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The Second Annual Index of Family Belonging and Rejection

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The Index of Family Belonging was 45.8 percent with a corresponding Family Rejection score of 54.2 percent for the United States for the year 2009. The action of parents determines the belonging or rejection score: whether they marry and belong to each other, or whether they reject one another through divorce or otherwise. Rejection leaves children without married parents committed to one another and to the intact family in which the child was to be brought up.

Minnesota was the state with the most intact families in the nation and had a Family Belonging Index score of 57 percent. Regionally, the Northeast had the highest average Family Belonging Index (49.6 percent).

The implications of such a high Family Rejection score for all of the nation's major institutions are grave, and this report's exploration of the relationship between the Family Belonging Index and such serious public policy issues as children's schooling, poverty, and teenage unmarried births underscores the somber implications for the nation's future.

Given the national level of rejection between parents (54.2 percent), there is no way for the majority of the nation's children to avoid the weakening effects of family breakdown. It is unavoidable that the major institutions of future families, church, school, the marketplace, and government will be similarly weakened as these children gradually take their place within these institutions. As a society we cannot but become weaker. The effects of this weakening will be played out in all these fundamental institutions in the years to come.

With out of wedlock birthrates now above 40 percent, declining marriage rates, and very high divorce rates, it seems safe to predict that the Index of Rejection will continue to mount.

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Index Highlights:

- Only 45.8 percent of American children reach the age of 17 with both their biological parents married (since before or around the time of their birth).
- The Index of Family Belonging is highest in the Northeast (49.6 percent) and lowest in the South (41.8 percent).
- Minnesota (57 percent) and Utah (56.5 percent) have the highest Index of Family Belonging values of all the states; Mississippi (34 percent) has the lowest.
- Family belonging is, as in 2008, strongest among Asians (65.8 percent) and weakest among Blacks (16.7 percent).
- While the effects of government spending on high school graduation rates are curvilinear and offer diminishing returns, family belonging is positively and significantly associated with high school graduation rates.
- Family belonging and child poverty are significantly, inversely related: States with high Index values have relatively low child poverty rates, and vice versa.
- There is also a significant, inverse relationship between family belonging and the incidence of births to unmarried teenagers.

Levels of Belonging and Rejection

Less than half of teenagers have grown up with both married parents: This study constructed an Index of Family Belonging and Rejection based on 2009 data from the U.S. Census Bureau's American Community Survey.[1] This is the most recent year for which data from the survey are publicly available. The Index shows the proportion of teenagers aged 15-17 who live with both biological parents, and whose parents have been married to one another since before or around the time of the teenager's birth. The national value for the Index in 2009 showed 45.8 percent of teenagers belonged to an intact married family.

Though nominally higher, the 2009 Index of Family Belonging is not different from the Index derived from the 2008 edition of the same survey, in any statistically meaningful sense, which had a value of 45.5 percent. 2008 was the first year in which the American Community Survey asked detailed relationship and marital history questions that make the construction of this Index possible.

Information from another source, the National Health Interview Survey, indicates that there has been a long-term decline in family belonging. Data from that source show that 28 years earlier, in 1981, a 62-percent majority of U.S. 12- to 17-year-olds lived with both their birth mother and their biological father.[2] By 1988, it had dropped to 53 percent.[3] In 2009, it was 45.8 percent.

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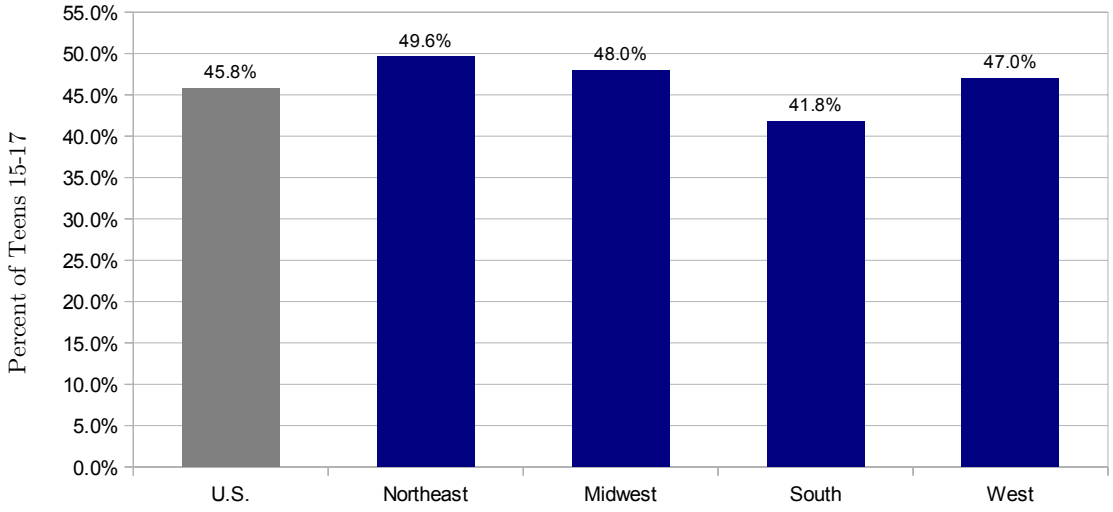
[1] U.S. Census Bureau, *A Compass for Understanding and Using American Community Survey Data: What Researchers Need to Know* (Washington, DC: U.S. Government Printing Office, 2009).

[2] Nicholas Zill, "Behavior, achievement, and health problems among children in stepfamilies: Findings from a National Survey of Child Health," in *Impact of Divorce, Single Parenting, and Stepparenting on Children*, eds. E. Mavis Hetherington & J.D. Arasteh (Hillsdale, NJ: Erlbaum, 1988): 325-368.

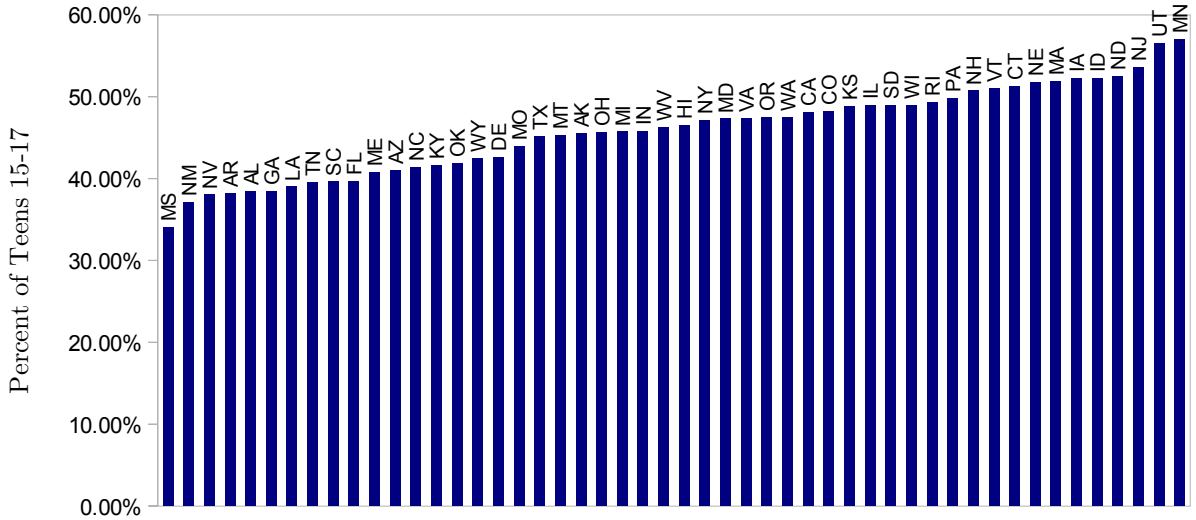
[3] Deborah A. Dawson, "Family structure and children's health and well-being: Data from the 1988 National Health Interview Survey on Child Health," *Journal of Marriage and the Family,* 53 (1991):573–584.
National Center for Health Statistics, Health of our nation's children, *Vital and Health Statistics* 10, no. 191, by Mary Jo Coiro, Nicholas Zill, and Barbara Bloom (1994).

