



Technical Appendix

DATA SOURCES

Data for this Chartbook come from the 2007 National Survey of Adoptive Parents (NSAP) and from the 2007 National Survey of Children's Health (NSCH). Estimates pertaining to the entire population of U.S. children are based on the NSCH sample, and estimates pertaining to adopted children are based on the NSAP sample.

The NSCH is a nationally representative survey of U.S. children under age 18. The NSCH uses the sampling frame of the National Immunization Survey (NIS), which contacts over a million households annually. After the NIS screener and/or survey are completed, the State and Local Area Integrated Telephone Survey (SLAITS) module is administered if households include any children under age 18. SLAITS has fielded the NSCH in 2003 and in 2007. In each household, one child under age 18 was randomly selected, and a parent or guardian knowledgeable about the child's health answered questions about the child's and the family's health and well-being and provided information about demographic characteristics. The 2007 NSCH included information on 91,642 focal children. The overall response rate for the NSCH was 46.7 percent. This percentage accounts not only for the rate at which individuals who were contacted for the survey completed it, but also for the assumption that some portion of the sampled phone numbers whose eligibility could not be determined were, in fact, eligible for the NSCH interview. Among households in which

someone completed the screener to determine their eligibility for the NSCH, the interview completion rate was 66 percent.³⁶

The NSAP is nationally representative of adopted children ages 0 to 17 in English-speaking households in the United States in 2007, excluding those also living with a biological parent. Collaborative efforts between the Office of the Assistant Secretary for Planning and Evaluation (ASPE), the Administration for Children and Families (ACF), and the National Center for Health Statistics (NCHS) culminated in the development of the NSAP survey instrument and administration of the survey.³⁷ The NSAP was an add-on module to the 2007 National Survey of Children's Health (NSCH).³⁸ If the focal child in the 2007 NSCH was adopted, an adoptive parent of the child was asked to participate in the NSAP, a 30-minute telephone survey. A total of 2,737 focal children were identified as having been adopted in the 2007 NSCH. NSAP interviews were carried out between April 2007 and June 2008 regarding 2,089 children. (Adopted children who were also living with a biological parent, whose adoptions were assumed to be primarily step-parent adoptions, were excluded from the NSAP.)³⁹ The cooperation rate (that is, the rate at which NSAP interviews were completed for children who were identified as eligible based on the NSCH screener) was high, at 74.4 percent. However, when other factors are taken into account, such as the NSCH interview completion rate,⁴⁰ the overall response rate for the NSAP was 34.6 percent. Weighting

adjustments for NSAP nonresponse greatly reduce the likelihood of nonresponse bias.

IDENTIFYING ADOPTED CHILDREN AND THE TYPE OF ADOPTION

Identifying adopted children in the NSCH who were eligible for the NSAP, and identifying the type of adoption, required several steps. All NSCH respondents reported their own relationship to the child. Those who identified themselves as a mother or father to the child were asked whether they were the child's "biological, adoptive, step, or foster" parent. Respondents were asked also whether any other parents or people who act as the child's parents lived with them, and if so, what their relationships to the child were. If there was no biological parent in the household, interviewers asked follow-up questions to identify the type of adoption. Specifically, parents were asked: "Was [the child] adopted from another country?" Positive responses indicated children who had been adopted internationally. If the answer was no, parents were asked: "Prior to being adopted, was [the child] in the legal custody of a state or county child welfare agency in the United States? That is, was [the child] in the U.S. foster care system?" Positive responses indicated children who were adopted from foster care. All other adopted children were categorized as those adopted privately from domestic sources other than foster care (i.e., U.S. children adopted privately).

There are several important exclusions to the sample of children identified as adopted in the NSCH. First, children adopted informally and those in pre-adoptive placements are not included. Parents who answered "no" to the question, "Has [the child]'s adoption been finalized?" were not eligible for the NSAP interview. Finalizing adoptions can take six months or more from the time a child is placed with a family with the goal of adoption, even after the child has been legally freed for adoption.⁴¹ Most of these children were likely later adopted by their parents, but it is possible that for some others, the adoption disrupted (i.e., the adoption was aborted prior to legal finalization.) Excluding children whose

adoptions had not been legally finalized also means that the sample does not include dependent children being reared by caregivers in informal adoption arrangements, many of whom may be related to children but not as biological parents.⁴² Informal adoptions are more common among some cultures, including black and Hispanic families, than others.⁴³

