Reply to Allen et al.

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Abstract Allen et al.'s results depend on their inclusion of children whose family at the time of their grade retention is unknown, plus adopted and foster children whose selection process into families is unknown. Children whose family has been through upheavals or transitions are less likely to make good progress in school than children from stable families. Children raised by stable same-sex couples do remarkably well in school.

Keywords Family structure · Children · Grade retention · Same-sex couples

I am delighted to have this opportunity to respond to Allen et al.'s comments about my article, "Nontraditional Families and Childhood Progress Through School," hereafter Rosenfeld (2010).

In that study, I tried to determine whether children raised by same-sex couples make reasonable progress through school. The data show that children raised by same-sex couples make good progress through school, progress as good as that of children raised by heterosexual couples, after family socioeconomic status is taken into account.

The U.S. census microdata are, because of enormous sample size, uniquely well-suited to studying needle-in-a-haystack populations such as children raised by same-sex couples. Along with unequaled sample size, the 2000 U.S. census microdata have the advantages of representativity and controls for individual migration, which can be used to identify children who have lived at least five years in their current families. More recent census surveys lack the migration questions, and other surveys cannot approach the sample size of the U.S. census.

If we want to understand the effect of family structure on children's outcomes, we need to study children who were actually *raised* by the families in question, rather

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than children who happen to live with the family at the time of the census. In Rosenfeld (2010), I was very careful to include only children who lived with their current parents for at least five years because those children's current family structure influenced their progress through school. In their revision of my analysis, Allen et al. preferred to analyze the outcomes of all children, regardless of how long they had lived with their current families. Allen et al. therefore attributed to the current family (at the time of the census) child outcomes that may have been produced years before the current family was formed. Allen et al. violated a fundamental rule of causal order, which is that later characteristics ought not be used to predict earlier events.

Child Origins and the Effect of Family on Children

Same-sex couples achieve parenthood in different ways than heterosexual couples do. Although heterosexual couples can reproduce on their own, same-sex couples cannot reproduce without assistance. Most children raised by same-sex couples are from a prior heterosexual relationship that has to break up before the same-sex-couple parenting family is formed. Research has documented many of the ways that parental breakup can have negative short-term repercussions for children (Cherlin et al. 1991; Furstenberg and Cherlin 1991; McLanahan and Sandefur 1994; Wallerstein and Kelly 1980). Additionally, gay rights vary dramatically from state to state within the United States, so same-sex couples with children have unique reasons for making interstate moves, and moving is disruptive to families and children (Wood et al. 1993).

Whether they are from a prior heterosexual relationship that has dissolved, or they are adopted from the pool of special-needs children, or their parents have had to move to obtain rights that heterosexual couples take for granted, children being raised by same-sex couples are more likely to start out with disadvantages. Heterosexual married couples had very dramatic legal and tax advantages that were unavailable to same-sex couples in the 1990s (when the children in this sample were in school). Furthermore, heterosexual married couples are usually both biological parents to the children, whereas same-sex couples cannot both be biological parents of any one child. Despite the legal and social disadvantages and the discrimination that same-sex couples and their children experience, there is reason for optimism. Children in stable same-sex-couple families progress through school as well as comparable children from any other family type, and this key finding is replicated by Allen et al.

Allen et al.'s Table 3, Model 1, which uses the same assumptions I used, yielded the same results as the results I published in 2010. Parents' own children *raised* by same-sex couples have rates of normal progress through school that are comparable to (and not significantly worse than) progress-through-school rates of children raised by heterosexual married and unmarried heterosexual cohabiting couples.

Sample Size and Sociodemographic Controls

Table 1 shows the measured and implied grade retention rates, along with unweighted sample sizes, for each family structure type. Allen et al. complained that the sample

Table 1 Primary school grade retention as a function of family structure with and without controls

Parental Family Structure at the Time of the 2000 U.S. Census	Measured % of Primary School Grade Retention (A)	Implied Primary School Grade Retention Rate (%) (B) = 4(A)	Unweighted Sample Size of Children From Column A (C)	Odds Ratio of A (vs. children of same-sex couples) (D)	Adjusted Odds Ratio of Grade Retention, Controlling for Family Characteristics (vs. children of same-sex couples) (E)
Heterosexual Married Couples	1.68	6.6	572,422	0.77*	0.87
Same-Sex Couple	2.13	8.5	3,174	—	—
Divorced or Widowed Women	2.75	11.0	78,884	1.30*	1.18
Heterosexual Unmarried Couples	2.80	11.2	12,542	1.32*	1.10
Divorced or Widowed Men	2.83	11.3	20,108	1.34*	1.29
Never-Married Women	3.01	12.1	27,445	1.43**	1.00
Never-Married Men	3.17	12.7	2,189	1.51*	1.24
Weighted Average	1.88	7.5			
N	716,764	716,764	716,764	716,764	716,740