Chart 1: Proportion of U.S. Teenagers Aged 15-17 Who Have Grown Up with Both Married Parents, by Region: 2009



The average Index of Family Belonging for the South is the lowest of the four Census regions, 41.8 percent. The Northeast has the highest average Index (49.6 percent), followed by the Midwest (48 percent) and West (47 percent), which are not significantly different from one another (see Chart 1, above). None of the regional values for the Index in 2009 is significantly different from its 2008 value.

Chart 2: States in Rank Order on Index of Family Belonging: 2009



Three states showed significant increases in family belonging between 2008 and 2009: Louisiana, Maryland, and California. Louisiana gained 5 percentage points, going from 34.2 percent to 39 percent. Maryland increased 4 percentage points, from 43 percent to 47.3 percent. California gained 2 percentage points, from 46.1 percent to 48.1 percent. No state showed a significant decrease in stability. (See Appendix Table 6: "State Data in Index Rank Order," pages 21-22 for more detail).

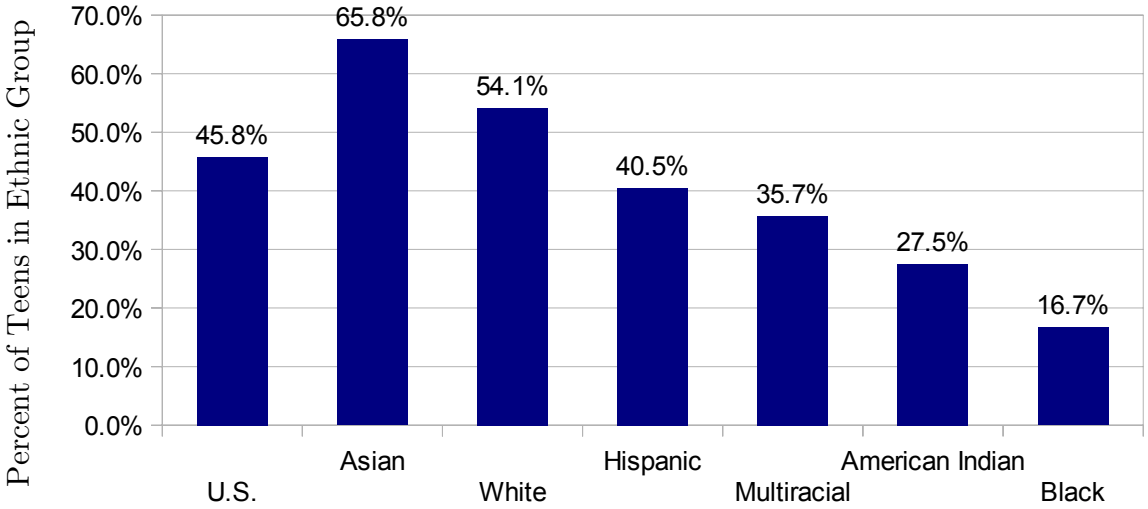
Minnesota, Utah rank highest in family belonging; Mississippi, New Mexico, Nevada rank lowest: In the typical U.S. state, less than half of teenagers have grown up in intact married families. But in eleven states, a majority of teenagers have been raised by both parents. Minnesota leads the Midwest and the nation with an Index of Family Belonging of 57 percent. Utah leads the West and is second in the nation with 56.5 percent. New Jersey leads the Northeast and is third nationally with a score of 53.6 percent. Other states with more than half of teenagers living with both married parents are, in the Northeast, Massachusetts (51.9 percent), Connecticut (51.3 percent), Vermont (51 percent), and New Hampshire (50.7 percent), in the Midwest, North Dakota (52.5 percent), Iowa (52.2 percent), and Nebraska (51.8 percent), and in the West, Idaho (52.3 percent). No state in the South has a majority of teenagers living with both married parents. Virginia leads the South in family belonging, but even its Family Belonging Index (47.4 percent) is less than half (see Chart 2, page 3).

States in which teenagers are least likely to have grown up with both parents are those with substantial numbers of adults who have not attained a high school diploma, are from minority racial or ethnic backgrounds, and have experienced high unemployment. These states are all in the South and West regions of the country. Mississippi ranks lowest, with an Index value of 34 percent. Barely higher are the western states of New Mexico (37.1 percent) and Nevada (38 percent). Rounding out the bottom ten list are the southern states of Arkansas (38.2 percent), Georgia (38.4 percent), Alabama (38.4 percent), Louisiana (39 percent), Tennessee (39.5 percent), South Carolina (39.6 percent), and Florida (39.7 percent) (see Chart 2, page 3).

The District of Columbia: Finally, while we have not included the District of Columbia in our regressions, its Index of Family Belonging is so low—one could say pathologically low—and its performance so dismal, that its inclusion as an example is worthwhile. The District of Columbia's Index of Family Belonging is 18.6 percent, almost 50 percent lower again than the lowest Index value among the states (Mississippi's Family Belonging Index is 34 percent). A mere 56 percent of the District's students graduate from high school, making it the second-worst performer in that category, and its mean National Assessment of Educational Progress (NAEP) eighth grade reading score is 242, making it by far the worst region in that performance category (Mississippi's score is 251). These scores are woefully low, despite a government expenditure of $9,087 per pupil, ranking it among the top 10 percent high spenders in education at the state level. Its child poverty rate is at 29 percent, worse than all but one state (Mississippi). Its rate of births to unmarried teenagers is at 10.4 percent, which is also among the worst in the country. The District of Columbia, as an outlier, is an extreme example of the woes that family rejection inflicts on the general social welfare.

Race and Ethnicity

Chart 3: Proportion of U.S. Teenagers Aged 15-17 Who Have Grown Up with Both Married Parents, by Race/Ethnicity: 2009



Asian teenagers most likely to grow up in intact married families: Due to cultural and social variations in rates of unmarried birth, marriage, separation, and divorce, teenagers from different racial and ethnic groups in the U.S. have dramatically different family experiences. An African-American teenager in the U.S. has much less chance of growing up with both married parents than an Asian-American teenager. Only one in six Black teenagers has lived in an intact married family throughout childhood, compared with four out of six Asian-American teenagers. More than five in 10 white teenagers have been raised by both married parents, compared with four in 10 Hispanic teenagers. Only one in four teenagers of American Indian or Alaskan Native background has lived in an intact married family, as has one in three teenagers of multiracial background. The Index of Family Belonging for multiracial teenagers is midway between that of white and Black teenagers (see Chart 3, above).