Another important exception is that the NSAP excluded children who were living with one biological and one adoptive parent. Most of these children are in step-families. According to estimates from the Census, at least 4 percent of all children—approximately two-thirds of all adoptions—in the United States are in step-parent adoptions.⁴⁴

Thirdly, the NSAP does not include children whose adoptions had already been dissolved (i.e., whose adoptions were reversed following legal finalization.) Therefore, while the NSAP addressed topics such as adoption satisfaction and whether parents ever considered dissolving an adoption, it cannot address topics such as why families with dissolved adoptions chose to end the adoption.

DATA ANALYSIS

Administering the NSAP as an add-on to the NSCH not only allows for a representative sample of adopted children, but it also allows for comparisons of adopted children with children in the general population on the health and well-being measures collected by the NSCH. For our analyses, we merged variables from the NSCH onto NSAP records (i.e., we created a linked NSAP-NSCH file). This enabled us to calculate estimates pertaining to NSCH variables for adopted children. Estimates pertaining to adopted children in this Chartbook are always based on the NSAP sample.⁴⁵ Estimates pertaining to all children are based on the NSCH sample and do not exclude adopted children, in order to represent the general population of U.S. children.

To yield representative samples of children in each state, the NSCH used complex sampling methods involving the clustering of children within households and stratification of

households within states. The complex sampling methodology means that, in order to generate estimates of variance that are not biased downward, analyses must take advantage of stratum and primary sampling unit (PSU) identifiers, as well as weights that have been adjusted for unequal sampling probability.⁴⁶ The weights, which have also been adjusted for non-response and which were further adjusted to match pre-existing population control totals, are also necessary in order to generate parameter estimates (e.g., percentages) that can be extrapolated to the overall populations of children that the NSCH—and the NSAP—are intended to represent.

We used the statistical software package Stata in order to account for the complex sampling methodology in both the NSCH and NSAP. Additionally, all analyses were weighted. We generally avoided reporting estimates for which the relative standard error exceeded 0.3, and—at a minimum—flagged such estimates in the appendix tables to denote their imprecision. We also omitted value labels for percentages with relative standard errors exceeding 0.3 from the figures in the Chartbook. Additionally, we tested whether variables were associated by examining chi-square statistics. When chi-square statistics indicated that variables were associated, we tested differences between pairs of groups of

sampled children (such as those adopted from foster care versus those adopted internationally or privately and domestically, as well as those adopted by relatives versus non-relatives) by calculating t-statistics for each difference. To test whether differences between adopted children and all children were statistically significant, we calculated t-statistics that accounted for the fact that the NSAP was a subsample of the NSCH. All comparisons between groups that are highlighted in text are statistically significant at the .05 level of significance; notable differences or associations that are statistically significant at the .10 level were also in some cases mentioned and footnoted as “marginally significant” at the .10 level.

AVAILABILITY OF DATA

Researchers can carry out more complex analyses of the NSAP and the NSCH by obtaining public use versions of the datasets, available at: <http://www.cdc.gov/nchs/slaits.htm>

The linked version of the NSCH and NSAP used for the analyses in this chartbook is not publicly available. Researchers interested in analyzing linked NSCH-NSAP data may apply for access to restricted data through the NCHS Research Data Center at <http://www.cdc.gov/nchs/r&d/rdc.htm>.

