Family Complexity and Children’s Extracurricular Involvement and School Outcomes

Brian Knop


This research is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed on statistical or methodological issues are those of the authors and not necessarily those of the U.S. Census Bureau.
Family Complexity and Child Well-Being

• Effects of family structure (single vs. two-parent households and presence of stepparents) on child outcomes well-documented (Astone and McLanahan 1991; Fomby and Cherlin 2007; Sigle-Ruhston and McLanahan 2004)

• Manning, Brown, and Stykes (2014) point out need for understanding family complexity: the combination of family structure and sibling composition (half, step, and full siblings)
The Significance of Siblings

• Many children (78 percent) live with at least one sibling and over one-third (36 percent) live with siblings who do not share both bio parents (Kreider and Ellis 2011)

• Parental time, money, and energy are finite
  • Children with fewer siblings perform better on developmental measures (Downey 2011)
Measures of Child Well-Being: Extracurricular Activities and School Experiences

• Children’s involvement in extracurricular activities and school experiences have long-lasting implications (French et al. 2015; Zaff et al. 2003)

• Poverty and race/origin influence extracurricular involvement and school experiences
  • Children in poverty are less likely to play sports, take lessons, and participate in clubs than children above poverty (Knop and Siebens 2018)
  • Black children more likely to be expelled than White children (Wallace et al. 2008)
Motivation for This Study

• How many children live with biological, half, step, and adopted siblings?

• Is family complexity (e.g. presence of half/step siblings) associated with extracurricular involvement and school experiences?
  • What about when controlling for race/origin and poverty?
Data and Definitions

2014 Survey of Income and Program Participation (SIPP), Wave 1
• Nationally representative panel survey with detailed demographic and relationship information

FAMILY COMPLEXITY MEASURES

Number of siblings

Type of siblings: Biological, Step, Half, Adopted

Parents in the home: Two parents, Mother only, Father only, Guardian

CHILD WELL-BEING MEASURES
(each measure dichotomous 1=yes, 2=no)

Extracurricular Activities:
Plays a sport,
Takes Lessons,
In a Club

School Experiences:
In a gifted class,
Ever expelled from school,
Ever held back a grade
The 2014 Redesigned SIPP

Changes to the survey and editing process that affect estimates of siblings in the household:

• Expanded fertility section of the survey, including new multiple partner fertility questions

• In previous panels, a respondent identified the relationship between every person in the household
  • This information can now be determined from fertility and demographic questions in the survey
Type of Siblings in the Household, All Children: 2009 vs 2014 (Numbers in thousands)

<table>
<thead>
<tr>
<th></th>
<th>All Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Children</td>
<td>74,130</td>
</tr>
<tr>
<td>Living with:</td>
<td></td>
</tr>
<tr>
<td>At least one sibling</td>
<td>57,740</td>
</tr>
<tr>
<td>Only full siblings</td>
<td>47,620</td>
</tr>
<tr>
<td>At least one stepsibling</td>
<td>1,267</td>
</tr>
<tr>
<td>At least one adopted sibling</td>
<td>1,231</td>
</tr>
<tr>
<td>At least one half sibling</td>
<td>7,987</td>
</tr>
</tbody>
</table>

The redesigned 2014 SIPP appears to do a better job of capturing half sibling estimates.

**Note:** Step, adopted, and half sibling categories are not mutually exclusive

**Type of Siblings in the Household, Children Living with Two Parents: 2009 vs 2014**  
(Numbers in thousands)

<table>
<thead>
<tr>
<th></th>
<th>Children Living with Two Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Children</td>
<td>50,840</td>
</tr>
<tr>
<td>Living with:</td>
<td></td>
</tr>
<tr>
<td>At least one sibling</td>
<td>42,290</td>
</tr>
<tr>
<td>Only full siblings</td>
<td>34,920</td>
</tr>
<tr>
<td>At least one stepsibling</td>
<td>861</td>
</tr>
<tr>
<td>At least one adopted sibling</td>
<td>1,056</td>
</tr>
<tr>
<td>At least one half sibling</td>
<td>5,777</td>
</tr>
</tbody>
</table>