Unimportance of race and ethnicity: One of our most suggestive findings is the *non-significance* of race in determining states' performance in the four categories below. Once differences across states in Family Belonging and adult educational attainment are taken into account, differences in the racial and ethnic composition of the states' populations are no longer significant in accounting for variations in child well-being indicators. In the model for high school graduation rates, while the proportion of Blacks and Hispanics in a state is not significant, the Index of Family Belonging significantly influences high school graduation rates in a positive manner. In the multivariate analysis of eighth grade National Assessment of Educational Progress (NAEP) reading scores, the proportion of Blacks and Hispanics in a state is insignificant. In our analysis of child poverty, the proportion of Blacks and Hispanics in a state is insignificant, but the Index of Family Belonging retains a significant influence on child poverty.

In our model of births to unmarried teenagers, the proportion of Blacks in a state is not significant, but the Index of Family Belonging is highly significant—intact families work to re-

duce the proportion of teens having out-of-wedlock births. The ethnic exception in our model is the proportion of Hispanics in a state: it is very significant in determining the number of births to unmarried teenagers. This may be due to the frequency with which young Hispanics enter common law marriages.

Family Belonging and Positive Youth Outcomes

In line with the hypothesis that intact families are critical to the functioning of both local communities and the broader civil society, the Index of Belonging score is related to a number of statistical indicators that are frequently cited as measures of youth well-being. In states where intact families predominate, more students earn high school diplomas, there is less child poverty, and fewer teenagers have babies out of wedlock. These positive associations hold up even after taking into account other socioeconomic and demographic characteristics.

Education

More family belonging, more high school diplomas: States with high scores on the Index of Family Belonging have higher rates of high school graduation, as well as higher average scores on the National Assessment of Educational Progress. Indeed, variations in family belonging are more closely associated with state achievement differences than are levels of state spending on education.

Research at the individual, child and family level has found that family belonging is associated with higher student achievement and better classroom behavior, even when adjustments are made for related factors, such as parent education, family income, and school quality.[4] The association is especially robust with regard to achievement-related behavior. Standardized test scores are closely related to parental intelligence and education, but indicators of student study habits, classroom conduct, and grade advancement are linked with parental involvement and family belonging. Students from single-parent families and stepfamilies are more likely to get low marks, to have to repeat grades, and to be suspended or have other disciplinary problems, than students living in intact married families.

This point is well illustrated by a comparison of states that geographically are close, but have significant differences in family structure and educational outcomes. As one goes down the Mississippi River the Index of Family Belonging declines, from Minnesota (57 percent belonging) to Illinois (49 percent), to Tennessee (40 percent), and Mississippi (34 percent). Note that as family belonging declines from state to state, high school graduation rates fall from 86.4 percent in Minnesota to 80.4 percent in Illinois, 74.9 percent in Tennessee, and 63.9 per-

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[4] Paul R. Amato, "The impact of family formation change on the cognitive, social, and emotional well-being of the next generation" *The Future of Children* 15 (2005): 75–96;
Nicholas Zill and P. Fletcher, "Child Health Survey Finds Intact Family and Religious Participation Associated with Fewer Developmental Problems in School-Age Children" (Rockville, MD: Westat, 2008).Nicholas Zill, "Behavior, achievement, and health problems among children in stepfamilies: Findings from a National Survey of Child Health," in *Impact of Divorce, Single Parenting, and Stepparenting on Children*, eds. E. Mavis Hetherington & J.D. Arasteh (Hillsdale, NJ: Erlbaum, 1988): 325-368;
Nicholas Zill, "Family change and student achievement: What we have learned, what it means for schools," in *Family and school links: How do they affect educational outcomes?,* eds. Alan Booth and Judith F. Dunn (Hillsdale, NJ: Lawrence Erlbaum, 1996): 139-174;
Sara McLanahan and Gary Sandefur, *Growing Up with a Single Parent* (Cambridge, MA: Harvard University Press, 1994): 40-48.

cent in Mississippi. Another geographical comparison compares the high-belonging state of Utah (57 percent) to the high-rejection state of New Mexico (37 percent) where high school graduation rates drop from 74.3 percent to 66.8 percent (see Table 1, below).

Table 1: Example of Relationship between Family Belonging and High School Graduation Rate

State	Index of Family Belonging	Graduation Rate
Minnesota	57%	86%
Illinois	49%	80%
Tennessee	40%	75%
Mississippi	34%	64%
Utah	57%	74%
New Mexico	37%	67%

Average eighth grade reading scores on the National Assessment of Educational Progress (NAEP) also decline as one travels from Minnesota to Mississippi, from 270 to 265 to 261 to 251. Likewise, average test scores are higher in Utah (266) than in New Mexico (254) (see Table 2, below).

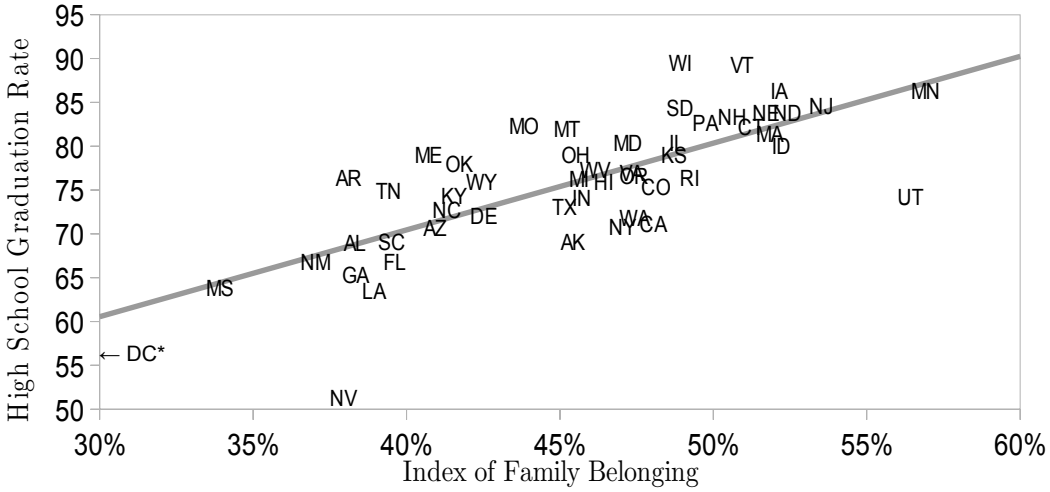
Table 2: Example of Relationship between Family Belonging and Eighth Grade National Assessment of Educational Progress (NAEP) Reading Scores

State	Index of Family Belonging	Average NAEP Score
Minnesota	57%	270
Illinois	49%	265
Tennessee	40%	261
Mississippi	34%	251
Utah	57%	266
New Mexico	37%	254

Examining family belonging and high school graduation for each of the 50 states shows a positive, linear relationship (see Chart 4, page 8). For every ten percentage-point increase in family belonging, there is nearly a 10 percentage-point gain in graduation rates. Fifty-two percent of the cross-state variation in graduation rates is potentially attributable to family belonging.[5]

[5] The fit has a correlation coefficient of r = .72.