Endnotes

- ¹ See: U.S. Department of Health and Human Services, Administration for Children and Families. 2006. The basics of adoption practice. Available online at: www.Childwelfare.gov/pubs/f_basicsbulletin/.
- ² This subgroup may also include children who had birth parents unable or unwilling to provide adequate care but were not reported for abuse or neglect and, subsequently, not involved with public child welfare agencies. In these cases the birth parents must voluntarily relinquish their parental rights in order for a relative or unrelated individual to adopt the child privately.
- ³ Two additional variations on the way that private domestic adoption may occur include identified adoptions and the use of adoption facilitators. Identified adoptions are those in which adoptive and birth parents meet independently, but then choose to use some agency services, such as counseling. Adoption facilitators are sometimes used as an alternative to an adoption agency. An adoption facilitator is an individual who matches prospective adoptive parents and birth parents for a fee. In many states, adoption facilitators are minimally regulated, and in some, adoptions by paid facilitators are not legal. For details on variations in adoption methods, see: U.S. Department of Health and Human Services, Administration for Children and Families. 2003 Adoption Options. http://www.childwelfare.gov/pubs/f_adoptoption.pdf.
- ⁴ For more information, see: <http://adoption.state.gov/about/how/childeligibility.html>.
- ⁵ Individual studies, based on a variety of samples and methodologies, have estimated rates of disruption ranging from 10 to 25 percent, and rates of dissolution ranging from 1 to 10 percent. See: U.S. Department of Health and Human Services, Administration for Children and Families. 2004. Adoption Disruption and Dissolution. Available online at http://www.childwelfare.gov/pubs/s_disrup.pdf.
- ⁶ During Federal Fiscal Year 2008 (October 1, 2007 through September 30, 2008), 4,123 children were adopted from Guatemala, more than any other country during that year. This was true even though adoptions from Guatemala had come to a halt by the end of that year. Data on rates of international adoptions to the United States and on trends in these rates are available from the Office of Children's Issues of the U.S. Department of State, available online at: http://adoption.state.gov/news/total_chart.html. The rates are based on issuances of IR3, IH3, IR4, and IH4 visas. The type of visa varies depending on whether the child originates from a country that is party to the Hague Convention and depending on whether the adoption occurs in the United States or in the child's home country.
- ⁷ Office of Children's Issues of the U.S. Department of State, <http://adoption.state.gov/country/china.html>.
- ⁸ The Voice of Russia World Service in English (RUVR). 2007. "Russian families' change of heart on adoption." Available online at <http://www.ruvr.ru/main.php?lng=eng&q=18909&cid=59&p=16.11.2007>.
- ⁹ Lee, Bong Joo. 2007. Adoption in Korea: Current status and future prospects. *International Journal of Social Welfare*. 16: 75-83.
- ¹⁰ Office of Children's Issues of the U.S. Department of State, http://adoption.state.gov/news/total_chart.html.
- ¹¹ Despite a spike in the number of foster care adoptions following the passage of the Adoption and Safe Families Act (ASFA) in 1996, evidence suggests that the likelihood that a waiting child will be adopted has not increased, and adoptive family recruitment has not increased the share of non-relative adoptions. During the three-year base period before ASFA, 28,000 children were adopted compared with 51,000 in FY 2000. Since 2002, the numbers of children adopted from foster care (51,000 to 53,000), the numbers waiting (129,000 to 133,000), and the percentages of waiting children who are adopted (38 to 40 percent) have remained fairly stable. [Trends in foster care and adoption: FY2002-FY2006 (based on data submitted by states as of January 16, 2008). Retrieved August 13, 2009 from: http://www.acf.hhs.gov/programs/cb/stats_research/afcars/trends.htm.]
- ¹² Jones, J. 2008. Adoption experiences of women and men and demand for children to adopt by women 18-44 years of age in the United States, 2002. National Center for Health Statistics. *Vital and Health Statistics*, 23(27). Available online at http://www.cdc.gov/nchs/data/series/sr_23/sr23_027.pdf.
- ¹³ The NSCH defines children with special health care needs as those who currently experience at least one out of five consequences attributable to a medical, behavioral, or other health condition that has lasted or is expected to last for at least 12 months. The consequences include: 1) ongoing limitations in ability to perform activities that other children of the same age can perform, 2) ongoing need for prescription medications, 3) ongoing need for specialized therapies, 4) ongoing need for more medical, mental health, or educational services than are usual for most children of the same age, and 5) the presence of ongoing behavioral, emotional, or developmental conditions requiring treatment or counseling.
- ¹⁴ Indeed, the experiences of adopted children and youth including histories of abuse and neglect, later age of adoption, prenatal drug exposure, and placement in multiple foster homes prior to adoption have been identified as risk factors for symptoms of attention-deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) (Simmel, C., Brooks, D., Barth, R., and Hinshaw, S. 2001. Prevalence of externalizing symptomatology in an adoptive sample: Linkages between pre-adoption risk factors and post-adoption out-comes. *Journal of Abnormal Child Psychology*, 29:57-69). Attachment disorder, which can result from extremely neglectful care very early in life, is also a particular concern for adopted children who entered care due to severe neglect and/or who experienced multiple foster care placements early in life and for some internationally adopted children who received insufficient care in orphanages (for example, see: Howe, D., and Fearnley, S. 2003. Disorders of attachment in adopted and fostered children: Recognition and treatment. *Clinical Child Psychology and Psychiatry*, 8(3): 369-387; Hughes, D.A. 1999. Adopting children with attachment problems. *Child Welfare*, 78(5):541-560. Strijker, J., Knorth, E.J., and Knot-Dickscheit, J. 2008. Placement history of foster children: A study of placement history and outcomes in long-term family foster Care. *Child Welfare*, 87(5): 107-124; van den Dries, L., Juffer, F., van IJzendoorn, M.H., Bakermans-Kranenburg, M.J. 2009. Fostering security? A meta-analysis of attachment in adopted children. *Children and Youth Services Review*, 31(3): 410-421.)

