Expert Witness Report of Douglas W. Allen
Deboer vs US District Court,
Eastern District of Michigan, Southern Division

I. Mandate

1. I have been asked by counsel to comment on the social science empirical evidence for the claim that children in same-sex parented families experience no difference in outcome measures compared to similar children in opposite sex parented families.

II. Qualifications

2. I am the Burnaby Mountain Professor of Economics at Simon Fraser University (SFU) in Burnaby, British Columbia. I am also a senior consultant for Delta Economics Group Inc. (DEG) in Vancouver, British Columbia.

3. I have a BA (Hons) (1983) and an MA (1984) degrees from SFU, and a Phd (1988) from the University of Washington. All of my degrees are in economics. My Phd fields were applied micro-economics and industrial organization. My Phd Thesis was entitled "A Transaction Cost Theory of Marriage and Divorce."

4. I am an applied economist with a specialty in Institutional Economics. My published work has focused on an economic analysis of contracts, property rights, and institutions. I have published 46 articles in refereed academic journals, and have published 30 other articles in scholarly books, encyclopedias, and other academic outlets. I have published three academic books, and two undergraduate textbooks on micro-economic theory.

5. I have worked in the area of the family since 1986, and of all my publications, one book and twenty-seven articles relate to the family. I have four publications and three working papers related to same-sex households, and two of these papers are empirical estimates of child outcomes.

6. I was an assistant professor of economics at Carleton University from 1988-1990, after which I joined the department of economics at SFU. I have taught

undergraduate and graduate courses, and regularly teach a fourth year seminar on "The Economics of the Family."

7. I have worked with DEG since 2004. I have consulted on cases related to family law, discrimination, intellectual property, and anti-trust.

8. I have received numerous academic awards and honors. These include the Dean's Silver Medal for outstanding academic service in research and teaching, the endowed Burnaby Mountain Chair, two Erskine Fellowships at the University of Canterbury, New Zealand, and a university wide teaching award. I have given public lectures at several colleges and universities, including the Giblin lecture at the University of Tasmania, and the Janis Lecture at Brown University. My CV is attached as Appendix A.

III. Child Outcomes Based on Family Type

Summary of Literature Prior to 2010

9. I have conducted an exhaustive survey of the child outcome literature from 1995-2013 that pertains to same-sex households.[1] This literature review covers sixty studies, and is attached as Appendix B.

10. The watershed publication in this literature is Rosenfeld's 2010 study, which is published in *Demography.* Virtually all of the fifty-four studies published before this paper share a number of flaws. These flaws are common among nascent preliminary studies, but they mean that the results of these fifty-four studies are *not* generalizable to the population and should *not* be considered as evidence for the purpose of same-sex marriage reform.

11. First, of the fifty-four studies, only five used random samples in their empirical work. All of the other studies used samples that had various forms of known and unknown bias. Three of these five studies used the same data set of 44 lesbian couples. One had a sample size of 18 lesbian couples, and the fifth used

[1] The focus of the review was on outcome measures other than the intergenerational transfer of sexual orientation.

snowball techniques to increase the sample size, and thus created a biased data set.[2]

12. Thus, of the sixty studies, fifty-five contained biased samples. It is well known that conclusions drawn from a biased sample *cannot* be applied to the general population.

13. Second, prior to Rosenfeld's 2010 study, no study on child outcomes had a sample size larger than 500 individuals. It is generally believed that a sample size of 800 is necessary to find any statistical difference between such complicated households.[3] Only eight studies had more than 100 observations, and the average sample size was just 74.

14. Almost all of the studies surveyed conducted a simple statistical difference of means test between the samples of children from the different households (even though, given the biased selection into the sample, the statistical conditions for such testing were seldom met). The problem with performing such tests with small sample sizes is that the data cannot generate any power for statistical testing.[4]

15. Power, in part, comes from sample size: a small sample necessarily generates a weak test. The very small sample sizes found in many of these studies create a bias towards accepting a null hypothesis of "no difference" in outcomes between same-sex and heterosexual households when one, in fact, exists.

16. Third, the fifty-five studies show evidence of "researcher" bias. They are conducted by researchers who have clear interests in the research outcomes, who control the collection and analysis of the data, interpret their findings and fill

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[2] "Snowballing" is the practice of asking survey participants to invite their friends and others to join the sample.

[3] See Nock (p. 37, 2001).

[4] "Power" is a statistical term that relates to Type II errors — the chance of not rejecting a false null hypothesis. A "powerful test" means there is a small chance of this error.

in the gaps within the context of specific theories of the family, and who do not share their data or procedures with other academics.

17. Finally, forty-two of the fifty-five studies used what I call "soft" outcome measures. These may include self reports on attitudes, awareness, adjustments psychological well-being, identity, relationships, family closeness, parental legitimacy, child bonding, stigma and self-esteem. These measures are not easily verifiable by third party replication, and differ substantially from measures used in other family studies.

18. Thus, the entire literature from 1995-2010 on outcomes of children living in same-sex households amounts to little that can or should be used outside of academic circles. The studies are often interesting, but they are preliminary and should be used only to consider the design of better scientific studies to address the question. Although most of this literature is clearly written with policy makers, politicians, and judges in mind, and often strong policy recommendations are drawn, none of these conclusions rest on reliable social science methods.

The Importance of Rosenfeld (2010), Allen *et al.* (2013), and Rosenfeld (2013)

19. Within this context, the importance of the Rosenfeld (2010) study is hard to overstate. Rosenfeld used a random sample: the 2000 U.S. Census. His sample was large: over 1.5 million households. And his outcome measure was hard and verifiable: "normal progress through school."

20. Rosenfeld found that children raised by same-sex couples "cannot be distinguished with statistical certainty from children of heterosexual married couples" (p. 770) when it comes to making normal progress through school. However, he concluded from this that "children of same-sex couples appear to have no inherent developmental disadvantage" (p. 770), and that "The analysis in this article, the first to use large sample nationally representative data, shows that

children raised by same-sex couples have no fundamental deficits in making normal progress through school. The core finding here offers a measure of validation for the prior, and much-debated, small-sample studies." (p. 772).

21. There is a subtle distinction in Rosenfeld's language that someone not trained in statistics will not pick up on: the difference between an "actual difference" and "statistical difference."

22. Suppose that a "no difference" finding meant that a coefficient in a regression equalled one in reality, (i.e., $\beta = 1$). A regression provides an estimate of this coefficient based on a sample. A regression also provides a "standard error" of this estimate, which measures how much "noise" exists around the estimate. The standard error tells us about the "precision" of the estimate; that is, how confident we can be in the estimate. What Rosenfeld actually found was that $\beta = 1.15$, which is not the same thing as finding $\beta = 1$. However, the standard error of this estimate was so large that the 95% confidence interval meant that β could lie between .9 and 1.47 (which includes $\beta = 1$).

23. In other words, Rosenfeld actually *found a difference* in normal progress through school: the odds of children in traditional homes of making normal progress through school were 15% higher than for children raised in same-sex households. However, there was so much noise around this estimate, it was not statistically significant. That is, the estimate lacked precision — it might be 1, it might be 1.47. Rosenfeld confused the "lack of precision" of the estimate with a "no difference" finding.

24. To explain this important point, consider a stylized diagram. Figure 1 shows a stylized graph of the relationship between a child's age and their grade in school. The line 0R represents the expected linear relationship. Hence, if a child is seven years old, the child should be in grade two. However, some children are six when in grade two, others eight — there is a range of ages for all types of reasons. The ovals in the figure represent the stylized 95% confidence intervals of the

grade ranges for a given age. The top oval represents the case for traditional parents. The bottom oval represents the case for foster parents.

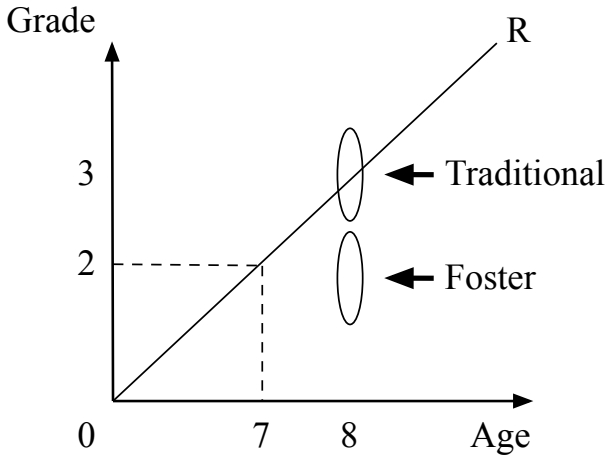

Figure 1

25. From Figure 1, on average the children from traditional homes are in the age appropriate grade, but children from foster homes are older for their given grade. Because the two ovals do not overlap, consider this to mean that the difference is "statistically significant." So, in this case, a researcher would conclude that there is a difference (foster children are in a lower grade for a given age), and that there is a statistical difference (the two ovals do not overlap).

26. However, Rosenfeld did not find a result that corresponded with Figure 1. What Rosenfeld actually found is represented in Figure 2.

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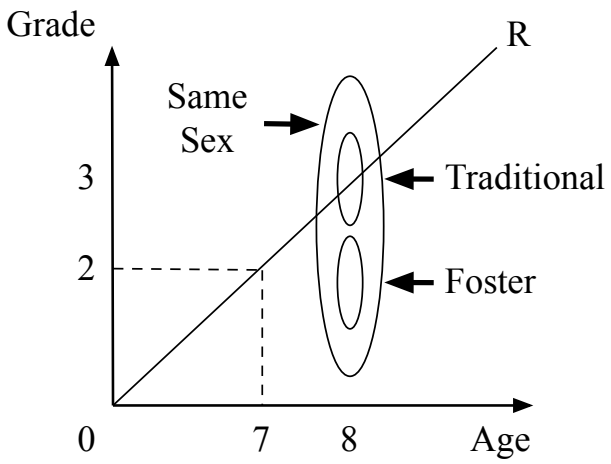

Figure 2

27. The center of the Same Sex oval lies below the Traditional oval — meaning that children from same-sex homes are in a lower grade for a given age. However, the standard errors of Rosenfeld's estimates (which ironically he did not report in the original article) were so large he could not statistically distinguish children in same-sex households from children in opposite sex households. This is represented by the large oval for the Same Sex category. Thus, although he concluded that there was "no overlap" between the ovals, in fact one oval was over top of the other. Interestingly, Rosenfeld's estimates were so imprecise he could not distinguish between children in same-sex households from children in most other types of households, many of which are known not to be good environments for children.

28. Allen, Price, and Pakaluk (2013) obtained the Rosenfeld data and examined this relationship more carefully. They found that the standard errors were so large because Rosenfeld made two "sample restrictions." A sample restriction is where the researcher eliminates a group from the sample. In this case Rosenfeld eliminated children who were not the "own child" of the respondent (approximately 13% of the sample), and children who had not lived in the same residence

for five years (approximately 51% of the sample). Since children from same-sex households were more likely to not be "own children" and were more likely to have moved in the previous five years, they were disproportionately dropped from the sample. The small number of children in same-sex households who were left created a data set that generated too little power for the test. Hence, though he found a difference, it was not statistically significant.

29. Rosenfeld's justification for the sample restriction was legitimate. He was concerned with comparing "apples to apples." If children are adopted, or arrive into a family in a non-traditional way, then failure to make normal progress in school may be caused by some unmeasured difference that is correlated with the adoption. Likewise, he wanted children who were *raised* in a same-sex household, not just ones who were *living* there during the time of the census. For both reasons he decided to drop cases from the sample, even though such a decision reduced the power of the test significantly.