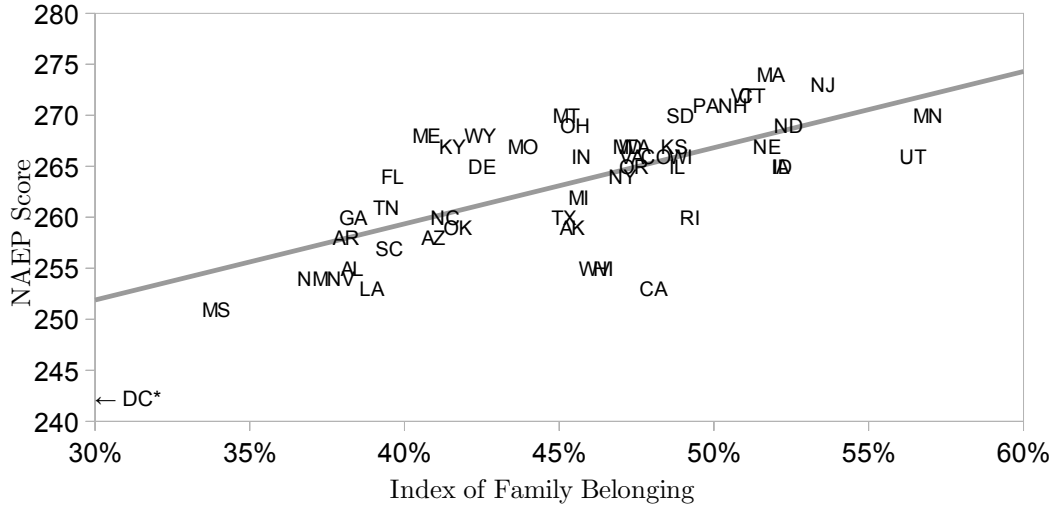
Chart 4: High School Graduation Rate and Family Belonging



*The District of Columbia is a city and not a state. It is not included in regressions. Its representation on this and following graphs is for rough comparative and illustrative purposes only.

There is also a positive, linear relationship between family belonging and NAEP reading test scores across all the states. For every ten percentage-point increase in family belonging, there is a 7.5 point gain in average test scores. Forty-four percent of the variation in test scores across states is potentially attributable to family belonging[6] (see Chart 5, below).

Chart 5: NAEP Score and Family Belonging



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Of course, family belonging is not the only way in which these states differ. They also vary in the educational attainment of their adult populations and in their racial and ethnic composition. These social characteristics are also associated with high school graduation and NAEP scores, and they are associated with family belonging as well. One can examine the relative contribution of these factors to child educational attainment by combining them into a single model.[7]

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[6] This fit has a correlation coefficient of r = .66.

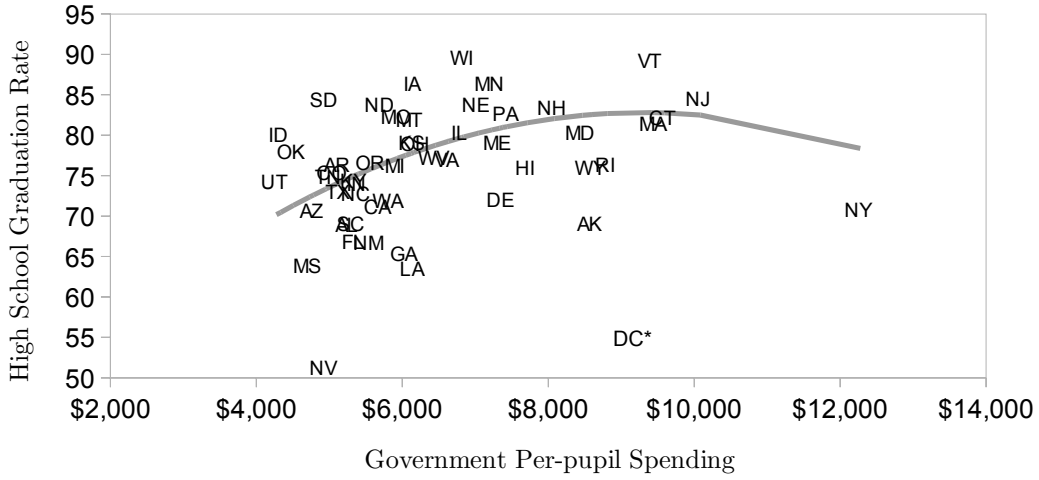
[7] State characteristics in the model are the Index of Family Belonging, the proportion of adults 25 and over who have not completed high school, the proportion of non-Hispanic Blacks in the state population, the proportion of

Our model, combining six state characteristics, shows an association with family belonging to be somewhat reduced, but substantial and statistically reliable. For every ten percentage-point increase in family belonging, there is more than a 7 percentage-point increase in graduation rates. Although the proportion of adults with low schooling has what appears to be a moderate-sized negative coefficient in the model, it is not reliably different from zero (see Appendix Table 1, page 17.)

In a similar model of NAEP scores, though the association with family belonging is apparently moderate in size and positive, it is not reliably different from zero.[8] The proportion of adults with less than a high school diploma has a sizable negative coefficient in the model, and the proportion of foreign-born adults is also negatively related to NAEP scores. Other things being equal, NAEP scores are higher in more urban states with higher population densities (see Appendix Table 2, page 17).[9]

Family belonging more closely linked to educational outcomes than is government per-pupil spending: The relationships between family belonging and state-level achievement indicators are considerably stronger than the relationships between government education spending and achievement. For example, only about 18 percent of the cross-state variation in high school graduation rates is potentially attributable to differences in per-pupil educational expenditures.[10] The relationship with spending is not linear, with diminishing returns as spending increases (see Chart 6, below).

Chart 6: High School Graduation Rate and Government Per-pupil Spending



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Similarly, less than 20 percent of the cross-state variation in NAEP reading test scores is potentially attributable to differences in per-pupil expenditures. The relationship between

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Hispanics in the state's population, the proportion of foreign-born individuals in the state's population, and a measure of the state's population density, the log of the number of persons per square mile.

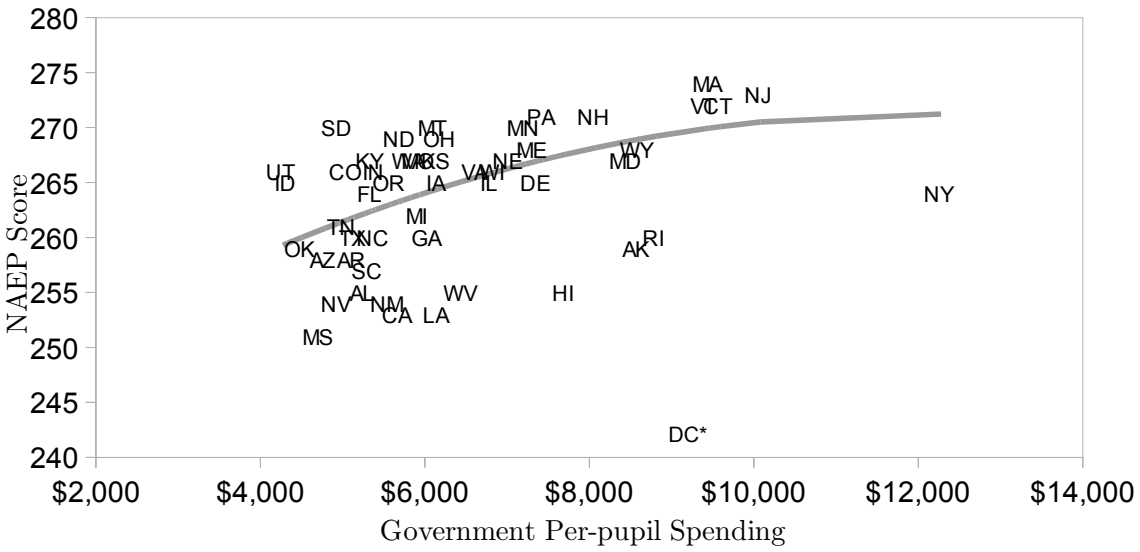
[8] See the section on methodology for why this could be.