**Note:** Step, adopted, and half sibling categories are not mutually exclusive  
Type of Siblings in the Household, Children Living with Mother Only: 2009 vs 2014
(Numbers in thousands)

<table>
<thead>
<tr>
<th></th>
<th>Children Living with Mother Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Children</td>
<td>17,470</td>
</tr>
<tr>
<td>Living with:</td>
<td></td>
</tr>
<tr>
<td>At least one sibling</td>
<td>12,730</td>
</tr>
<tr>
<td>Only full siblings</td>
<td>10,340</td>
</tr>
<tr>
<td>At least one stepsibling</td>
<td>273</td>
</tr>
<tr>
<td>At least one adopted sibling</td>
<td>132</td>
</tr>
<tr>
<td>At least one half sibling</td>
<td>2,029</td>
</tr>
</tbody>
</table>

Note: Step, adopted, and half sibling categories are not mutually exclusive

Type of Siblings in the Household, Children Living with Father Only: 2009 vs 2014
(Numbers in thousands)

<table>
<thead>
<tr>
<th>Living with:</th>
<th>Children Living With Father Only</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009 Number</td>
<td>Percent</td>
<td>2014 Number</td>
</tr>
<tr>
<td>Children</td>
<td>2,743</td>
<td>100</td>
<td>3,347</td>
</tr>
<tr>
<td>At least one sibling</td>
<td>1,680</td>
<td>61.2</td>
<td>2,136</td>
</tr>
<tr>
<td>Only full siblings</td>
<td>1,492</td>
<td>54.4</td>
<td>1,618</td>
</tr>
<tr>
<td>At least one stepsibling</td>
<td>115</td>
<td>4.2</td>
<td>203</td>
</tr>
<tr>
<td>At least one adopted sibling</td>
<td>18</td>
<td>0.7</td>
<td>48</td>
</tr>
<tr>
<td>At least one half sibling</td>
<td>61</td>
<td>2.2</td>
<td>253</td>
</tr>
</tbody>
</table>

**Note:** Step, adopted, and half sibling categories are not mutually exclusive

Percent of Children Ages 6-17 in Extracurricular Activities by Type of Siblings in the Household: 2014

**Plays a Sport**
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

**Takes Lessons**
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

**In a Club**
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

*Note: Grayed area shows 90% confidence interval*

*Source: U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1*
Percent of Children Ages 6-17 with School Experiences by Type of Siblings in the Household: 2014

In a Gifted Program
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

Ever Repeated a Grade
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

Ever Expelled
- Only full siblings
- At least one adopted sibling
- At least one half sibling
- At least one stepsibling

Note: Grayed area shows 90% confidence interval
Source: U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Percent of Children Ages 6-17 in Extracurricular Activities by Number of Siblings in the Household: 2014

**Plays a Sport**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

**Takes Lessons**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

**In a Club**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

Note: Grayed area shows 90% confidence interval  
Source: U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Percent of Children Ages 6-17 with School Experiences by Number of Siblings in the Household: 2014

**Note:** Grayed area shows 90% confidence interval

**Source:** U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Percent of Children Ages 6-17 in Extracurricular Activities by Presence of Parents in the Household: 2014

**Plays a Sport**
- Two parents
- Mother only
- Father only
- Guardian

**Takes Lessons**
- Two parents
- Mother only
- Father only
- Guardian

**In a Club**
- Two parents
- Mother only
- Father only
- Guardian

**Note:** Grayed area shows 90% confidence interval

**Source:** U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Percent of Children Ages 6-17 with School Experiences by Number of Siblings in the Household: 2014

**In a Gifted Program**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

**Ever Repeated a Grade**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

**Ever Expelled**
- No siblings
- 1 sibling
- 2 siblings
- 3 siblings
- 4 or more siblings

*Note:* Grayed area shows 90% confidence interval

*Source:* U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
### Summary of Logistic Regression Results