30. Allen, Price, and Pakaluk (2013) agreed with the two concerns, but replicated the Rosenfeld experiment using a *different* procedure. They restored the sample to the full size of 1,610,880 cases, and then *controlled* for whether or not the children had moved, or whether or not they were the own children of the respondent. Depending on the restriction that was restored, they found that children from married heterosexual families were between 25–35 percent more likely to make normal progress through school compared to children living in same-sex households. These estimates were measured with precision, and they were statistically significant.

31. To use the oval metaphor once more, once the sample is restored, the result is as shown in Figure 3.

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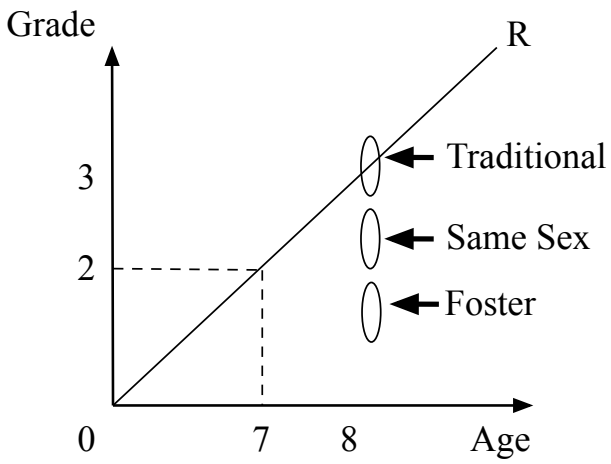

Figure 3

32. Rosenfeld (2013) responded to the Allen *et al.* (2013) comment. In his reply he continued to conflate an actual difference with a statistical difference. He also continued to not report his standard errors, making an analysis of his remarks difficult. Finally, he simply rejected the standard method of using statistical fixed effects to control for the presence of own children and whether or not a child had remained in the same location for five years.

Allen 2013

33. There are several problems with the empirical debate just mentioned. First, one must not put too much weight on a result that depends on whether a sample restriction or a control is used in the analysis. Second, the test used data from the 2000 U.S. Census. That census did not identify same-sex couples, so these couples must be indirectly determined by the researcher using a combination of questions on the census. It is well known that this method introduces a large measurement error into the procedure. Third, in 2000 no states in the union had legal same-sex marriage. Fourth, the two studies were unable to control for the marital history of the parents. Since the results found by both studies are

close to those of children in single parent homes, the slower progress through school may be the result of a previous divorce, and not the same-sex structure of the household. Finally, the particular test conducted lumps gay and lesbian households together, as well as lumping boys and girls together. There may be considerable differences that are being masked by an "average" performance.

34. Allen (2013) replicated the Rosenfeld experiment using the 2006 Canada census. This data set has considerable advantages over the 2000 US census. Most importantly, it directly identifies whether a couple is in a same-sex gay or lesbian relationship. It also allows for the parent and children records to be linked, and so the researcher can control for the parent's education level, and to some extent, their marital history. It is also large enough to analyze gay and lesbian households, and girl and boy performance. Finally, the survey was done in a country where same-sex marriage was legal across the entire country.

35. The 2006 Canada census does not contain enough information to identify normal progress through school. Therefore, the outcome measure used in Allen (2013) was whether or not the child had graduated from high school. In particular, the set of children between the ages 17 – 22 was examined.

36. The 20% random census sample used in this paper allows for an estimation of the full population graduation probabilities. Not controlling for anything (the unconditional estimated population averages) 72% of children between 17–22 years of age in opposite sex married homes graduated from high school. The figure was 59% for children in opposite sex common law homes, 60% in gay parent homes, 52% in lesbian parent homes, 62% in single father homes, and 61% in single mother homes. In terms of these unconditional averages, three things stand out: children of married opposite sex families have a high graduation rate compared to the others, children of lesbian families have a very low graduation rate compared to the others, and the other four types are similar to each other and lie in between the married/lesbian extremes.

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37. Unconditional averages, however, are not very informative because there may be many reasons for the difference other than the household type. As in Rosenfeld, Allen (2013) controlled for a number of demographic characteristics (e.g., province, minority status, disability, family mobility, age, family income, and race), parental education characteristics (e.g., whether mother and father graduated from high school or had graduate training), and the parent's current marital status (e.g., divorced, married, etc.) and then reported the relationship between graduation and household type holding constant these various characteristics. Allen (2013) reports both the marginal effects of household type as well as the odds ratio.[5]

38. As an example, consider the unconditional averages given directly above. For an opposite sex married household $P(Y = 1|X = 0) = .72$. If a child comes from such a family, 72% graduated. Therefore, 28% have not graduated and $(P(Y = 0|X = 0) = .28)$, and the odds of a child graduating, given they are from a married opposite sex household is $.72/.28 = 2.57$. That is, if a child comes from a married os home, the odds are 2.57 that s/he has graduated.

39. Doing the same for the gay parent homes the odds of graduating are $.6/.4 = 1.5$. So even in a gay home, a child is still more likely to graduate than not.

40. To calculate the odds ratio, simply divide: $1.5/2.57 = .58$. So the ratio of the odds is just .58. That is, the odds of a child in a gay parent home of graduating are 58% of the odds of a child in an opposite sex married home. This does *not*

[5] As in the paper, I will focus on odds ratios. An odds ratio is an easy way to show how strongly having "property A" is associated with having "property B." In this context A is graduating from high school, and B is some type of household. The odds ratio is calculated as follows: 1. Calculate the odds that someone has A and B. 2 Calculate the odds that someone has A and not B. 3. Divide the first by the second. In this context, let Y = graduation. Therefore, Y=1 means the child has graduated, and Y=0 means the child has not. Let X= Household (HH) type. So X=1 means gay or lesbian or single dad, etc., and X=0 means a married opposite sex household. Thus, the odds of a person with X=1 is given by (let P mean "probability") $P(Y = 1|X = 1)$ divided by $P(Y = 0|X = 1)$ where the "|" means "conditional" or "given." The odds of a person with X=0 is given by $P(Y = 1|X = 0)/P(Y = 0|X = 0)$. Therefore, the odds ratio is $OR = [P(Y = 1|X = 1)/P(Y = 0|X = 1)]/[P(Y = 1|X = 0)/P(Y = 0|X = 0)]$

mean the child in a gay parent home has a graduation rate of 58% (even though in this case the unconditional graduation rate of 60% is close.)

41. This calculation is done on the unconditional probabilities. The purpose of the logit estimations done in Allen (2013) is to calculate the odds ratios, controlling for the demographic, family, and marital status variables. Hence, Table 4 of Allen (2013) shows a statistically significant odds ratio of .69 for children living in gay parent households, holding constant all the variables in the regression. The fact that $.69 > .58$ means that children in gay parent households do have, on average, characteristics independent of their household type that handicap them in terms of high school graduation. However, when these are controlled for, the odds of their graduating are 69% as high as similar children living in opposite sex married homes.

42. Allen (2013), aside from using better data than the Rosenfeld study, also breaks down the household types. Rosenfeld (2010) and Allen *et al.* (2013) only examine "same-sex" couples; that is, gay and lesbian households are lumped together. Allen (2013) finds that the odds for children from lesbian homes to graduate are 60% of those for children in opposite sex married homes, but this difference is not statistically significant. This suggests there is a "difference" between children in gay and lesbian homes.

43. Allen (2013) goes further and breaks down gay and lesbian households by gender mix, and the results are quite interesting. According to these results the negative effect of same-sex households is being driven by the low graduation rate of girls. This effect is estimated with considerable precision (that is, the result is statistically significant), and is much stronger for girls in gay parented households. Whereas the odds of graduating for girls in lesbian parent households are 45% of those for similar girls in opposite sex married households, the odds ratio for girls in gay parent households is just 15%.

44. The effect for boys is mixed and not statistically significant. In other words, the standard errors are too high in the boy regressions to identify an effect

with confidence. The point estimates, however, show that boys do better in gay parent households (61% *higher* odds compared to similar boys in opposite sex married households), but worse in lesbian parent households (76% lower odds to graduate).

45. The gender results are interesting because they show that there is a substantial difference in outcomes across gay versus lesbian households, and across boys versus girls. It is hard to argue a "no-difference" in outcome when such differences exist within the class of same-sex households.

46. Comparing these gender effects with single parent homes is also interesting. First, the differences between boys and girls in single mother or single father homes is not statistically significant. Second, looking at the actual point estimate differences shows that boys do better with single fathers and girls do better with single mothers. This is further evidence that family structures and child outcomes are extremely complicated, and that the ubiquitous claim of "no-difference" is highly unlikely.

Reactions to Allen (2013)

47. Although the Allen (2013) study was published in mid fall of 2013, there were several immediate reactions. The first was a comment from Professor Gary Gates to the editor of the journal, noting that there was a mistake in the articulation of a census variable used to draw the sample. This comment has lead to an erratum that will appear in the next issue of the journal. The erratum will state:

> Erratum to: Rev Econ Household (2013) 11:635?658 DOI 10.1007/s11150-013-9220-y. In the original publication, it was stated (top of section 3) that 'children of same-sex parents are those who respond affirmative to the question: "Are you a child of a male (female) same-sex married or common law couple?".' Instead it should state "children of same-sex parents were identified by a Statistics Canada created variable "RELATIONSHIP TO PERSON 1" which included "CHILD OF A MALE 15 (FEMALE) SAME-SEX MARRIED OR COMMON LAW COUPLE" among the 16 possible categories for that variable."

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This mistake in articulation, of course, has no bearing on the results of the paper.

48. The paper has been criticized by another academic, Professor Charlotte Patterson, in a recent declaration in Kitchen v. Herbert. In that declaration she states:

> A new study by Allen ("High school graduation rates among children of same-sex households", in Review Econ. Household, 2013), presents data that also purport to discredit the consensus, but also fail to do so. This study examined high school graduation rates among young adults in Canada, and reported that those who described at least one parent as gay or lesbian had lower rates of high school graduation than did their peers with continuously married heterosexual parents. This comparison is not relevant here, however, because almost all the parents characterized as gay or lesbian had also undergone divorce or separation, which is a known correlate of school problems, whereas other parents were more likely to be continuously married. Thus, the main conclusion that would appear to be warranted on the basis of Allen's data is that young adults whose biological parents divorce or separate are also likely to report lower educational attainment than their peers with continuously married parents. This conclusion is already well-established, and it has nothing to do with parental sexual orientation.
>
> [p. 11, 2013]

49. There are several errors in this statement. First, the 2006 Canada census identifies *couples* by sexual orientation, not whether "at least one parent [is] gay or lesbian." Second, of the same-sex couples in the 2006 census, it is not the case that "almost all the parents characterized as gay or lesbian had also undergone divorce or separation." A large number had, but not "almost all."

50. Third, and most importantly, Patterson's conclusion is incorrect. She claims that the low graduation rates among children in same-sex households is caused by prior marital instability of the parents. Ironically, one of the key empirical contributions of the Allen (2013) study was to control for marital status. Hence, if a parent was divorced or separated, this was controlled for in the estimations. An examination of columns (2) vs. (3) in Table 5, or columns (1) vs. (2) or columns (3) vs. (4) in Table 6 of the paper, shows the effect of controlling

for parental divorce and separation. It is true that not controlling for marital history reduces the odds of graduation for children of same-sex couples, but when marital status is controlled for, the odds of graduation of these children is still low. The paper only discusses results based on the full control regressions. Hence, the claim made by Prof. Patterson is false, and one has to wonder if she actually read the paper.