[9] David J. Armor, *Maximizing Intelligence* (New Brunswick, NJ: Transaction Publishers, 2003): 155-158.

[10] The correlation coefficient between per pupil spending and high-school graduation rates is r = .42.

spending and test scores is also curvilinear, with diminishing returns at higher spending levels[11] (see Chart 7, below).

Chart 7: NAEP Scores and Government Per-pupil Spending



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It is true that Minnesota spends more on education per pupil ($7,227) than do Illinois ($6,815), Tennessee ($5,016), and Mississippi ($4,731). However, New Mexico spends more on education per pupil ($5,565) than Utah ($4,275), with less to show for it in the way of high school graduation rates or NAEP reading test scores.

Poverty

More family belonging, less child poverty: States with low scores on the Index of Family Belonging have high child poverty rates, while states with high scores have relatively low rates.

Table 3: Example of Inverse Relationship between Family Belonging and Child Poverty

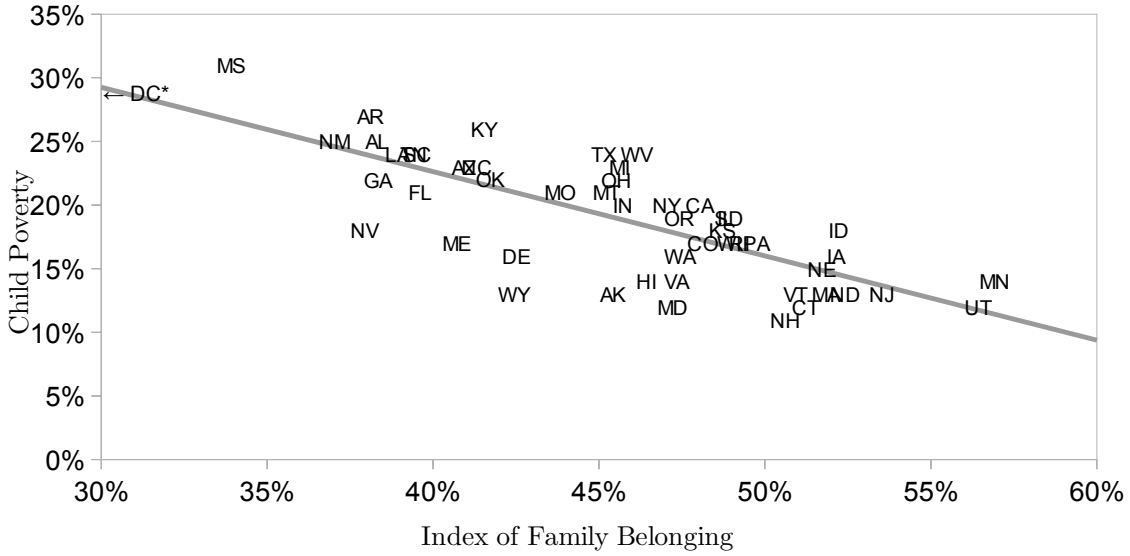
State	Index of Family Belonging	Child Poverty Rate
Minnesota	57%	14%
Illinois	49%	19%
Tennessee	40%	24%
Mississippi	34%	31%
Utah	57%	12%
New Mexico	37%	25%

[11] The correlation coefficient between per pupil spending and test scores is r = .44.

A comparison of states along the Mississippi River illustrates the relationship of family belonging and child poverty. As the Index of Family Belonging declines, the child poverty rate rises from 14 percent to 19 percent to 24 percent to 31 percent. Similarly, if one crosses the border from the state of Utah, with an Index of Family Belonging of almost 57 percent, to the adjacent state of New Mexico, with an Index of Family Belonging of 37 percent, the child poverty rate doubles from 12 percent to 25 percent (see Table 3, page 10.)

Plotting family belonging against child poverty rates for each of the 50 states reveals an inverse, linear relationship between them (see Chart 8, below). For every ten percentage-point decrease in the Index of Family Belonging, there is a 6.6 percentage-point increase in the child poverty rate.[12]

Chart 8: Index of Family Belonging and Child Poverty



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Our model, combining the same six state characteristics used in the models of high school graduation and NAEP scores, shows that the combination of all the above factors is more closely associated with child poverty than any individual factor.[13] The proportion of adults with less than a high school diploma is most closely associated with child poverty. The role of family belonging is somewhat diminished, but remains significant. For every ten percentage-point decrease in family belonging, there is a 2.5 percentage-point increase in child poverty (see Appendix Table 3, page 18).

The Index findings comport with the general research literature at the individual household level which has found that stable two-parent families are less likely to be poor than single-parent families or stepfamilies.[14] There are several reasons for this:

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[12] The correlation between the two state characteristics is r = -.75, implying that 56 percent of the cross-state variation in poverty is potentially attributable to differences in family belonging.

[13] The multiple correlation coefficient equals R = .90, and the model accounts for 81 percent of the cross-state variation in poverty.

[14] Sara McLanahan and Gary Sandefur, *Growing Up with a Single Parent* (Cambridge, MA: Harvard University Press, 1994);

- Even when wages are low, a couple is more likely to avoid poverty if both partners work and contribute to the support of the family;
- It is inherently more costly for two parents to live apart and have to spend significant portions of their incomes on separate housing, appliances, transportation, etc.;
- A father is motivated to work harder to support a child when he is the biological parent of the child and lives with the child and mother;
- Conversely, many non-residential parents do not pay child support, and those that do, do not pay much.

Births to Unmarried Teenagers

More stable families, fewer births to unmarried teenagers: Research at the individual family level has shown that adolescents who live in single-parent families or stepfamilies are more likely to have out-of-wedlock births.[15] At the community level, neighborhoods with high concentrations of single-parent families tend to have higher rates of births to unmarried teenagers than neighborhoods where married two-parent families predominate.[16] Similarly, states that score high on the Index of Family Belonging have lower proportions of births to unmarried teenagers than states that score low on the Index.