Notes: All children are younger than 18 and are head of household's "own children" (i.e., "natural born" children in census terminology). All families have five-year residential stability. Controls in column D are derived from Rosenfeld (2010) Table 3, Model 5, and Allen et al's Table 3 Model 1, but are inverted because the predicted variable here is grade retention rather than its inverse, normal progress through school. Controls include household income, householder education, U.S. nativity of the child, child gender, four kinds of child disability, child's race/ethnicity, metropolitan status, child's current grade, child's gender, private school, and 50 state dummy variables.

Source: Weighted microdata from the 2000 U.S. census (via ipums.org).

$*p < .05$; $**p < .01$ (two-tailed tests)

size (716,764) of the U.S. census microdata for primary school children of residentially stable families is too small to allow for powerful tests between children of same-sex couples and children of other family types. The data have limits: children raised by same-sex couples (3,174) are a small fraction of all children in the data set. Additionally, the census educational grade categories allow identification of only one-fourth of the actual cases of grade retention because the 2000 census enumeration form identified students in single categories for grades 1–4 and grades 5–8 (see Rosenfeld 2010).

Column D of Table 1 shows that if primary-grade retention rates for children raised by same-sex couples are compared with those of children from other family types, every one of the differences is statistically significant. According to Table 1, column D, children raised by unmarried heterosexual couples are significantly more likely to be held back in school (odds ratio of 1.32) than are children raised by same-sex couples. All of the single-parent family types had children whose odds ratio of grade retention was significantly greater than 1, meaning they were more likely to be held back than children raised by same-sex couples. Children raised by heterosexual married parents had significantly lower rates of grade retention than children raised by same-sex couples.

The odds ratios in column D of Table 1 are unadjusted for parental socioeconomic status or any other relevant factors. Column E applies the full set of controls, including parental income, parental education, state of residence, and metropolitan status, as well as child race, gender, private school attendance, disability, and U.S. nativity. These are the same set of controls used by Rosenfeld (2010: Table 3, Model 5) and by Allen et al. in their Table 3, Model 1. Controlling for parental socioeconomic status sharply attenuates the differences between children of different family types because family socioeconomic status is the most important factor in explaining the variance in children's school outcomes (Biblarz and Raftery 1999). The corrections for background attributes have an especially large effect on the children of never-married mothers because the never-married mothers are the poorest and most disad-vantaged parental group in the census. After the sociodemographic background controls are applied, in column E, the rates of progress through school for children of different family types are similar enough that none of the groups are significantly different from the children raised by same-sex couples.

The Effect of Family Stability on Children's Outcomes

If it were the case that children experience some hardships on their way into same-sex-couple families, then we would expect to see recently formed same-sex unions having children with relatively high rates of grade retention while children in longer-term stable same-sex unions would have relatively low rates of grade retention. Table 2 shows that the data agree with expectations.

Among all family types, children in same-sex-couple families show the greatest benefit from family stability, with children in families with at least five years of stability having only 8.5 % grade retention, compared with an 11.1 % grade retention rate for children in same-sex-couple families without five years of stability. Some of the other family types, most notably unmarried heterosexual couples, have children who actually make significantly worse progress through school when the family has been stable at the same address for at least five years.

Allen et al. doubled the sample size of the analysis by including the children whose family arrangements during most of elementary school is unknown (column B in Table 2) along with the children who have five years of stability with their current family (column A). With larger sample sizes come smaller standard errors, leading to what Allen et al. refer to as "more precise" estimates. Larger sample size, however, increases precision only if the additional cases measure the phenomenon whose measurement is sought. In the 2000 U.S. census microdata, because the additional cases are of children whose family arrangements at the time of their grade retention is unknown, and because family structure's effect on grade retention is the relationship we want to measure, the additional cases make the measurement *less* precise, rather than more precise.