51. Two blog sites also made some academic critiques of the paper.[6] In my opinion, the criticisms take one of three forms: the results reflect different ages across households, the sample is not large, and the sample is not random (there is a selection problem).

52. One blogger noticed that the sample average age of children in gay households is 18.96, for lesbian households 18.79, and for married households 19.26. Since children between the ages of 17–22 were included, they inferred that the same-sex households have more 17-year-olds, who simply have not graduated yet. As a result, the odds ratios reported have nothing to do with household type, and instead just reflect a feature of the data. This is an incorrect inference, and results from the same type of mistake made by Patterson. All regressions use "age of child" as a control variable. Hence the results compare children of the same age. This blogger might have noticed his error had he not also failed to see that children living with common law parents have an average age of 18.91, lower than that of children in gay parent homes. Had his criticism been valid, children in common law homes would have performed the worst in terms of graduation rates, not the best (in terms of point estimates).

53. Some bloggers have noted that in a Census 20% sample, each person represents five others. Hence, if the estimated population sizes of each household are divided by five the individual sample sizes are 85 gay households and 194 lesbian

[6] See http://www.skepticink.com/humanisticas/2013/10/14/no-children-of-same-sex-parents-do-not-have-lower-graduation-rates/, and http://familyinequality.wordpress.com/2013/10/11/the-douglas-allen-study-of-canadian-children-of-gaylesbian-parents-is-worthless/.

households. The first problem with this is that not every household type has the same probability of ending up in the sample. That is, not everyone has the same sample weight, and dividing by five is incorrect. However, such a critique misses the real point: "would such a sample size have enough power to estimate a difference"? As shown in the study, the answer for girls is "yes." The answer for boys is "no." Same-sex households are rare, and one needs something like a sample of 20% of the country like Canada to begin to get power. If anything, this points to the enormous weakness of the many studies that have come before. So, the sample is what it is, and it is enough to refute the claim that there is no difference.

54. The most interesting blogger criticism relates to selection bias. Allen (2013) used the sample of children between the ages 17–22. Children under 17 would unlikely have graduated, and so would not have added to the power of the test. Children over 22 should all have graduated and so add little power, but some would also have moved out of the home and so might create a selection bias. The sample could have been restricted to just 17 and 18-year-olds, but then the problem is that the sample is too small to generate power. Hence, the choice of age range involves a tradeoff. What some bloggers have asserted is that age 22 is too high, and a selection bias still exists in the data: it is not random. For this argument to explain the findings, successful children of same-sex homes must leave to establish independent lives sooner than successful children from other household types. Presumably girls in gay parent homes are the most likely to leave early.

55. What these bloggers ignore are the robustness checks mentioned in the paper. A robustness check amounts to changing various aspects of the estimation procedure to see if the results change significantly. In this paper, numerous checks were done: changing the mobility measure, using metropolitan controls rather than provincial ones, and accounting for attendance. One of the most significant robustness checks was to adjust the age range of children in the sample.

Hence, different samples included children under 30 or 40, those just under 20, just 17, and the like. Changing age ranges slightly changes the point estimates, but not in a qualitative way (although smaller ranges generated larger standard errors). From this procedure it was concluded that there was not a significant selection bias introduced by increasing the range up to age 22, and so it was done to increase power.

56. Thus, although some academics and bloggers have pronounced the Allen (2013) study as useless, the critiques are either inconsequential or mistaken.

Other Studies Since (2010)

57. There are three other studies that have been published since Rosenfeld (2010). Two, van Gelderen *et al.* (2012) and Bos *et al.* (2013), are in the same spirit as most of the literature. The paper by van Gelderen *et al.* (2012) is simply the latest paper in the "U.S. National Longitudinal Family Study," a small, biased sample of 78 lesbian families. The paper by Bos *et al.* used the Cohort Survey of Education and Learning, a Dutch random sample of 11,609 children from 550 elementary schools in 2007/08. From this they obtained a small random sample of 32 lesbian families. Both studies address "soft" questions (e.g., about quality of life and civic responsibility), and both conclude "no-difference."

58. The final study I will comment on is by Regnerus (2012). In my opinion, for several reasons this study was a significant departure from the typical same-sex parenting study that had been done up to 2012. First, Regnerus had the goal to develop a large, random sample. His study was no doubt started before Rosenfeld was published, and so this was a significant step. Second, he interviewed young adults, rather than children or their parents. He wanted the adult opinions of what it had been like to grow up inside a same-sex parented household. Third, he asked these adults a series of "hard" verifiable questions. Unlike earlier studies, he did not focus on just one outcome, but asked a range of questions from welfare participation, employment status, education achievement, criminal

convictions, sexual behavior, civic participation, and mental health. Finally, he also did something that is standard practice in most scientific literatures, but which is unheard of in this one: he posted his data and procedures on line for anyone to investigate. Taken together, the Regnerus study was an important leap forward in child outcome studies within the context of same-sex households.

59. Unlike virtually all the studies that came before his, Regnerus found several results that suggest there are differences, and that children raised in same-sex homes do not fare as well as those raised in intact biological families. In his words:

> Of the 239 possible between-group differences here — not counting those differences with Group 1 (IBFs) [intact biological family] already described earlier — the young-adult children of lesbian mothers display 57 (or 24% of total possible) that are significant at the $p < 0.05$ level (indicated in Tables 2.4 with a caret), and 44 (or 18% of total) that are significant after controls (not shown). The majority of these differences are in suboptimal directions, meaning that LMs [lesbian mothers] display worse outcomes. The young-adult children of gay men, on the other hand, display only 11 (or 5% of total possible) between-group differences that are statistically significant at the $p < 0.05$ level, and yet 24 (or 10% of total) that are significant after controls (not shown).
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> [p. 764, 2012]

60. Had the Regnerus (2012) study found a series of "no difference" outcomes, it would, in my opinion, have been hailed as a monumental capstone study of what came before. However, the Regnerus (2012) study came under immediate and unprecedented attack from both political bloggers and members of his own academic profession. The focus of this attack soon centered on his definition of same-sex household. Although he had attempted to generate a large random sample, in the end his total sample size was under 3000 young adults. With such a small total sample, there were not enough young adults who had been raised by lesbian and gay parents to conduct a study. Like others before him with this problem, he expanded the family definition to include children whose mother or father had ever had a same-sex relationship. This increased his sample size to 175 lesbian parent families, and 78 gay parent families.

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61. The response to this selection criteria was that Regnerus had compared children who had actually been raised in dysfunctional families to those who had not been. A fair comment, but one that could be levelled at other studies done to this point. Given that extending the definition of "same-sex family" one way or another was practically standard practice in this literature, the response to the study is quite hypocritical.

62. In my opinion, the Regnerus (2012) study should simply be accepted for what it is: some evidence against the claim that children from same-sex households are no different in outcomes when compared to other types of households. It falls a long way from being perfect, but that is nothing unusual in this literature.

IV. Summary of Evidence

63. Although there is a substantial list of social science research addressing the question of differences in child outcomes across different household types, the vast majority of these studies are lacking in their ability to inform public policy decisions.

64. Simply "counting studies" and finding a large consensus that "no difference" exists is not a valid exercise because most studies in this literature contain biased small samples that do not allow generalizations to the population.

65. Of the few large, random sample studies, the evidence points to an actual difference in outcomes, and these studies confirm the general finding that children do best when raised in a home by their two biological parents.

V. Conclusion

66. Having worked in the area of family economics for over twenty five years, and having examined the effect of various legal changes in family law (such as no-fault divorce and child support guidelines), it is my professional opinion that it takes a long time, and significant data resources, to provide confident answers

to the questions regarding the effect of legal changes on family behavior and outcomes.

67. The literature on child outcomes based on household types is in its infancy. To date, the vast majority of studies can only be considered, at best, preliminary, at worst, political documents.

68. Within this literature, the best and most recent evidence we have is that children in gay and lesbian homes do not perform as well as children in intact, opposite sex, married homes. However, social science is a long way from stating anything conclusive. Therefore, any conclusive statements made by social scientists, or even their professional organizations, are premature. Such statements can only be interpreted as efforts to forward a political agenda. They are not made based on any solid evidence, since that evidence does not yet exist.

/s/ Douglas W. Allen

Douglas W. Allen

December 20, 2013

Date

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Appendix A: Curriculum Vitae

Burnaby Mountain Professor
Department of Economics
Simon Fraser University
Home: (604) 534-2065
Work: (778) 782-3445

Personal:

- Date of Birth: August 15, 1960
- Canadian. Married with three children.

Education:

- Ph.D. (1988), Economics, University of Washington
  Fields: Price Theory, Industrial Organization
- M.A. (1984) Economics, Simon Fraser University
- B.A. (Hons.) (1983) Economics and Business Administration,
  Simon Fraser University

Honors:

- 2013: Erskine Fellow, University of Canterbury
- 2011- Board of Directors, ISNIE.
- 2011 Janis Lecture, Brown University
- 2009 Excellence in Teaching Award, Simon Fraser University.
- 2006-2009 Associate Editor, *American Journal of Agricultural Economics*
- 2006: Erskine Fellow, University of Canterbury
- May 2006: Giblin Lecture, University of Tasmania
- 2000 Dean's Silver Medal: Outstanding Academic Service
- 2000 Burnaby Mountain Chair
- 1988: Henry Buechel Teaching Award, University of Washington
- 1984–1988: SSHRCC, Doctoral Fellowship
- 1984: S.F.U. Thesis Fellowship
- 1983: Western Economic Association's Best Graduate Paper Prize

- 1980–1982: S.F.U. Open Scholarship

Grants:

- 2013–2016: SSHRCC Insight Research Grant
- 2006–2011: SSHRCC Standard Research Grant
- 2002-2005: SSHRCC Standard Research Grant
- 1995-97: NSF Research Grant (Dean Lueck principal investigator)
- 1995-98: SSHRCC Standard Research Grant
- 1995: Research Grant, Center for the Study of Contracts, Univ. of Pittsburgh
- 1992-93: SSHRCC Standard Research Grant
- 1992: SSHRCC Small Grant
- 1990-92: S.F.U. President's Research Grant
- 1988-89: SSHRCC GR-6, Research Award

Teaching Experience:

- 2000–: Burnaby Mountain Professor, Department of Economics, Simon Fraser University.
- April-May 2013: Erskine Fellow, University of Canterbury
- May-June 2006: Erskine Fellow, University of Canterbury
- Fall 2004: Visiting Professor, Trinity Western University
- December 2000: Visiting Professor, Novosibirsk State Technical University.
- May 2000: Visiting Professor, University of Canterbury
- 1999–2000: Professor, Department of Economics, Simon Fraser University.
- 1993–99: Associate Professor, Department of Economics, Simon Fraser University.
- 1990–93: Assistant Professor, Department of Economics, Simon Fraser University.
- 1988–1990: Assistant Professor, Department of Economics, Carleton University.
- 1984–1988: Teaching Associate, University of Washington

- 1982–1983: Teaching Assistant, Simon Fraser University

Publications: Economics of the Family

- "High School Graduation Rates Among Children of Same-Sex Households" *Review of Economics of the Household* Published on-line October, 2013, DOI 10.1007/s11150-013-9220-y.
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- "No-Fault Divorce and the Divorce Rate: Its History, Effect, and Implications" in Douglas Allen and John Richards (eds.) *It Takes Two: The Family in Law and Finance* (C.D. Howe, 1999) pp. 1–35.
- "No-Fault Divorce In Canada: Its Cause and Effect." *Journal of Economic Behavior and Organization* 37(2) October 1998, pp. 129–149.
- "Sex, Property Rights and Divorce" (with Margaret Brinig). *European Journal of Law and Economics* 5 June 1998, pp. 211–233.
- "Welfare Reforms In Alberta" in Chris Bruce, Ken McKenzie and Ron Kneebone (eds.) *A Government Reinvented: A Study of Alberta's Deficit Elimination Program* (Oxford University Press, Toronto 1997) pp. 275–282.
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Publications: Economic Theory

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- *Economic Principles: Seven Ideas for Thinking ... About Almost Anything* (McInnesCreekPress.com, 2002–2008) On-line textbook.
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Publications: Economic History

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Appendix B

More Heat Than Light: A Critical Assessment of the Same-Sex Parenting Literature, 1995–2013

By Douglas W. Allen

Simon Fraser University*

November 2013

* Burnaby Mountain Professor of Economics. Thanks to Charles Crawford, Dean Lueck, Joe Price, and Simon Woodcock for comments.