Table 4: Example of Inverse Relationship between Family Belonging and Births to Unmarried Teenagers

State	Index of Family Belonging	Percent Births to Teenagers
Minnesota	57%	6%
Illinois	49%	9%
Tennessee	40%	11%
Mississippi	34%	14%
Utah	57%	5%
New Mexico	37%	13%

As one journeys again down the Mississippi River across four states that have fewer and fewer stable families, the proportion of births to unmarried teenagers more than doubles. The percentage of births to unmarried teenagers increases from 6 percent in Minnesota to 9 percent in Illinois, 11 percent in Tennessee, and 14 percent in Mississippi. Similarly, births to

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Nicholas Zill and Christine Winguist Nord, *Running In Place: How American Families Are Faring in a Changing Economy and an Individualistic Society* (Washington, DC: Child Trends, 1994);
David J. Eggebeen and Daniel T. Lichter, "Race, family structure, and changing poverty among American children," *American Sociological Review* 56, no. 6 (1991): 801-817;
Frank F. Furstenberg and Andrew J. Cherlin, *Divided Families: What Happens to Children When Parents Part* (Cambridge, MA: Harvard University Press, 1991): Chapter 3;
Nicholas Zill, "Behavior, achievement, and health problems among children in stepfamilies: Findings from a National Survey of Child Health," in *Impact of Divorce, Single Parenting, and Stepparenting on Children*, eds. E. Mavis Hetherington & J.D. Arasteh (Hillsdale, NJ: Erlbaum, 1988): 325-368.

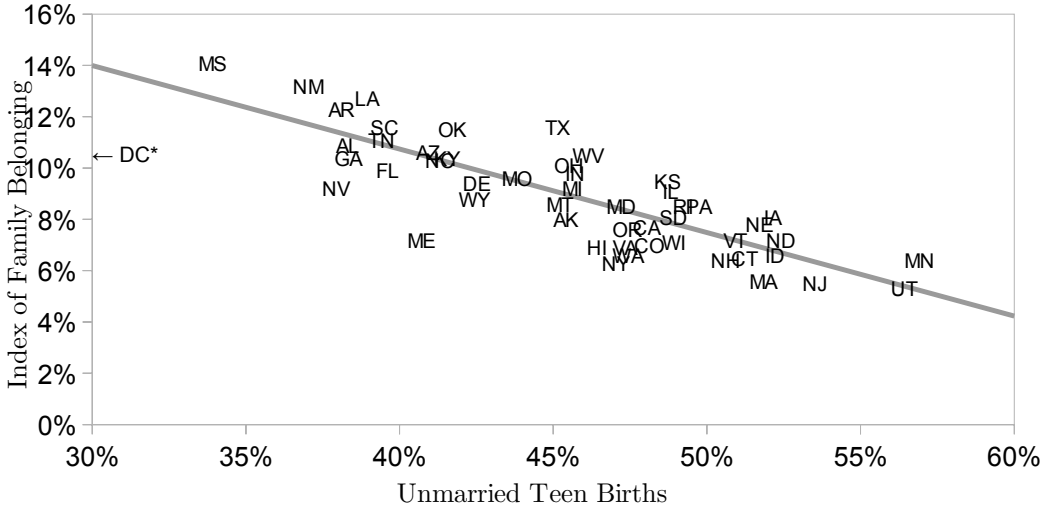
[15] Sara McLanahan and Gary Sandefur, *Growing Up with a Single Parent* (Cambridge, MA: Harvard University Press, 1994): 51-56.

[16] Robert J. Sampson, Stephen W. Raudenbush, and Felton Earls, "Neighborhoods and violent crime: A multilevel study of collective efficacy," *Science* 277 (1997): 918-924.

unmarried teenagers are nearly three times as common in New Mexico, which has the second lowest Index of Family Belonging, as they are in the neighboring state of Utah, which has the second highest Index of Family Belonging (see Table 4, page 12).

Plotting family belonging against proportions of births to unmarried teenagers for each of the 50 states reveals an inverse, linear relationship between them (see Chart 9, below). For every ten percentage-point decrease in the Index of Family Belonging, there is a 3 percentage-point increase in the proportion of births to unmarried teenagers. [17]

Chart 9: Index of Family Belonging and Unmarried Teenage Births



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A relationship between family belonging and births to unmarried teenagers persists when adjusted for potential associations with other demographic and socioeconomic characteristics of the states, like the sizes of low-education, ethnic minority, and foreign-born groups in the state's population. For every ten percentage-point decrease in family belonging, there is a 1.5 percentage-point increase in incidence of births to unmarried teenagers. Likewise, a lower level of educational attainment statewide is associated with more births to unmarried teenagers, while a larger foreign-born population is associated with fewer births by unwed teenage mothers in the state (see Appendix Table 4, page 18).

Family Belonging and Public Policy

Most observers acknowledge the important role that parental commitment and family belonging play in healthy youth development and the successful functioning of a society. But some question the relevance of family considerations to public policy decisions. They argue that family formation and dissolution are private matters in which the state has no business meddling, except in extreme cases such as child neglect or domestic violence.

There are, however, two appropriate and constructive roles that government can play: The first is to help in creating, compiling, and publicizing sound research evidence on the links

[17] The correlation between the two state characteristics is r = -.82, implying that 68 percent of the cross-state variation in *unmarried teen birth rates* is potentially attributable to differences in family belonging.

between family living arrangements and youth development, as well as those between family characteristics and community functioning and well-being. The second is in ensuring that governmental policies intended to help those in need do not have unintended consequences that create moral hazard and encourage the formation of more high-risk families.

For example, youth survey data show that many young people have unrealistic attitudes about childbearing and childrearing outside of marriage. They seem unaware of the substantial body of research showing that when young people live with both biological parents who are stably married, families tend to be less stressed, children and parents are more likely to enjoy a positive, harmonious relationship, and young people are less likely to exhibit problematic behavior at home or in school.[18] By communicating these findings more effectively to adolescents and young adults, government and private organizations may help them make wiser family decisions of their own in the future.

Eventually government may have to catalogue and then reverse the myriad ways in which it supports or is neutral on parents' decisions to reject each other. In public policy terms the cost is very high, most likely in reduced revenues coupled, simultaneously with greater costs in needed compensatory services. Future Index research will delve further into these implications.

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[18] Paul R. Amato, "The impact of family formation change on the cognitive, social, and emotional well-being of the next generation" *The Future of Children* 15 (2005): 75–96;
Paul R. Amato and Bruce Keith, "Parental divorce and the well-being of children: A meta-analysis," *Psychological Bulletin* 110, no. 1 (1991): 26-46;
Deborah A. Dawson, "Family structure and children's health and well-being: Data from the 1988 National Health Interview Survey on Child Health," *Journal of Marriage and the Family,* 53 (1991):573–584;
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Appendix

Methodological Considerations

The procedure used to estimate the percentage of U.S. adolescents aged 15-17 living with both of their married biological parents in the 2009 American Community Survey PUMS file began by locating all persons in the public use data file who were in the target age range. We then checked the relationship of the teenager to the reference person of the household. (The reference person was the adult in the household in whose name the house or apartment was owned or rented.) If the teenager was coded as the biological son or daughter of the reference person, we checked to see if the parent was coded as being currently married. If so, we checked the date of the parent's most recent marriage. Was the marriage date before the year of the teenager's birth, or within two years of the birth year? If so, he or she was deemed to be living with both parents, who were continuously married throughout the teenager's childhood.

