the age of Darwin*. Chicago: University of Chicago Press.

Streiner, D. L. (1994). Figuring out factors: The use and misuse of factor analysis. *Canadian Journal of Psychiatry, 39*, 135–140.

Sunstein, C., Hastie, R., Payne, J. W., Schkade, D. A., & Viscusi, W. K. (2003). *Punitive damages: How juries decide*. Chicago: University of Chicago Press.

Thurstone, L. L. (1935). *The vectors of mind: Multiple-factor analysis for the isolation of primary traits*. Chicago: University of Chicago Press.

Venohr, J., & Griffith, T. E. (2003). *Arizona child support guidelines, findings from a case file review*. Denver, CO: Policy Studies Inc. Retrieved from http://www.supreme.state.az.us/dr/Pdf/psi2.pdf

Wegner, D. M., & Bargh, J. A. (1998). Control and automaticity in social life. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1, pp. 446–496). New York: McGraw-Hill.