ABSTRACT

Same sex marriage is one of the great policy issues of our time, and part of this debate hinges on the ability of same sex couples to parent. The vast majority of same-sex parenting studies conclude that children raised by same-sex parents perform as well, if not better, than their counterparts in heterosexual families. This conclusion, which may or may not be true, is not scientifically warranted due to various limitations: some results are misreported; most of the literature is exploratory and made up of small qualitative samples, biased data, and other research design failures; the studies concentrate on lesbian families; outcome measures have been limited; and the most recent large random sample studies have found contrary results. Although these problems prevent scientific generalizations, social scientists have generally treated the preliminary, non-conclusive research as authoritative. Quite naturally, those within public policy circles have adopted this unwarranted position. Regardless of what science ultimately demonstrates about same-sex family structure, it is important to safeguard the research process from political pressures: either anti-gay marriage or pro-gay rights.

> Children raised by gay or lesbian parents are as likely as children raised by heterosexual parents to be healthy, successful and well-adjusted. The research supporting this conclusion is accepted beyond serious debate in the field of developmental psychology.
>
> [Justice Vaughn Walker, section 70, Perry v. Schwarzenegger]

Introduction

Within the past forty years a small empirical literature has developed to study the effects on children of growing up within a same-sex household.[1] Despite the various differences in each study, the vast majority have the same conclusion: children of same-sex parents perform at least as well as children from heterosexual families: there is no-difference in child outcomes based on family structure. This conclusion has played a major role in legal cases, legislation, and professional opinions on gay family rights.

For several reasons the literature is unlike many others within social science. First, it partly arose from, and was strongly influenced by, legal cases in which lesbian mothers were denied custody of their children based on their sexual orientation. Second, for the most part it is written by individuals with strong personal world views that sympathize with those studied. Third, the focus of the literature is often on "soft" measures of child and family performance — such as self reports on attitudes, awareness, adjustments psychological well-being, identity, relationships, family closeness, parental legitimacy, child bonding, stigma and self-esteem — that are not easily verifiable by third party replication, and which differ substantially from measures used in other family studies. Furthermore, there is a lack of consistency of

[1] A note on nomenclature. The non-heterosexual world is varied, loosely defined, fluid, and evolving in terms of labels for various sexual orientations. This makes it cumbersome to find a word(s) to describe this community as a class of people. The word "homosexual" might seem to fit as an umbrella term, but it is seldom used within the literature and no doubt carries a pejorative tone. Some moniker's are long and awkward, and often over/under inclusive for a specific context. Here I use the term "same-sex" to describe the entire class of individuals who fall outside the heterosexual norm. When speaking of a specific class I will use "lesbian", "bi-sexual", and so on.

measures across time, and subsequent studies seldom test for measures that were used in previous studies. And finally, most of the literature on same-sex parenting is based on weak designs, biased samples, and low powered tests.

The result is a nascent literature that falls far short of normal social science empirical research standards. At its best, the literature contains interesting exploratory studies that raise provocative questions and observations. At its worst, it is advocacy aimed at legislators and judges — which may explain why, despite its weak scientific nature, the literature is characterized by strong recommendations for policy and legal changes to family regulations.

This paper provides a critical assessment of the same-sex parenting literature, based on the standards of empirical work found throughout the social sciences. An attempt was made to be exhaustive in the selection of reviewed papers between 1995–2013, but no doubt some studies have been missed, especially in the case of early studies and the very latest. There is an emphasis on more recent work for two reasons: i) critical surveys of earlier work already exist, and ii) the more recent work is of a higher quality standard than the earlier work. In total, sixty studies of various methodologies are covered in this review, and are listed in Table 1 in the appendix.

There have been five other critical surveys of this literature: Marks (2012), Nock (2001), and Schumm (2005, 2011, 2012). Nock (2001) is an expert witness report done for the Canada Department of Justice. It looks at the earliest literature and is generally unavailable and unknown to the general policy audience. Marks (2012) examines the literature up to 2005, and is mostly directed at refuting the American Psychological Association's official brief on same-sex parenting. Schumm (2005) does an in-depth examination of several important research projects and shows that the conclusions drawn from the data are not statistically warranted. Likewise, Schumm (2011) provides an examination of a subset of papers showing theoretical

limitations and methodological problems. Finally, Schumm (2012) provides a power analysis of the family work done by the Australian sociologist Sarantakos, whose work is usually ignored by others working in the field. All of these studies are complemented by this one which identifies some additional dimensions of bias, examines the most recent large sample studies which are significantly different than what has come before, and surveys a wider range of recent papers. The bottom line, however, is that for the bulk of studies, not much has changed since Nock first wrote over ten years ago.

I argue that the flaws generally found within the current literature are fatal in terms of any ability to make generalizations regarding the population of same-sex parents, and therefore it is impossible and irresponsible to use the literature to advance any recommendations regarding same-sex family legislation. Such a claim should go without saying, and yet professional bodies have made claims based on this research that are not warranted. The purpose of this review is to highlight the pitfalls of this literature for those within the current public policy debate surrounding same-sex marriage. The bottom line is that until large probability longitudinal samples are developed to properly test various theories of the family, it is almost impossible to make general claims about same-sex parenthood. As a result, all claims about the unknown population statistics should be read with caution, and understood within the context of the current policy debate.

Various Sources of Bias

Everyone holds opinions, and these world views influence how information is collected and interpreted. Statistical work contains its own technical sources of bias, especially in the social sciences where laboratory-like experiments are often difficult to perform. In a mature and diversified discipline these biases are mitigated by various checks and balances that distinguish good social science: replication of empirical findings, public availability of

data and testing procedures, outlets for comments and opposing views, a focus on understanding and testing, the use of reliable and operational measures, and a wide body of research done by people with competing opinions and interests. These conditions are generally not met within the same-sex parenting literature. As a result, the literature is flawed in terms of bias from a number of sources. These forms of bias make the general claims within this literature unreliable.

Data Bias

> A policeman sees a drunk man searching for something under a street light and asks what the drunk has lost. He says he lost his keys and they both look under the street light together. After a few minutes the policeman asks if he is sure he lost them here, and the drunk replies, no, that he lost them in the park. The policeman asks why he is searching here, and the drunk replies, "this is where the light is."
>
> [Freedman, 2010]

Anyone trained in social science statistical methods cannot help be slightly taken aback by the data standards used within the same-sex parenting literature. Typically a social scientist develops a model based on a set of assumptions that yields specific predictions. These predictions are then tested through various methods using large probability samples — usually random samples — where the probability of a study participant is known. Randomness in the sample selection is extremely important. When a sample is not random, and when the source of bias is not understood, then the results of the data experiment have no generality, and nothing should be inferred from the biased data because such inferences will not reflect the true nature of the population. The point cannot be over stated. A proper probability sample is a *necessary condition* for making a general claim about an unknown population, based on a sample. Within the same-sex parenting literature the street lamp effect abounds. Researchers have typically studied only those community members who are convenient to study. This

means that the results lack the integrity and validity that lead to any truth statements regarding out of sample same-sex parents and their children.

This is not to say that qualitative studies — those that involve an in depth analysis of a non-random biased sample — are of no value. Indeed, such studies can provide a wealth of information *about the subjects of the study.* Furthermore, such studies may lead to conjectures about the general population, and may help researchers design better scientific studies. For example, within the same-sex parenting literature a number of potential differences between children raised by same-sex and opposite-sex parents have been observed: children of same-sex parents are more likely to engage in same-sex relations, same-sex fantasies, and identify as gay or lesbian; lesbian couple households are less stable than gay male households or opposite-sex married households; and lesbian households are more likely to divide household tasks evenly than heterosexuals. Whether or not these findings are generally true or not *is not known*, and cannot be known absent the use of probability samples. It is not scientific to draw conclusions about an unknown population from a biased sample, regardless of how in-depth the qualitative analysis is.

This point has been raised by many others regarding the literature on same-sex parenting, including many within the literature.[2] Of the sixty

[2] Andersson *et al.* (2006) note:

> The lack of representative samples is the most fundamental problem in quantitative studies on gays and lesbians, which commonly rely on self-recruited samples from an unknown population.
>
> [p. 81]

Sweet's (2009) survey finds: 1) Less than 20 studies met her scientific selection criteria; 2) in all cases the tests had limited power and tended to accept the null of no difference between same-sex and opposite sex parenting; 3) most studies were not done in the U.S.; and 4) all studies had very small sample sizes, especially when broken down by gender. Stacey and Biblarz (2001) are more pessimistic and note that few studies grapple with these issues (pp. 164–166, 2001).

studies reviewed here, only ten used probability samples.[3] All of the other studies arrived at their samples through means that introduced various types of bias. Some studies recruited individuals from sperm bank data sources or other types of reproduction technology providers.[4] Other studies used Internet surveys where the respondents were recruited by various methods: parent forums, gay and lesbian web-sites, adoption support groups, and online advocacy organizations.[5] Many studies recruited through LGBT events, bookstore and newspaper advertisements, word of mouth, networking, youth groups, and the like.[6] A common method of recruitment was to use a combination of the above methods to form a sample base, and then recruit friends of the base.[7] One set of studies that was collectively called the "Bay Area Families Study" noted "Recruitment began when the author contacted friends, acquaintances, and colleagues who might be likely to know eligible lesbian mother families."[8] Still other studies failed to even mention how their samples were arrived at.[9] Each different procedure has a different and unknown source of bias. Studies of lesbians are well known to contain subjects who are predominantly white, well educated, and high income — reflecting the demographics of the authors. Other characteristics that are less observable (e.g., willingness to speak openly about their families, political affiliations, etc.) may also be over or under represented.

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[3] These were Allen (2013), Allen, Pakaluk, and Price (2013), Bos *et al.* (2013), Golombok *et al.* (2003), Fedewa & Clark (2009), Regnerus (2012), Rosenfeld (2010), Wainright and Patterson (2006, 2008), and Wainright, Russell and Patterson (2004). Two others used samples drawn from a population: Rothblum *et al.* (2008) and Andersson *et al.* (2008).

[4] For example: Bos *et al.* (2007); Bos and Van Balen (2008); Chan, Brooks, Raboy, and Patterson (1998); Brewaeys *et al.* (1997); and Chan, Raboy, and Patterson (1998).

[5] For example: Lehmiller (2010); Bos (2010); Bos and Sandfort (2010), or Power *et al.* (2010).