If the teenager was described as the grandchild of the reference person, we checked to see if he or she was coded as "child in married-couple subfamily." If so, the teenager was deemed to be living with both married parents in a multigenerational family. We followed a similar procedure if the adolescent was described as the brother or sister or "other relative" of the reference person, or as a roomer or boarder, housemate or roommate, or "other non-relative." So long as the teenager was also coded as "child in married-couple subfamily," he or she was deemed to be living with both married parents.

Teenagers who were the biological child of the reference person, but whose parent was divorced, separated, or never-married, were classified as not living with both married parents. Likewise, if the teenager's birth antedated the year of the reference person's latest marriage by more than two years, the teenager was classified as not living with both parents, but, rather, in a bioparent-stepparent family. If the parents were not married but cohabiting, the teenager was classified as not living with both married parents.

Teenagers who were described as the adopted son or daughter, stepson or stepdaughter, or foster son or foster daughter of the reference person were classified as not living with both married parents. Adolescents living in group quarters (e.g., correctional institution, halfway house) were classified as not living with both married parents. The number of teenagers living with both married bio-parents was divided by the total number of adolescents aged 15-17 in order to derive the percentage living with both parents.

This rather complicated procedure is necessary because the 2009 ACS questionnaire only asks about a teenager's detailed relationship to the reference person, and not to the reference person's spouse or partner. Thus, we must infer that relationship by looking at the reference person's marital history information. We know this procedure is not 100 percent accurate. It may be, for example, that even though the parents were married throughout the teenager's childhood, one of the partners in the marriage is not, in fact, the biological parent of the teenager. Nonetheless, it is the best national data on the history of the families of our nation.

In our multivariable regressions, only 50 samples (the U.S. states) were available. Thus, the distributions of the associated regression coefficients are not as tight as might occur with more data for sampling. Consequently, many of the estimates of the coefficients relating independent variables (e.g. the Family Stability Index) to outcomes (e.g. NAEP reading scores)

might in fact be strong, but the test for significance fails for these state-level regressions. We err on the conservative side in our reporting.

Also, our results, though significant and relevant to state-level comparisons have the usual shortcomings of environmental/geographic studies: they are exposed to the so-called ecological inference problem. Further study is necessary to draw out the relationship between our environmental factors and personal factors and outcomes related to the Index of Family Belonging.

Table 1: High School Graduation Rates

State Characteristic	Correlation with HSG Rate	Regression Coefficient
Index of Family Belonging	.72	74***
Adults with less than high school education	- .59	- 32ns
Proportion of Blacks in state population	- .44	-17ns
Proportion of Hispanics in state population	- .40	4ns
Proportion of state population foreign born	- .29	- 67**
Population density (log of persons per square mile)	.06	5**
Constant term		45***
Multiple correlation	.86***	74% of variation

Table 2: National Assessment of Educational Progress (NAEP) Reading Scores

State Characteristic	Correlation with NAEP	Regression Coefficient
Index of Family Belonging	.66	25ns
Adults with less than high school education	- .71	- 106***
Proportion of Blacks in state population	- .40	- 5ns
Proportion of Hispanics in state population	- .33	6ns
Proportion of state population foreign born	- .13	- 35*
Population density (log of persons per square mile)	.11	4**
Constant term		261***
Multiple correlation	.82***	68% of variation

Table 3: Child Poverty

State Characteristic	Correlation with Poverty	Regression Coefficient
Index of Family Belonging	- .75	- .25*
Adults with less than high school education	.81	.96***
Proportion of Blacks in state population	.46	- .05ns
Proportion of Hispanics in state population	.12	.03ns
Proportion of state population foreign born	- .20	- .23*
Population density (log of persons per square mile)	- .02	- .00ns
Constant term		.19**
Multiple correlation	.90***	81% of variation

Table 4: Births to Unmarried Teenagers

State Characteristic	Correlation with Births	Regression Coefficient
Index of Family Belonging	- .82	- .15***
Adults with less than high school education	.75	.21***
Proportion of Blacks in state population	.54	.04ns
Proportion of Hispanics in state population	.11	.09***
Proportion of state population foreign born	- .30	- .21***
Population density (log of persons per square mile)	- .09	.00ns
Constant term		.13***
Multiple correlation	.94***	89% of variation

Table 5: State Data in Alphabetical Order

State	Index of Family Belonging	High School Graduation Rates	Government Per-pupil Expenditures	8th Grade NAEP Reading Scores	Child Poverty	% Births to Unmarried Teens
AK	45.50%	69.1	$8,599	259	13.00%	8.00%
AL	38.40%	69	$5,273	255	25.00%	10.90%
AR	38.20%	76.4	$5,140	258	27.00%	12.30%
AZ	41.00%	70.7	$4,785	258	23.00%	10.60%
CA	48.10%	71.2	$5,685	253	20.00%	7.70%
CO	48.20%	75.4	$5,061	266	17.00%	7.00%
CT	51.30%	82.2	$9,594	272	12.00%	6.50%
DE	42.60%	72.1	$7,378	265	16.00%	9.40%
FL	39.70%	66.9	$5,361	264	21.00%	9.90%
GA	38.40%	65.4	$6,047	260	22.00%	10.40%
HI	46.50%	76	$7,714	255	14.00%	6.90%
IA	52.20%	86.4	$6,159	265	16.00%	8.10%
ID	52.30%	80.1	$4,335	265	18.00%	6.60%
IL	48.90%	80.4	$6,815	265	19.00%	9.10%
IN	45.80%	74.1	$5,404	266	20.00%	9.80%
KS	48.80%	79.1	$6,162	267	18.00%	9.50%
KY	41.60%	74.4	$5,353	267	26.00%	10.40%
LA	39.00%	63.5	$6,160	253	24.00%	12.70%
MA	51.90%	81.5	$9,461	274	13.00%	5.60%
MD	47.30%	80.4	$8,470	267	12.00%	8.50%
ME	40.80%	79.1	$7,333	268	17.00%	7.20%
MI	45.70%	76.3	$5,930	262	23.00%	9.20%
MN	57.00%	86.4	$7,227	270	14.00%	6.40%
MO	43.90%	82.4	$5,943	267	21.00%	9.60%
MS	34.00%	63.9	$4,731	251	31.00%	14.10%
MT	45.30%	82	$6,122	270	21.00%	8.60%
NC	41.40%	72.8	$5,397	260	23.00%	10.30%
ND	52.50%	83.8	$5,721	269	13.00%	7.20%
NE	51.80%	83.8	$7,042	267	15.00%	7.80%
NH	50.70%	83.4	$8,084	271	11.00%	6.40%
NJ	53.60%	84.6	$10,084	273	13.00%	5.50%
NM	37.10%	66.8	$5,565	254	25.00%	13.20%
NV	38.00%	51.3	$4,944	254	18.00%	9.20%
NY	47.10%	70.8	$12,276	264	20.00%	6.30%
OH	45.60%	79	$6,210	269	22.00%	10.10%
OK	41.80%	78	$4,508	259	22.00%	11.50%
OR	47.50%	76.7	$5,594	265	19.00%	7.60%