Likelihood of participation in extracurricular activities and school experiences

<table>
<thead>
<tr>
<th>Type of siblings in household</th>
<th>Extracurricular Activities</th>
<th>School Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>No half/step siblings (ref group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least one half/step sibling</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
</tbody>
</table>

**Note:** Variables in bold are statistically significant (p<0.05)

**Regression model includes:** Type of sibling, number of siblings, parents present in the home, poverty status, race/origin, and child’s age

**Source:** U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Summary of Logistic Regression Results, Continued
Likelihood of participation in extracurricular activities and school experiences

<table>
<thead>
<tr>
<th>Number of siblings in household</th>
<th>Extracurricular Activities</th>
<th>School Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No siblings (ref group)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 siblings</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td><strong>Takes lessons</strong></td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td><strong>Ever been expelled</strong></td>
</tr>
<tr>
<td>3 or more siblings</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td><strong>Takes lessons</strong></td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td><strong>Ever been expelled</strong></td>
</tr>
</tbody>
</table>

**Note**: Variables in bold are statistically significant (p<0.05)

**Regression model includes**: Type of sibling, number of siblings, parents present in the home, poverty status, race/origin, and child’s age

**Source**: U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Summary of Logistic Regression Results, Continued
Likelihood of participation in extracurricular activities and school experiences

<table>
<thead>
<tr>
<th>Parents in household</th>
<th>Extracurricular Activities</th>
<th>School experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two parents (ref group)</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td>Mother only</td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
<tr>
<td>Father only</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
<tr>
<td>Guardian</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
</tbody>
</table>

Note: Variables in bold are statistically significant (p<0.05)
Regression model includes: Type of sibling, number of siblings, parents present in the home, poverty status, race/origin, and child’s age
Source: U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Summary of Logistic Regression Results, Continued
Likelihood of participation in extracurricular activities and school experiences

<table>
<thead>
<tr>
<th>Family Poverty Status</th>
<th>Extracurricular Activities</th>
<th>School Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Below poverty (ref group)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-299% of poverty line</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
<tr>
<td><strong>300%+ of poverty line</strong></td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td></td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td></td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
</tbody>
</table>

**Note:** Variables in bold are statistically significant (p<0.05)

**Regression model includes:** Type of sibling, number of siblings, parents present in the home, poverty status, race/origin, and child’s age

**Source:** U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Summary of Logistic Regression Results, Continued
Likelihood of participation in extracurricular activities and school experiences

<table>
<thead>
<tr>
<th>Race/Origin</th>
<th>Extracurricular Activities</th>
<th>School Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>White non-Hisp (ref group)</td>
<td>Plays a sport</td>
<td>In a gifted program</td>
</tr>
<tr>
<td>Black, non-Hisp</td>
<td>Takes lessons</td>
<td>Ever repeated a grade</td>
</tr>
<tr>
<td>Hispanic (of any race)</td>
<td>Involved in a club</td>
<td>Ever been expelled</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Variables in bold are statistically significant (p<0.05)

**Regression model includes:** Type of sibling, number of siblings, parents present in the home, poverty status, race/origin, and child’s age

**Source:** U.S. Census Bureau, Survey of Income and Program Participation, 2014 Panel, Wave 1
Conclusion

• Complex sibling arrangements are not uncommon in families today
  • Nearly 1 in 5 children (17 percent) live with at least one half sibling

• Because complex living arrangements are a reality for many American families, it is crucial to collect data that accurately captures the relationship among the family members in a household
Conclusion

• Children with fewer and only biological siblings, living with two parents had higher extracurricular involvement and more positive school experiences
  • Controlling for race and poverty status narrowed this gap, but did not erase this relationship

• The resources available for a child to excel in school and participate in extracurricular activities appear to become strained when there are fewer parents and more siblings in the home
  • This relationship is further complicated by the various sibling configurations that a child may experience
Thank You

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For more information on child well-being, see A Child's Day report at: https://www.census.gov/library/publications/2018/demo/p70-159.html