[6] For example: Wright and Perry (2006); Oswald *et al.* (2008); Lehmiller (2010); Goldberg (2007); Bailey *et al.* (1995); Flaks *et al.* (1995); Fairtlough (2008); Dundas and Kaufman (2000); Power *et al.*. or Fulcher *et al.* (2008).

[7] For example: Balsam *et al.* (2008); Golombok *et al.* (2003).

[8] Patterson, p. 94, 2001.

[9] For example: Stacey (2004, 2005) or Chrisp (2001).

Unknown bias in these studies also results from the low response rates to initial surveys. Many of the sixty studies are silent on the question of response rates, but when information is provided it often shows that response rates are very low. For example, in Bos (2010) the gay males were recruited from an Internet mail list for same-sex parents. Although the list had 1000 names, only 36 replied and participated in the study. This amounts to a 3.6% response rate. Other studies (e.g., Chan *et al.* and Fulcher *et al.*) have response rates in the 50% range. Response rates lower than 60% are usually taken to mean the presence of a strong selection bias — even when the initial list is random.

Although most studies acknowledge the non-representativeness of their biased samples, seldom is there any mention of the direction of the bias, never is anything done about it, and with few exceptions does the bias prevent the authors from drawing sweeping policy recommendations for practitioners, law makers, and judges. Consider, again, the conclusion of Bos (2010) based on the 3.6% response rate to her Internet mail-list of 1000 names After concluding there was no differences found, and that the study had several serious limitations, she states:

> Our findings have important practical implications: they underscore that although gay fathers do not differ from heterosexual fathers, there is a negative effect of minority stress (reflected in rejection) on the lives of gay fathers and their children. It would therefore be erroneous for family therapists to overlook or minimise the potential impact of rejection for being a gay father and they should support coping responses in dealing it.
>
> [p. 367, 2010]

On the contrary, it is erroneous to draw conclusions about *all* fathers from such a small, biased sample.

The benefits of a random sample are not lost on some authors who use data that consists of proprietary longitudinal surveys that give an impression of random sampling. Perhaps the most important example is the National

Lesbian Longitudinal Family Survey. Despite its name, it is not national. The survey was begun in 1986 when it recruited 84 lesbian families from "announcements at lesbian events, in women's bookstores, and in lesbian newspapers." The families are urban (from Boston, DC, and San Francisco), well educated, and overwhelmingly white. These same families are interviewed at several stages, and the various publication titles give the impression of a national random sample. Other studies use the same rhetorical device. The "Toronto Lesbian Family Study" turns out not to be a study representing lesbian families in Toronto, but rather a survey of 16 families recruited "by word of mouth, networking, or through their involvement in a lesbian mother's support group in Toronto." These studies, like the others, contain serious unknown biases that render estimations of the population of same-sex parents meaningless.

However, as mentioned, over the past decade a few studies have attempted to use random samples to analyze same-sex parenting, and each of these recognizes the value of a probability sample. Unfortunately, most of these studies are still lacking in either power or design execution.

Consider the notable studies by Wainright and Patterson which are not three independent studies, but rather three separate publications utilizing the same data source.[10] The data come from the National Longitudinal Survey of Adolescent Health, a random survey of school aged children conducted in the 94-95 school year. Because the survey does not directly identify same-sex parents, the authors are forced to identify same-sex parenting households indirectly, which likely falls victim to respondent coding errors.[11] However,

[10] Wainright and Patterson (2004, 2008) and Wainright, Russell, and Patterson (2006).

[11] This indirect source of bias is a problem in many large data sets, including the U.S. Census. In these cases, same-sex couples are usually identified by tagging respondents who claim they are married or common law and living with someone of the same sex. On the one hand, this is likely to over sample same-sex households because it picks up many non-sexual same-sex relations (e.g., brothers, cousins, roommates, etc.), and because it relies on respondents to accurately answer a

an additional problem is that the survey is too small to adequately identify small minorities like same-sex parents. Although the Health survey contains 12,105 households, Wainright and Patterson are only able to identify 6 gay households and 44 lesbian ones. The 44 lesbian households represent 0.33 of one percent of all households in the survey, and is too small to generate any power in testing. This fraction is similar to that found by Golombok *et al.* (2003). This latter study uses the Avon Longitudinal Study of Parents and Children — a local British study. Here they find only 18 lesbians, which amount to .22 of one percent of all mothers in the survey.[12] Again, the number of responding households is too small to adequately identify

combination of questions. The Williams Institute has recently completed a study of the 2010 census and notes that the bias works both ways: same-sex couples get coded as opposite sex couples, and opposite sex couples get coded as same-sex couples. They state:

> the total national error rate is approximately 0.25% ((0.2%*0.74)+(0.4%*0.26)). ... This measurement problem means that Census tabulations of same-sex couples may be biased too high, yielding an over-count. However, there is also reason to believe that Census procedures can undercount same-sex couples. Gates (2010) estimates that at least 15% of same-sex couples are not counted in Census Bureau tabulations either because they identified themselves as something other than "husband/wife" or "unmarried partner" or neither partner was Person 1 in the household. Some same-sex couples are unwilling to identify themselves as such on the Census due to concerns about confidentiality. Same-sex couples may experience stigma and discrimination and consider it too risky to identify as spouses or unmarried partners on a government survey like the Census. Instead, they may choose to call themselves roommates or unrelated adults. Couples where neither partner is Person 1 cannot be identified on the Census since identification relies upon knowing the relationship between Person 1 and others in the household. ... O'Connell and Gooding 2007 found evidence that the over-count and undercount may effectively offset each other. If this is true, then Census same-sex couple tabulations may be a fairly accurate. However, the presence of the miscoded different-sex couples within the identified same-sex couples could seriously bias the reported rates of male versus female couples, child-rearing, and the overall geographic distribution of same-sex couples across a state.
>
> [Williams Institute, 2011]

This is not to suggest that the census or other such data sets be disqualified for use in studying children in same sex households. Rather, it suggests there is a known bias that should be controlled for.

[12] Rivers *et al.* (2008) uses a random British survey similar to that used by Wainright and Patterson, and end up with a sample of 18 lesbian households.

the group of interest, and too small to generate enough statistical power to identify the effect of household structure on child performance.

When lesbians make up between .5–1% of the population, surveys must contain upwards to half a million respondents before any reasonable lesbian sample size can be reached.[13] Wainright and Patterson proceed with their small sample which does not have enough power to distinguish differences across different households. Golombok *et al.* (2003) use snowball methods — the practice of asking individuals within a study to recruit their friends and associates to join the study — to add to their sample and bring their numbers up to 39 lesbians. Unfortunately, this number remains too small, and adding cases in this fashion introduces unknown bias and so their study remains like most others, with a lesbian family sample smaller than 50.

Two other notable random sample studies include Fedewa and Clark (2009) and Bos *et al.* (2013). The former study uses the Early Childhood Longitudinal Study – Kindergarten Cohort, which is a random sample of 22,000 children from 1000 Kindergarten programs starting in 1998. Although the data set is longitudinal, the authors only used the fourth wave, making it essentially a cross sectional study. Out of this sample, 35 same-sex families (8 with gay parents, 27 with lesbian parents) were indirectly identified and matched with 35 randomly selected opposite-sex couples. The latter study used the Cohort Survey of Education and Learning, a Dutch random sample of 11,609 children from 550 elementary schools in 2007/08. They found a sample of 32 lesbian headed households, and matched 32 children from opposite-sex households for the total sample. Like the other random samples

[13] The fraction of lesbians and gays within the population is a number in some dispute, and a number that depends on how lesbians and gays are defined. Allen and Lu (2013) find that lesbians make up only 1/3 of one percent of the Canadian population. This estimate comes from the Canadian Community Health Survey. The CCHS is the only large, random, nationally represented data set, I know of, that *directly* identifies sexual orientation (including bi-sexuality) for both singles and couples. Reliable estimates of lesbian numbers in the U.S. are typically less than 2% of the population (Black *et al.* p. 54, 2007).

mentioned, these samples are small and limit the ability to test and control for various effects with any power.

Hence, until 2010, there was not a single study conducted in this literature that utilized a sufficiently large random sample. Within this context it is easy to see the importance of Rosenfeld's 2000 U.S. Census study on grade progression in public schools that contained an initial sample of over 1.5 million households. The census has limited information on children in a household, but it does contain their ages and grades at two stages. Hence, there is a measure on whether or not a child has reached an appropriate grade for a given age. Rosenfeld controls for a number of demographic characteristics of the household, and tests to see if children from same-sex partnerships are more likely to fail a grade in school compared to other household types (married, cohabitating, foster, single parent). Rosenfeld compares the coefficient on progression of the various family types to married opposite-sex parents and finds *no statistical difference* for his same-sex parenting fixed effect on grade failure. He interprets this to mean there is *no difference in child outcomes* within same-sex and opposite-sex married couples. If this result were true, which most at the time assumed, it would be the only solid evidence in the literature that child performance did not depend on the sexual orientation of the parents.

Unfortunately, according to a replication by Allen *et al.* (2013), the Rosenfeld study contains two problems. First, his results are mis-interpreted. Although he claims there is no *actual* difference between the two household types, what he literally finds is that child progression in same-sex households is not *statistically* different from any type of household — including ones that are known to be unhealthy for children. This is a matter of statistical imprecision in his estimates. Essentially there is too much noise in the data to tease out an effect or not, and therefore a conclusion of no difference is not warranted.

Second, the reason why his study lacks the precision to find any statistical effect results from the decision to restrict the sample and drop 894,140 observations (55% of the data) in order to eliminate children who i) had not lived in the same location for five years, and ii) were not "own children." Rosenfeld's reason for doing this sample selection was to control for family types and stability; that is, he wanted to limit the effect of being adopted, in foster care, etc, and family mobility. However, this restriction turns out to introduce a strong bias in the results because family mobility and own children are strongly correlated with same-sex households. Dropping these observations disproportionately drops same-sex households from the sample, and results in a lack of precision. With so few same-sex couples in the data, they cannot be statistically distinguished from any other family type (e.g., foster families). Allen *et al.* (2013) show what happens when the sample is restored using either one restriction or no restrictions, while at the same time controlling for own children and mobility through the use of dummy variables. Depending on the how the sample is restored, the odds of children from same-sex households are between 25-35% more likely to fail a grade compared to children in opposite-sex two parent families, and this difference is statistically significant. A proper control of bias leads to a reversal of an empirical finding.

There are two other large random sample studies. The first is Regnerus (2012) which used a data set called The New Family Structure Study. This sample had just over 3000 respondents, which again is too small to generate a significant sample size of children raised by same-sex parents. In this particular case, his solution was to broaden the definition of same-sex parent to mean a situation where a parent had been involved in a same-sex relation.

Finally, Allen (2013) conducts a similar study to Rosenfeld using the 2006 Canada Census — a large random sample that self identifies same-sex households and allows for control of parental education and marital status.

The Canada Census cannot identify normal progress through school, but it does measure whether a child has graduated from high school or not. Allen (2013) finds a similar result compared to Allen *et al.* (2013): the odds of children of same-sex parents are about 65% as likely to graduate from high school compared to children of married opposite-sex parents.[14] Allen (2013) also analyses the gender composition of same-sex households, and finds that girls do worse than boys in same-sex homes. The odds of girls with gay parents are only 15% as likely to graduate from high school compared to similar children in opposite sex married homes.