State	**Index of Family Belonging**	High School Graduation Rates	Government Per-pupil Expenditures	8th Grade NAEP Reading Scores	Child Poverty	% Births to Unmarried Teens
PA	49.80%	82.7	$7,437	271	17.00%	8.50%
RI	49.30%	76.4	$8,812	260	17.00%	8.50%
SC	39.60%	69.1	$5,329	257	24.00%	11.60%
SD	49.00%	84.4	$4,958	270	19.00%	8.10%
TN	39.50%	74.9	$5,016	261	24.00%	11.10%
TX	45.20%	73.1	$5,138	260	24.00%	11.60%
UT	56.50%	74.3	$4,275	266	12.00%	5.30%
VA	47.40%	77	$6,631	266	14.00%	6.90%
VT	51.00%	89.3	$9,418	272	13.00%	7.20%
WA	47.50%	71.9	$5,830	267	16.00%	6.60%
WI	49.00%	89.6	$6,846	266	17.00%	7.10%
WV	46.20%	77.3	$6,456	255	24.00%	10.50%
WY	42.50%	76	$8,602	268	13.00%	8.80%
DC	18.60%	56	$9,087	242	29.00%	10.40%

Table 6: State Data in Index Rank Order

State	Index of Family Belonging	High School Graduation Rates	Government Per-pupil Expenditures	8th Grade NAEP Reading Scores	Child Poverty	% Births to Unmarried Teens
MN	57.00%	86.4	$7,227	270	14.00%	6.40%
UT	56.50%	74.3	$4,275	266	12.00%	5.30%
NJ	53.60%	84.6	$10,084	273	13.00%	5.50%
ND	52.50%	83.8	$5,721	269	13.00%	7.20%
ID	52.30%	80.1	$4,335	265	18.00%	6.60%
IA	52.20%	86.4	$6,159	265	16.00%	8.10%
MA	51.90%	81.5	$9,461	274	13.00%	5.60%
NE	51.80%	83.8	$7,042	267	15.00%	7.80%
CT	51.30%	82.2	$9,594	272	12.00%	6.50%
VT	51.00%	89.3	$9,418	272	13.00%	7.20%
NH	50.70%	83.4	$8,084	271	11.00%	6.40%
PA	49.80%	82.7	$7,437	271	17.00%	8.50%
RI	49.30%	76.4	$8,812	260	17.00%	8.50%
SD	49.00%	84.4	$4,958	270	19.00%	8.10%
WI	49.00%	89.6	$6,846	266	17.00%	7.10%
IL	48.90%	80.4	$6,815	265	19.00%	9.10%
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MS	34.00%	63.9	$4,731	251	31.00%	14.10%
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About the Authors

Patrick F. Fagan is Senior Fellow and Director of the Marriage and Religion Research Institute (MARRI), at the Family Research Council. MARRI examines the relationships among family, marriage, religion, community, and America's social problems, as illustrated in the social science data. The Institute has a particular emphasis on the relationship between marital stability coupled with the practice of religion and their joint impacts on social infrastructure issues such as happiness, health, mental health and general well-being, income and savings, educational attainment and family stability, as well as negative outcomes as poverty, crime, abuse, and drug addiction.

A native of Ireland, Fagan earned his Bachelor of Social Science degree with a double major in sociology and social administration, and a professional graduate degree in psychology (Dip. Psych.) as well as a Ph.D. from University College Dublin.

Fagan started his career as a grade school teacher in Cork, Ireland, and then returned to college to become a psychologist, going to Canada to practice then to Washington, D.C. to pursue a doctorate in clinical psychology. In 1984, Fagan moved from the clinical world into the public policy arena, to work on family issues at the Free Congress Foundation. After that he worked for Senator Dan Coats of Indiana, and then was appointed Deputy Assistant Secretary for Family and Community Policy at the U.S. Department of Health and Human Services by President George H.W. Bush, before spending the next thirteen years at the Heritage Foundation, where he was a senior fellow.

Among Fagan's most notable publications are a series of Backgrounders written while at The Heritage Foundation on the effects of out of wedlock births an divorce on children; on the effects of religious practice and on the family pathways to crime and delinquency. He also initiated the database of social science findings on family and religion, now called Family Facts. At the Family Research Council he has authored syntheses of the literature on the effects of pornography on sexuality, the effects of adoption on children, the effects of religious practice on education and effects of marriage on economic well-being. He directs the Mapping America series and authored the first annual Index of Belonging and Rejection in 2010.

Nicholas Zill is a Washington-based psychologist and expert on trends in child development and family functioning. Until his recent retirement, he was a Vice President and Study Area Director at the social science research corporation, Westat. He has helped to design, analyze, and report on large-scale studies of children and families for more than thirty years. Among these was the Head Start National Reporting System (NRS), designed for the Administration of Children and Families (ACF) of the U.S. Department of Health and Human Services. This involved designing and field testing one-on-one child assessments and developing a computer-based reporting system, and supporting the nationwide implementation of the system, which included large-scale training of local program staff, compiling data from local assessments of more than 400,000 4- and 5-year-old children, data analysis, and preparation of program-level reports for more than 1,800 Head Start grantees. Dr. Zill has also been project director of three rounds of the Head Start Family and Child Experiences Survey (FACES), a series of longitudinal studies conducted for the ACF involving parent interviews, child assessments, teacher interviews, and classroom observations of national probability samples of programs,

families, and children. Dr. Zill has been a senior technical adviser and lead analyst for the National Head Start Impact Study, a random-assignment evaluation study of Head Start.

Other large-scale studies of children which Dr. Zill helped to design and analyze are the Early Childhood Longitudinal Study of a Birth Cohort (ECLS-B), the Early Childhood Longitudinal Study of a Kindergarten Cohort (ECLS-K), and the school readiness component of the National Household Education Survey for the National Center for Education Statistics; the Child Health Supplement to the 1981 and 1988 National Health Interview Surveys for the National Center for Health Statistics; the Mother and Child Supplements to the National Longitudinal Survey of Youth (NLSY) for the National Institute of Child Health and Human Development; and the National Survey of Children for the Foundation for Child Development and the National Institute of Mental Health.

Dr. Zill is the author or co-author of a number of widely cited journal articles and book chapters on the health status and school readiness of American children, adolescent time use, and the development and well-being of children from divorced families, stepfamilies, adoptive families, and welfare families. He has given invited expert testimony on these topics before several committees of the U.S. House of Representatives and the U.S. Senate. He was a participant in the 2001 White House Summit on Early Childhood Cognitive Development. He helped the Select Committee on Children, Youth, and Families of the U.S. House of Representatives to design and produce three editions of the Committee's report, *U.S.* children and their families: Current conditions and recent trends. He was a member of the National Committee on Vital and Health Statistics, an advisory committee to the National Center for Health Statistics, and is a past president of the Council of Professional Associations on Federal Statistics (COPAFS). He was a member of the Technical Planning Group on School Readiness for the National Education Goals Panel, and developed a child health index that the Goals Panel reported annually for each state and the nation as a whole.

Before coming to Westat, Dr. Zill was the founder and for 13 years the Executive Director of Child Trends, a non-profit research organization that is known for its work on childhood social indicators and teen childbearing.

Philip Fletcher of Westat (now at Pearson Education) programmed the computer analyses necessary to produce the Belonging Index from the 2009 American Community Survey (Bureau of the Census) public use microdata file.