¹⁵ See “Trends in Foster Care and Adoption—FY 2002-FY 2007,” available at http://www.acf.hhs.gov/programs/cb/stats_research/afcars/trends.htm.

¹⁶ Adoptions of foster children facilitated by private agencies were intended to be categorized as foster care adoptions based on the NSCH screener questions. During the data collection, however, a change was made to the adoption type assignment for 73 children, because information regarding the type of adoption provided by the respondent during the NSAP interview conflicted with similar information provided during the NSCH interview. Nevertheless, survey error likely remains, and the population of former foster children in adoptions facilitated by private agencies is likely split between foster adoption and private domestic adoption in the NSAP.

¹⁷ Office of Children’s Issues, United States Department of State, available online at: http://adoption.state.gov/news/total_chart.html.

¹⁸ Weiguo Zhang. 2006. Child adoption in contemporary rural China, *Journal of Family Issues* 27(3): 301-340. Zeng Yi, Tu Ping, Gu Baochang, Xu Yi, Li Bohua, and Li Yongping. 1993. Causes and implications of the recent increase in the reported sex ratio at birth in China, *Population and Development Review* 19 (2): 283-302.

¹⁹ For a family of four, an income four times the federal poverty threshold equates to \$84,800 in 2008. (See: The 2008 HHS Poverty Guidelines, One Version of the [U.S.] Federal Poverty Measure, available at <http://aspe.hhs.gov/poverty/08poverty.shtml>).

²⁰ Overall, six out of ten adopted children live with two married adoptive parents, most of whom were also married at the time of adoption (55 percent of adopted children have parents who were married at the time of the adoption; an additional 5 percent live with parents who married since the adoption).

²¹ According to the NSAP, 74 percent of children live with a parent who has a spouse or partner (i.e., the spouse or partner may or may not be an adoptive parent and may or may not be married to the child’s other parent) compared with 80 percent of the general population of children.

²² See: U.S. Census Bureau, page last modified August 19, 2009. Metropolitan and Micropolitan Statistical Areas, available online at: <http://www.census.gov/population/www/metroareas/metroarea.html>.

²³ The 16 conditions considered for the measure of moderate or severe health difficulties include: learning disability; attention deficit disorder or attention deficit hyperactivity disorder (ADD/ADHD); depression; anxiety problems; behavioral or conduct problems, such as oppositional defiant disorder or conduct disorder; autism, Asperger’s disorder, pervasive developmental disorder, or other autism spectrum disorder; any developmental delay that affects his/her ability to learn; stuttering, stammering, or other speech problems; Tourette’s syndrome; asthma; diabetes; epilepsy or seizure disorder; hearing problems; vision problems that cannot be corrected with glasses or contact lenses; bone, joint, or muscle problems; and brain injury or concussion.

²⁴ This finding is consistent with prior research that focused on the disproportionately high prevalence of clinical levels of externalizing disorders in adopted youth, such as ADHD/ADD, Oppositional Defiant Disorder, conduct disorders, and antisocial behaviors (Deutsch, C.K., Swanson, J.M., Bruell, J.H., Cantwell, D.P., Weinberg, F., and Baren, M. 1982. Over-representation of adoptees in children with attention deficit disorder. *Behavior Genetics*, 12, 231-238. Brodzinsky, D.M., Hitt, J.C., and Smith, D. 1993. Zill, N. 1996. Coon, J., Carey, G., Corley, R., and Fulker, D.W. 1992. Identifying children in the Colorado Adoption Project at risk for conduct disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 503-511. Simmel, C., Brooks, D., Barth, R., and Hinshaw, S. 2001. Prevalence of externalizing symptomatology in an adoptive sample: Linkages between pre-adoption risk factors and post-adoption outcomes. *Journal of Abnormal Child Psychology*, 29:57-69).