Sample Size

If sample bias is the fundamental data problem among same-sex family studies, the second critical problem is data sample size.[15] Of the sixty studies examined here, only four had sample sizes larger than 500.[16] Much more common were sample sizes between 30-60. The problem with such small sample sizes is that the data cannot generate any power for statistical testing. Statistical testing contains two types of errors. A type I error is where the null hypothesis is rejected when it is in fact true, and the probability of this type of error is called the "level of significance." A type II error is where the null hypothesis is not rejected even though it is false. The probability of this

[14] The Canada Census does not separate married or common-law same sex couples. When children of same-sex couples are compared to common-law opposite-sex couples, the perform slightly worse. In Canada, common-law relationships have the same legal status as marriage, unlike in most states of America.

[15] Of the sixty studies examined here, only twenty-two dealt with gay male parents (and fifteen of these are since 2008). This is another source of bias that warrants caution in drawing any conclusions about non-lesbian families.

[16] These were Allen (2013), Allen *et al.* (2013), Rosenfeld (2010), and Andersson *et al.* (2006). According to Nock (p. 37, 2001), to properly test any hypothesis regarding same-sex parenting, a sample size of 800 is required. Most would reject Nock's claim, but given the complexity of same-sex family structure and formation, sample sizes greater than 300 are likely necessary to generate any power.

error is known as the "power of the test". A powerful test means there is a small chance of not rejecting a false null hypothesis. Power, in part, comes from sample size: a small sample necessarily generates a weak test.

The very small sample sizes found in many of these studies creates a bias towards accepting a null hypothesis of "no effect" in outcomes between same-sex and heterosexual households. This is well recognized, but it is exacerbated in the context of same-sex parenting because avenues through which these households are formed are many and complicated. As noted by Stacey and Biblarz (2001, 2010), these families often have experienced a prior divorce, previous heterosexual marriages, intentional pregnancies, co-parenting, donor insemination, adoption, and surrogacy. Empirical work needs to control for the various selection effects that arise from the number of parents, sexual identity, marital status, gender, and biological relationships with children. That is, child performance is affected by all these channels and they need to be statistically identified. To do this requires large amounts of data, and to date almost no study has had the numbers to effectively sort this out, and where the sample size was sufficient (e.g., Rosenfeld (2010) or Allen (2013)) the instruments for testing were limited to just school performance.

Out of the sixty studies reviewed here, only a few meet most of the criteria of reliable data: that is, the data set is large, verifiable, replicable, longitudinal, and based on the population. Most of the studies have been mentioned already. The exception is Andersson *et al.* (2006). This study uses the marriage and domestic partnership records of Norway and Sweden to study family stability, and essentially calculates divorce hazard rates over time.[17] Ironically, like the other studies that use large random data sets, this one finds a number of results inconsistent with the general thrust of the literature. In this case, relatively few gays and lesbians appear interested in

[17] Sweden adopted same sex marriage in 2009, and so Andersson *et al.* actually are comparing divorce hazards between different types of unions.

marriage since "the incidence of same-sex marriage in Norway and Sweden is not particularly impressive."[18] Also, gay men were 60% more likely to marry compared to lesbians. And finally, there was a large difference in divorce rates between gays and lesbians, with lesbians twice as likely to divorce as gays, and three times more likely to divorce than heterosexual married couples.[19]

Researcher Bias

> Public agencies are very keen on amassing statistics — they collect them, add them, raise them to the n^{th} power, take the cube root and prepare wonderful diagrams. But what you must never forget is that every one of those figures comes in the first instance from the village watchman, who just puts down what he damn well pleases.
>
> [Sir Josiah Stamp, 1929 pp. 258–259]

For decades prior to the 1970s most psychological research on homosexuality used a pathological model, and treated gay and lesbian sexual orientations as a form of illness.[20] As a result, gay or lesbian parents often lost custody of children in divorce disputes if one of the parents could be shown to be gay or lesbian. Thus, since the mid 1970s empirical research often had the objective of showing that gay and lesbian parents were on par with heterosexual parents.[21] From its start then, researchers and participants in that

[18] Andersson *et al.* p. 86, 2006. Nor is it impressive in Canada where same-sex marriage has been legal since 2005. According to Allen and Lu (2013) only 12.2% of lesbians, and 4.9% of gays, are married.

[19] Andersson *et al.* p. 94, 2006. There is one other study that is particularly well done. Sarantakos (1996) does not use a random sample, but rather draws on a longitudinal study and uses objective, verifiable, hard measures of performance that are not self-reported. He finds a "difference" as well, with children from gay households doing significantly worse in mathematics, language, and other school related matters. Interestingly, this study is not mentioned in most literature surveys. However, Schumm (2012) has recently examined all of Sarantakos work on non-traditional families and questions why it has been dismissed and ignored.

[20] See Clarke, Kitzinger, and Potter, 2004 for a discussion.

[21] Goldberg (p. 110 2010), cites the 1993 Virginia case of *Bottoms v. Bottoms* as a "catalyst" for the literature. In the case, the court awarded custody of Sharon Bottom's son to her mother, Kay Bottoms, on the grounds that her lesbian sexual orientation made her an unfit mother.

research have had a social justice agenda over and above the simple social science pursuit of understanding same-sex households.[22] From this starting point a type of researcher has emerged: mostly female, often lesbian, and strongly feminist and supportive of gay rights. Indeed, Stacey and Biblarz admit that "few contributors to this [same-sex parenting] literature personally subscribe to [a hetero-normative] view."[23] When the political stakes in research are high, it is important that contributors to that research come from many different sides of the question in order to offset researcher bias and serve the scientific process. Unfortunately, this has seldom been the case within this literature.

A third party reader of the literature easily picks up on researcher bias, but the case for this bias is also expressly found within the literature itself. Stacey and Biblarz (2001) point out that the desire to show gay and lesbian parents on par with heterosexual parents led "sensitive scholars ... to tread gingerly around the terrain of differences."[24] In other words, although several scholars actually found some differences in children between the different

[22] Stacey and Biblarz (2001) note this:

> ... social science research on lesbigay *(sic)* family issues has become a rapid growth industry that incites passionate divisions. For the consequences of such research are by no means "academic," but bear on marriage and family policies that encode Western culture's most profoundly held convictions about gender, sexuality, and parenthood.
>
> [pp. 159-160, 2001]

As does Goldberg:

> Legal decisions such as this [Bottoms vs. Bottoms 1993] served as the catalyst for a steady wave of research studies that compared lesbian and gay parents with heterosexual parents to determine whether parental sexual orientation has implications for parent functioning.
>
> [p. 110, 2010]

[23] Stacey and Biblarz, p. 160 2001.

[24] Stacey and Biblarz, p. 162, 2001.

types of parents, they either ignored, downplayed, or did not follow up those issues. They state "... on some dimensions — particularly those related to gender and sexuality — the sexual orientations of these parents matter somewhat more for their children than the researchers claimed."[25]

Another case is revealed in Clarke, Kitzinger, and Potter (2004). This paper deconstructs eleven interviews and eleven television documentaries on bullying in cases where the child's parent is either gay or lesbian. They find that, depending on the bias of the interviewer and the respondent, the conversation was *directed* to a pre-determined outcome. These authors argue that in the case of bullying many sympathetic to gay and lesbian issues want to minimize its relevance because it can be used as a ground for denying custody. Those more hostile to gay issues often want to play the practice of bullying up for the same reason. And so "some work on lesbian and gay families *maximizes* the incidence and impact of homophobic bullying ... much of the literature ... *minimizes* homophobic bullying."[26]

Clarke *et al.* note that these interviews do not take place within a vacuum, and as a result the accounts are often "self serving" and not objective. The respondents are "aware" of the issues, and fully aware of the implications of their answers. Indeed, they note that "[l]esbian and gay researchers who conduct interview studies with lesbian and gay men often report that many of their participants only agreed to take part because the interviewers were also lesbian or gay."[27]

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[25] Stacey and Biblarz, p. 167 2001.

[26] Clarke, Kitzinger, and Potter, p. 533 2004.

[27] Clarke, Kitzinger, and Potter, p. 535 2004. Ironically, some writers within this literature point out the problem of researcher bias in the literature that opposes same-sex families:

> The deeply rooted hetero-normative convictions about what constitutes healthy and moral gender identity, sexual orientation, and family composition held by contributors to this literature hinders their ability to conduct or interpret research with reason, nuance, or care.

In her 2010 book Goldberg discusses another case of researcher reporting bias. She notes that gays and lesbians are aware of the political issues surrounding their cause and purposely use language that distorts what actually goes on within the household. In particular, an analysis of division of labor studies "revealed that both lesbian and gay couples tended to describe the division of household labor in ways that sometimes deviated from the objective, or observed, distribution of tasks".[28] She notes as well that the researchers were also biased in their reporting: "... it is important to consider the possibility that researcher' perspectives and interpretations (e.g. the tendency to view shared labor divisions as egalitarian and therefore nongendered and the tendency to view unequal labor division as unegalitarian and therefore gendered) not necessarily mirror the experiences and interpretations of lesbian and gay parents themselves."[29]

The actual types of bias in these studies is not relevant for the purpose here. The key point is that a researcher bias exists. Researcher bias is a wild card in empirical research. It is hidden and unknown, and can swamp statistical bias in terms of the results. The only practical solution for it is to have studies that are both verifiable and replicable by third parties. This is usually not possible within this literature.

Theories of Parenthood

> There are three kinds of lies: lies, damned lies, and statistics.
>
> [Benjamin Disraeli]

The typical lesbian parent study recruits a small, biased sample of lesbian parents, and usually matches this sample with a similar sized sample of

[Stacey and Biblarz, p. 162, 2001]

[28] Goldberg, p. 101, 2010.

[29] Goldberg, p. 102, 2010.

heterosexual parents. With almost all of the cases studied here, there is seldom a detailed discussion of how the comparison sample is selected, how ties in qualifications are handled, or why the specific selection criteria are used over others. The typical study then proceeds to ask a series of standardized questions. These questions often relate to how the parent feels about some aspect of same-sex parenting; their understanding of their child's experience growing up in a same-sex household; their perceptions of behavior, peer relations, and school performance; or their expectations of their child's future. Some studies read diaries, watch play times, or listen to how young children speak to each other. A few studies examine hard quantifiable measures of performance and adjustment, but they are the exception. The general rule is to find some type of soft measure of "parenting" — of the sixty studies, only sixteen dealt with hard, objective measures. The typical study then does a simple difference of means test between the two groups to draw its conclusions.[30]

What comes out of this is a steady stream of confirmations of a particular type of parenting: a double dose of motherhood is best. For example, Bos *et al.* (2007), using several subjective measures, claim that the social mother in a lesbian household is a much better parent than a heterosexual father. They state:

> ...lesbian social mothers are more effective and more committed than heterosexual fathers as a parent. They show higher levels of support (e.g., more emotional involvement and parental concern) and lower levels of control (less power assertion, less structure, less limit-setting, and more respect for the child's autonomy).
>
> [p. 45, 2007]

Indeed, the literature contains many sentiments that report better parenting by lesbians over fathers. In a paper that notes children in opposite sexed

[30] Conducting a standard difference of means, or any other type of standard statistical test, only makes sense when the conditions of a probability sample are met. This condition is almost never the case.

parent households are more likely to commit "gender transgressions" (for example, the children were more likely to think that boys should not wear fingernail polish and girls should not play football), Fulcher *et al.* note:

> ... lesbian mothers had more liberal attitudes about gender related behavior among children than did heterosexual parents.
>
> [p. 336, 2008]

> Children with parents with more liberal attitudes about gender and more egalitarian divisions of labor were more flexible in their own gender stereotypes and in their occupational aspirations.
>
> [p. 338, 2008]