The Comparison of "Own Children" to Adopted, Foster, and Stepchildren

Allen et al. included adopted children, stepchildren, and foster children in their models, and these additional children (even though they are relatively few) have a

Table 2 Primary school grade retention as a function of family structure and longevity of the family

Parental Family Structure at the Time of the 2000 U.S. Census	Primary School Grade Retention Rate (%) if Child and Parents Lived Together in the Same Place for ≥5 Yrs. (A)	Primary School Grade Retention Rate (%) if Current Family Has <5 Yrs. of Stability (so family structure through elementary school is unknown) (B)	Improvement in Grade Retention Rate With 5 Years of Family Stability (C) = (B) − (A)	Significance of C (vs. same-sex couples) (D)
Heterosexual Married Couples	6.6	7.0	0.4**	
Same-Sex Couple	8.5	11.1	2.6*	
Divorced or Widowed Women	11.0	10.8	−0.2	
Heterosexual Unmarried Couples	11.2	9.4	−1.8*	**
Divorced or Widowed Men	11.3	12.2	0.9	
Never-Married Women	12.1	10.6	−1.5	*
Never-Married Men	12.7	9.0	−3.7*	**
Weighted Average	7.5	8.3		
N	716,764	680,471	1,397,235	

Notes: N = 1,397,235. All children are younger than 18 and are head of household's "own children." Grade retention is implied grade retention (i.e., observed grade retention multiplied by 4 because primary grades are reported in four-year increments); see Rosenfeld (2010). No sociodemographic controls are applied in this table. Statistical significance is determined by logistic regression on observed grade retention.

Source: Weighted microdata from the 2000 U.S. census (via ipums.org).

*p < .05; **p < .01 (two-tailed tests)

strong effect on their results. Table 3 shows that the difference in grade retention between the head of household's own children and the other children is greater for same-sex couples than for any other family type. Table 3 is consistent with Stacey's (2006) finding that same-sex couples face discrimination in the markets for adoptive and foster children. The U.S. census provides no information whatsoever about the adoption or fostering process, and no information about the age at which (prior to the five-year window of residential stability) children were adopted. The differences across family types in the adoption and fostering process cannot be controlled for by applying one dummy variable to all family types, as Allen et al. did.

Table 3 includes one relevant comparison group that Allen et al. left out: children in group homes and orphanages. These are the children who are presumably available for adoptive parents or foster parents, but their grade retention rate of 34 % is much higher than the grade retention rate of children living in a household with any type of parental family.

Discussion

Allen et al. reached the conclusion that children in same-sex-couple families fare worse in school by including all children regardless of how long the child has lived

Table 3 Primary school grade retention as a function of child's relationship to head of household: Own Children versus adopted children, stepchildren, and foster children for stable families

Parental Family Structure	Primary School Grade Retention Rate (%) for Head of Household's Own Children (A)	Primary School Grade Retention Rate (%) for Adopted, Foster, or Stepchildren (B)	Primary School Grade Retention Rate (%) No Parental Head of Household (C)	Improvement in Grade Retention Rate for Own Children (D) = (B) – (A)
Heterosexual Married Couples	6.6	12.0		5.4***
Same-Sex Couple	8.5	22.2		13.7***
Divorced or Widowed Women	11.0	16.8		5.8**
Heterosexual Unmarried Couples	11.2	15.1		3.9*
Divorced or Widowed Men	11.3	18.8		7.5***
Never-Married Women	12.1	8.5		−3.6
Never-Married Men	12.7	—[a]		
Children in Group Homes or Orphanages			34.3	
Weighted Average	7.5	12.6	34.3	5.1***
N	716,764	47,229	436	

Notes: $N = 764{,}781$. All families have five-year residential stability. No sociodemographic controls are applied in this table. Significance determined by logistic regression on observed grade retention.

Source: Weighted microdata from the 2000 U.S. census (via ipums.org).

[a] Insufficient data.

*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests)

with the family (see their Models 2 and 4) and by including adopted and foster children along with the head of household's own children (their Models 3 and 4). Allen et al.'s finding of worse school performance by children living with same-sex couples is due to their conflating the initial disadvantage of children who come into same-sex couple families (a disadvantage that appears to be substantial) with the progress children experience during the time when they are actually being raised by same-sex couples (progress that is excellent).

There is no statistically significant difference in making normal progress through school between children raised by same-sex couples and children raised by heterosexual married couples after family socioeconomic status is taken into account (see Table 1, column E). Allen et al. noted that even if the difference is not significant, the children of heterosexual married couples appear to be faring better. By the same logic, the children raised by unmarried heterosexual couples appear to be faring worse (with higher rates of grade retention) than children raised by same-sex couples (all of whom were unmarried according to U.S. law), though the difference in grade retention is not significant after socioeconomic controls are applied.

If formal marriage of the parents is beneficial to children, and if the goal of public policy is to maximize children's chances of success, then perhaps the logical public policy prescription would be to extend marriage rights to same-sex couples in the United States.

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