> In heterosexual-parented families, fathers usually hold more conservative attitudes about gender roles and gender-related activities than do mothers.
>
> [p. 331, 2008]

They conclude that "if parents, regardless of sexual orientation, organize their attitudes and behaviors in an egalitarian manner more common in lesbian couples, children may have more flexible attitudes about gender."[31]

Dundas and Kaufman claim, based on their study of 27 lesbians recruited by "word of mouth, networking, or through their involvement in a lesbian mother's support group", that lesbian households have several advantages over heterosexual ones. Namely, they produce more tolerant children, there is more mother energy, and parenting decisions are made more carefully.[32]

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[31] Fulcher *et al.*, p. 338, 2008. The same sentiments are driven home in Goldberg's book, in lesbian families there is:

> ... greater sense of openness and communication within the family ... greater tolerance for diversity, a greater sensitivity to discrimination, and growing up in a loving environment. ... freedom from traditional models ... less gender-stereotyped ideas.
>
> [Goldberg, p. 97 2010]

[32] Dundas and Kaufman, p. 74, 2000. In a similar vein, Wainright *et al.* (2004) claim that "a warm accepting style of parenting is related to optimal outcomes for adolescents..." (p. 1887). The

Brewaeys *et al.* were not surprised to find that "...one striking difference was found between lesbian and heterosexual families: social mothers showed greater interaction with their children than did fathers", even though the fathers were not present to represent themselves at the interview.[33] In a meta study, Biblarz and Stacey (2010) confirm some feminist stereotypes: women are more nurturing, less likely to work outside the home, more egalitarian, more likely to play with children, less likely to discipline and use punishment, less likely to conform to gender roles. This double dose of feminine influence "can lead Heather's two mommies to be among the best ... coparenting couples." (p.12). Although the double dose also leads to competition between the mothers and an exacerbation of the genetic asymmetry between the mothers and children, Biblarz and Stacey conclude that gender trumps biology, and even marital status (two unmarried lesbians perform better than a married heterosexual couple). That lesbian couples are also less stable than other types of families is attributed to discrimination by others (p. 12).

Heterosexual fathers consistently come off as poor parents in these studies. For example, based on a convenience sample of 30 lesbian and 30 heterosexual households, one study claimed:

> ... lesbian couples were more aware of the skills necessary for effective parenting than were their heterosexual counterparts. Specifically, the lesbian couples proved to be superior in their ability to identify the critical

latest study by Bos *et al.* (2013) also claims that children of lesbian homes are more civic minded and respectful of democratic institutions.

[33] Brewaeys *et al.*, p. 1356, 1997. Gartrell and Bos (2010), concluding on the performance of the NLLFS children at age 17 state:

> The lower levels of externalizing problem behavior among the NLLFS adolescents may be explained by the disciplinary styles used on lesbian mother households. The NLLFS mothers reported using verbal limit-setting more often with their children. Other studies have found that lesbian mothers use less corporal punishment and less power assertion than heterosexual fathers.
>
> [p. 7, 2010]

> issues in child-care situations and to formulate appropriate solutions to the problems they noticed. With further analysis, however, it was revealed that these differences were related to the parents' gender rather than to their sexual orientation: Both heterosexual and lesbian mothers demonstrated an awareness of parenting skills that was superior to that of heterosexual fathers.
>
> [Flaks, *et al.* p. 112, 1995]

Other studies suggest that heterosexual fathers contribute nothing to the welfare of their children. Consider: "... being without a resident father from infancy does not seem to have negative consequences for children."[34] This quote is from self reported questionnaires of 25 lesbian families, 38 families headed by a single heterosexual mother, and 38 two heterosexual parent families where the *mothers* answered the questions.

Biblarz and Savci sum the literature up this way:

> The picture painted by recent research is mostly a continuation of a story from earlier research — that families with two lesbian parents (biological, social, or step) exhibited a number of strengths. ... lesbian parent couples have high levels of shared employment, decision making, parenting, and family work. ... Lesbian couples also averaged higher satisfaction with their relationships with each other and with each other's parenting. ... Lesbian DI mothers ... tended to equal or surpass heterosexual married couples on time spent with children, parenting skill, and warmth and affection.
>
> [pp. 481-482, 2010]

All of this favor towards two mothers might suggest a reciprocal problem for gay fathers: poorer performance on these dimensions given their double dose of masculinity. However, in their review of the tiny gay male parenting literature Biblarz and Savci note that "'Many studies indicated that when two gay men co-parented, they did so in ways that seemed closer to that of women (lesbian and heterosexual) than to married heterosexual men."[35] The only bad parent, apparently, is a heterosexual father.

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[34] MacCallum and Golombok, p. 1407, 2004.

[35] Biblarz and Savci, p. 487, 2010.

Seen together, what is apparent is the common theory of the family held by the researchers. Again, to cite some introductory remarks in Biblarz and Savci's survey:

> Researchers were documenting what most social scientists already knew but what much of the public, perhaps inundated by "virtual social science", did not: that sexual orientations and gender identities per se have almost nothing to do with fitness for family roles and relationships, including parenting.
>
> [p. 480, 2010]

The question is: how did the researchers already know the answer before they collected data? The answer: because their theoretical world view led them to the conclusion.[36] The lesbian parenting literature is dominated by feminist theory, in which heterosexual families are seen as patriarchal, oppressive, and hostile to many people. Within the context of this world view the freedom to choose alternatives necessarily leads to an institutional improvement.[37] Thus, even if the empirical results found within the literature turn out to

[36] See Fedewa & Clark (p. 317, 2009) for another example of the despite there being "no studies ... it is generally accepted that ..." reasoning.

[37] An interesting tension arises in the context of lesbian families and feminist ideology: the raising of sons. Chrisp (2001) provides an almost emotional account of the dilemma faced by a feminist lesbian mother of a son:

> Few mothers, I believe, would not want their sons to make their own decisions, to be their own people, and to have the world full of opportunity for them. And yet, we need them [the sons] to reject the patriarchal status quo that has inhibited our own opportunities and will continue to do so for the women in their lives.
>
> [p. 198, 2001]

These sentiments are repeated in Biblarz and Savei's 2010 survey:

> Lesbian mothers raising sons may face unique tensions in wanting social and socioeconomic success for their sons when that may mean colluding with cultural ideas of hegemonic masculinity that encourage male achievement but involve the subordination of women.
>
> [p. 482, 2010]

Ironically, since lesbians using some type of sperm donor insemination want to maximize the probability of conception, they often inseminate on the day of ovulation which increases the chance of having a son (Chrisp, p. 198, 2001).

be true, as a matter of logic the conclusions do not necessarily follow, but depend on a particular feminist view of the family.[38] A different theoretical view of the family could draw a different conclusion from the same data.

[38] One element of feminist theory that crops up within this literature is the irrelevance of biology — a major theoretical competitor to feminist theories of the family. The importance of gender over sex has already been mentioned. Males can make good parents if they parent like a female. Another area is in the role of "social mother" the mother not biologically related to the child. Goldberg *et al.* (2008) claim that by the time a child is 3.5 years old, children are indifferent between the biological and social mother. Based on a biased sample of 30 couples and some very soft questions they conclude: "These women demonstrate the power of "social motherhood" in creating maternal connections that transcend biological relatedness over time. " (p. 432). Finally, an almost humorous example is found in Goldberg (2010). After noting that birth mothers tend to specialize in the household she quickly retorts: "This is not to say that lesbian mothers are reproducing gender relations along the lines of biology; rather it suggests that they are shaped by (and also shape) broader social patterns and various structural and symbolic forces." (p. 99). Everything is a social construct.

> 42.7% of all statistics are made up on the spot.
>
> [Steven Wright]

Two final features of the gay and lesbian literature on parenting lead to a concern over biased and unreliable results. The first is that most results are self-reported. Exceptions exist, but the bulk of studies have gay, lesbian, and heterosexual parents report on their own performance as parents. Given that the respondents understand the implications of their answers, and that no one is an independent observer of their own behavior, one wonders what the actual meaning of the responses are. A dramatic example of this is found in the fourth interview of the National Lesbian Family Study. The interview included questions of child abuse, and the researchers considered it a major finding that:

> The prevalence of childhood sexual abuse among NLFS girls (5%) and boys (0%) contrasts strikingly with national rates. ... None of the NLFS children had been physically abused. Although the NLFS mothers were the informants and the index children had not yet reached maturity, these data suggest that the absence of adult heterosexual men in households may be protective against abuse and its devastating psychological sequelae.
>
> [Gartrell *et al.*, p. 523, 2005]

Although the authors recognize the lack of incentive a mother has in reporting her own abusive behavior, they readily draw the conclusion that their result actually reflects the reality of abuse within these households. On the contrary, their result does not allow for such a conclusion since it is much more reasonable to infer that parents will not self report their own transgressions, especially when illegal.

When combined with the unverifiable and subjective nature of many questions, the self reporting format of these studies naturally leads to no differences found between households when both households have the same

incentives to misreport bad outcomes. Verifiable measures like school performance, births out of wedlock, tobacco use, or employment can overcome this problem, but the soft non-verifiable questions most often asked mean that the responses simply cannot be trusted.

Finally, given that national statistics agencies have neglected to identify sexual orientation in their surveys, researchers in the field of gay and lesbian parenting have mostly had to rely on their own surveys. No doubt their budget and time constraints have led to many of the problems identified thus far. These constraints also necessitate the involvement of the researcher in *both* the collection and analysis of the data. As noted in Clarke, Kitzinger, and Potter (2004), researchers often implicitly and explicitly direct and guide the respondents to an answer that matches their preconceived understanding. Whether this is intentional or not, separation of the collection and analysis of data is a critical feature of social science research that is generally absent in the same-sex parenting literature. This is likely to change over time as government agencies establish surveys that identify sexual orientation. However, in the meantime, it calls into question most research done thus far.

Inappropriate Conclusions

All of the above would be natural and expected in any new empirical literature. Individual exploratory studies invariably start with convenience samples, anecdotes, and are laced with researcher bias. Such problems are even more likely when the group under study has been socially stigmatized, and are often afraid to reveal personal information related to their sexual orientation. The point of any exploratory study is to simply begin an investigation that will hopefully turn up findings others are interested in. These findings must then be later investigated more thoroughly and with rigor in order for society at large to trust and use them. Unfortunately, the same-sex parenting literature has generally skipped the second step, and moved immediately from "exploratory finding" to staunch policy implications.

Some conclusions are like the ones pointed out by Biblarz and Stacey (2001), where the authors go out of their way to misrepresent their findings. For example, Bailey *et al.* (1995) conduct a particularly poor study that recruited 55 gay fathers through advertisements in homosexual publications with a phone number to call. They asked the respondents about their sons, and then tried to contact the sons to ask them about their sexual orientation. They got in touch with 43 of the sons, most of whom did not answer the question regarding their sexual orientation. They then ask the fathers, who responded that in their estimation close to 10% of the sons were not heterosexual. After their recognition of the limitations of their study they conclude that

> The present study cannot definitively answer the basic question of whether sons of gay fathers have elevated rates of homosexuality. It does, however, support one conclusion that, although quite general, may also be important: The large majority of sons of gay fathers are heterosexual.
>
> [p.128, 1995]

Given that gay males make up less than one percent of the population, if it were true that 10% of sons of gay fathers were also gay, then this would be a finding of enormous importance. On the contrary, no one would expect growing up with a gay father to determine sexual orientation, and so a finding of less than 100% is hardly surprising. Therefore, the conclusion that "the large majority of sons of gay fathers are heterosexual" is hardly noteworthy. Nock, (p. 78, 2001), in his review of this study notes the inconsistency as well: "[t]he authors appear unwilling to accept the findings of their own study and go to lengths to explain why the results should not be interpreted on their face." The misplaced emphasis is understandable given their following remark: "The available evidence, including this study, fails to provide empirical grounds for denying child custody to gay or lesbian parents because of concern about their children's sexual orientation." (p. 128, 1995).

More common is the study where conclusions are tacked on to the findings as policy recommendations, even though these recommendations do not

follow directly from the findings but are combined with unmentioned theories of the family. For example, Bos *et al.* (2004) conduct a study to see if lesbian mothers are stressed. Generally they find that stress does not arise from being a lesbian, and "[t]he lesbian mothers in this sample generally reported low levels of rejection, perceived stigma, and internalized homophobia."[39] In other words, the lesbian parents were doing fine, and the stresses they faced mostly came from the normal stresses of parenthood. Nonetheless, they conclude that

> Our findings underscore the importance of the effect of minority stress on the lives of lesbian mothers and their children. Health care providers working with lesbian families, but also teachers with children from lesbian mothers in the classroom, should appreciate the effect of minority stress and should learn to support those coping and dealing with minority stress. On the other hand, granting legal rights and respect to lesbian parents and their children should lessen the stigma some of them now suffer.
>
> [p. 301, 2004]

It may be true that stress is important and that legal rights might alleviate it, but none of these conclusions follow from their narrow study.

This practice of inferring policy implications beyond what the data allow is found throughout Goldberg's recent 2010 book. This book is essentially a large survey of the same-sex parenting literature. At the beginning there is a nod given to small sample issues, difficult problems of definitions, bias, and the like, but all is soon forgotten. All but one of the substantive chapters ends not with a "conclusion" but a section on "recommendations" for lawyers, practitioners, and legislators that promote same-sex families. The point is not whether the recommendations have merit or not, but rather that none of them follow from the empirical findings. For example, at the end of Chapter Four Goldberg claims "The research on lesbian and gay parents strongly indicates that they are no less equipped to raise children than their

[39] Bos *et al.*, pp 299-300, 2004.

heterosexual counterparts."[40] This claim is then used as a launching pad for a series of policy interventions:

> ...therapists, practitioners, and educators should be aware of the ways in which social inequities and institutional heterosexism shape the parenting practices and experiences of sexual minority parents. ... Therapists and practitioners should support lesbian and gay parents in anticipating and handling disclosure issues .... Workplaces can play a significant role in supporting lesbian and gay parents .... Finally, it is essential that policymakers and court officials rely on the existing research — as opposed to stereotypes and morally driven arguments — in making custody and adoption decisions that involve lesbian and gay parents.
>
> [pp. 121–122, 2010]

One wonders why, if the parents are "no less equipped" and the children are performing at the same or better level, any policy needs to be implemented to advance gay households further? But the point is this: these conclusions are themselves based on " stereotypes and morally driven arguments" because they do not follow from any of the results discussed in her chapter.

Conclusion

> Once, in 1919, I reported to him [Adler] a case which to me did not seem particularly Adlerian, but which he found no difficulty in analyzing in terms of his theory of inferiority feelings, although he had not even seen the child. Slightly shocked, I asked him how he could be so sure. "Because of my thousandfold experience," he replied; whereupon I could not help saying: "And with this new case, I suppose, your experience has become thousand-and-one-fold."
>
> [Karl Popper, p. 35, 1989]

A consistent remark found within the same-sex parenting literature relates to how large and growing it is. New studies are said to confirm many past studies, and there is a general impression that, like a snowball rolling down a hill, the evidence is mounting and becoming unchallengeable. This, of course, is not a scientific conclusion. A series of weak research designs and

[40] Goldberg, p. 120, 2010. As noted throughout, this cannot be concluded for the lesbian studies, and certainly cannot be concluded for same-sex parents, for whom there is almost nothing known.

exploratory studies do not amount to a growing body of advanced research. Nock (2001) provided the first critical assessment of this literature. He stated then that "the only acceptable conclusion at this point is that the literature on this topic does not constitute a sold body of scientific evidence."[41] Although the best studies have been done recently, Table 1 shows that the majority of latest studies have the same structural flaws found fifteen years earlier. Nock's conclusion still stands.

I have focused on an examination of bias within the literature; however, a few other characteristics of this literature should be mentioned. First, several papers use the same data set over and over again, and although they might investigate different issues, they tend to draw the same conclusions. As mentioned, the three papers by Wainright and Patterson and their coauthor Russell use the same small data set from the Adolescence Health survey. The three papers by Chan, Raboy, and Patterson and their co-authors Brooks and Fulcher all use a data sample that comes from a sperm bank in California. Bos *et al.* (2008) and Vanfraussen *et al.* (2002) use a data set that was, in part, used by Brewaeys *et al.* (1997) and MacCallum and Golombok (2004). Stacey (2004) and (2005) use the same data set. Of course, the National Longitudinal Lesbian Family Survey uses the same sample in each wave. There is nothing wrong with using a data set over again to answer separate questions or to follow individuals through time. However, one must keep in mind that the number of *independent* studies is less than the total number of studies. Given that each study uses a small sample, this reduction in independent studies is critical.

A related observation is the dominant role of several researchers. Charlotte Patterson is a co-author of twelve of the sixty studies, Henny Bos a co-author of nine, Nanette Gartrell a co-author of seven, Judith Stacey and

[41] Nock, p. 47, 2001.

Abbie Goldberg the co-authors of four, and a few others are co-authors three times. Often they are co-authors with each other. Again, there is nothing wrong with a scholar dominating a field or working with others. However, it once again points to the reduction in independent studies, and leads to the repetition of specific claims. Three survey papers have Timothy Biblarz as a co-author which no doubt also helps to create the impression of a unified body of research. Karl Popper's warning needs to be heeded.

Finally, as an economist looking in from the outside on psychological, sociological, and feminist studies, I was struck by the rhetorical style of the papers. Paper titles were long and "scientific" sounding, lending an impression of advanced research. Along the same lines, papers often had many authors, even though almost all of the papers were short. Many of the secondary authors were likely research assistants given their general lack of graduate degrees and academic positions. This practice mimics the tradition found in the physical sciences where every member of a laboratory is considered an author of a study. And lastly, almost all of the papers conducted simple difference of means, Chi-squared, or other testing procedures that only have meaning when the conditions of a probability sample are met — which they seldom are. They give the visual impression of hard science where there is little. An outsider is led to ask: what is the purpose of such a rhetorical style? The answer is likely that the intended audience of this research is not the scientific community — which sees through it — but the community of lawyers, judges, and politicians who will, and do, decide the fates of gay and lesbian rights. If this is true, then this very community needs to be aware of the methodological shortfalls within this literature.

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APPENDIX
TABLE 1: Summaries of Gay Parenting Studies

Study	Random Sample	Gay Sample Size	Content†	Comparison Group Size	Time Series Data	Gay or Lesbian Study‡
Bailey *et al.* 1995	No	55	Hard	None	No	G
Flaks *et al.* 1995	No	30	Soft	30	No	L
Patterson 1995	No	26	Soft	None	No	L
Tasker *et al* 1995	No	25	Soft	21	No	L
Golombok *et al.* 1996	No	25	Hard	21	No	L
Sarantakos 1996	No	58	Soft	116	Yes	G&L
Brewaeys *et al.* 1997	No	30	Soft	68	No	L
Golombok *et al.* 1997	No	30	Soft	83	Yes	L
Chan *et al.* 1998a	No	30	Soft	16	No	L
Chan *et al.* 1998b	No	55	Soft	25	No	L
McNeill *et al.* 1998	No	24	Soft	35	No	L
Patterson *et al.* 1998	No	37	Soft	None	No	L
Gershon *et al.* 1999	No	76	Soft	None	No	L
Gartrell *et al.* 1999	No	84	Soft	None	Yes	L
Dundas *et al.* 2000	No	27	Soft	None	No	L
Gartrell *et al.* 2000	No	84	Soft	None	Yes	L
Barrett *et al.* 2001	No	101	Soft	None	No	G
Chrisp 2001	No	8	Soft	None	No	L
Patterson 2001	No	37	Soft	None	No	L
Fulcher *et al.* 2002	No	55	Soft	25	No	L
Vanfraussen *et al.* 2002	No	24	Soft	24	No	L
Golombok *et al.* 2003	No	39	Soft	134	No	L
Bos *et al.* 2004	No	100	Soft	None	No	L
Patterson *et al.* 2004	No	33	Hard	33	No	L
Stacey 2004	No	50	Soft	None	No	G
MacCallum *et al.* 2004	No	25	Soft	76	No	L
Wainright *et al.* 2004	Yes	44	Hard	44	No	L
Gartrell *et al.* 2005	No	84	Soft	None	Yes	L
Leung *et al.* 2005	No	47	Soft	111	No	G& L
Scheib *et al.* 2005	No	12	Soft	17	No	L
Stacey 2005	No	50	Soft	None	No	G
Wainright *et al.* 2006	Yes	44	Hard	44	No	L
Wright *et al.* 2006	No	156	Soft	None	No	G
Bos *et al.* 2007	No	99	Soft	100	No	L
Goldberg 2007	No	46	Soft	None	No	G & L
Andersson *et al.* 2008	pop.	2819	Hard	220,949	Yes	G & L
Balsam *et al.* 2008	No	281	Soft	55	No	G & L

Cont.

APPENDIX
TABLE 1: Summaries of Gay Parenting Studies Cont.

Study	Random Sample	Gay Sample Size	Content†	Comparison Group Size	Time Series Data	Gay or Lesbian Study‡
Bos *et al.* 2008a	No	63	Soft	None	No	L
Bos *et al.* 2008b	No	152	Soft	None	No	L
Fairlough 2008	No	67	Soft	None	No	G & L
Fulcher *et al.* 2008	No	33	Soft	33	No	L
Goldberg *et al.* 2008	No	30	Soft	None	No	L
Oswald *et al.* 2008	No	190	Hard	None	No	G & L
Rothblum *et al.* 2008	pop.	475	Hard	None	No	G,L& T
Rivers *et al.* 2008	Yes	18	Soft	18	No	L
Sutfin *et al.* 2008	No	29	Soft	28	No	L
Wainright *et al.* 2008	Yes	44	Soft	44	No	L
Bos 2010	No	36	Soft	36	No	G
Fedewa & Clark 2009	Yes	35	Mix	35	No*	G&L
Gartrell *et al.* 2010	No	84	Hard	93	Yes	L
Lehmiller 2010	No	68	Soft	86	No	G
Power *et al.* 2010	No	455	Hard	None	No	G & L
Rosenfeld 2010	Yes	3502	Hard	> 700,000	No	G & L
Bos *et al.* 2010	No	63	Hard	68	No	L
Farr *et al.* 2010	No	56	Soft	50	No	G&L
van Gelderen *et al.* 2012	No	78	Soft	78	Yes	L
Regnerus 2012	Yes	248	Hard	2988	No	G&L
Allen *et al.* 2013	Yes	8632	Hard	1189833	No	G & L
Allen 2013	Yes	1392	Hard	1400074	No	G&L
Bos *et al.* 2013	Yes	32	Soft 7	32	No	L

† Hard implies the questions asked were potentially verifiable, quantifiable, and had observable answers. Soft implies the opposite. Some studies included both and were classified as hard.

‡ G= Gay, L= Lesbian, and T= Transgendered.