²⁵ For a review, see the Child Trends Databank indicator on “Reading to Young Children,” available online at: <http://www.childtrends.databank.org/indicators/5ReadingtoYoungChildren.cfm>.

²⁶ For a review, see the National Center for Education Statistic’s article “Reading—Young Children’s Achievement and Classroom Experiences” available online at: <http://nces.ed.gov/pubs2003/2003070.pdf>

²⁷ For a review, see the Child Trends Databank indicator on “Family Meals,” available online at: <http://www.childtrends.databank.org/indicators/96FamilyMeals.cfm>.

²⁸ For a review, see the Child Trends Databank indicator on “After-School Activities,” available online at: <http://www.childtrends.databank.org/indicators/86AfterSchoolActivities.cfm>.

²⁹ See Frosch, C. A., & Mangelsdorf, S. C. (2001). Marital behavior, parenting behavior, and multiple reports of preschoolers’ behavior problems: Mediation or moderation? *Developmental Psychology*, 37, 502-519.

³⁰ A small minority of children whose parents reported that they didn’t know they were adopted were excluded from this analysis. Overall, 3 percent of adopted children ages 5 and older do not know they are adopted.

³¹ See “Adoption Benefits Increased” at <http://www.irs.gov/formspubs/article/0,,id=177982,00.html>.

³² Kahan, M. 2006. “Put up” on platforms: A history of twentieth century adoption policy in the United States. *Journal of Sociology and Social Welfare*, 33(3): 51-72.

³³ Ibid. See also Brodzinsky, D.M. 2005. Reconceptualizing openness in adoption: Implications for theory, research, and practice. Pp. 145-166 in *Psychological Issues in Adoption* (D.M. Brodzinsky and J. Palacios, eds.) Westport, CT: Greenwood Publishing Group.

³⁴ As of 2008, this was true in 23 states. Child Welfare Information Gateway. 2005. Post adoption contact agreements between birth and adoptive families: Summary of state law. Available online at: http://www.childwelfare.gov/systemwide/laws_policies/statutes/cooperativeall.pdf.

³⁵ For a more thorough description of post-adoption supports, see <http://www.nacac.org/postadopt/postadopt.html>.

³⁶ Further information on the NSCH can be found in: Blumberg S.J., Foster E.B., Frasier A.M., et al. Design and Operation of the National Survey of Children's Health, 2007. National Center for Health Statistics. *Vital and Health Statistics, Series 1*. Forthcoming. Available online at <http://www.cdc.gov/nchs/about/major/slaits/nsch07.htm>.

³⁷ Federal officials and contractor staff consulted with the State Department's Office of Children's Issues during the development of the NSAP instrument to gain insight on the questions pertaining to international adoptions.

³⁸ The NSAP was also administered as a follow-back to the 2005-06 National Survey of Children with Special Health Care Needs (NS-CSHCN). The present chartbook does not include results from the National Survey of Adoptive Parents of Children with Special Health Care Needs (NSAP-SN). Initial results based on the identification of adopted children in the NS-CSHCN are available in: Bramlett, M.D., and Radel, L.F. 2008. Adopted children with special health care needs: Characteristics, health, and health care by adoption type. ASPE Research Brief. Washington, DC: Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy – U.S. Department of Health and Human Services. Available online at <http://aspe.hhs.gov/hsp/08/CSHCN/rb.shtml>.

³⁹ Further information on the NSAP can be found in: Bramlett MD, Foster EB, Frasier AM, et al. Forthcoming. Design and Operation of the National Survey of Adoptive Parents, 2007. National Center for Health Statistics. *Vital and Health Statistics, Series 1*.

⁴⁰ Specifically, the overall NSAP response rate depended upon the resolution rate (i.e., the identification of sampled telephone numbers as being residential or non-residential), the age screener completion rate for determining eligibility for the NSCH, the NSCH interview completion rate, and the NSAP eligibility screener completion rate, in addition to the NSAP completion rate. For more details, see Bramlett et al., forthcoming.

⁴¹ The legal relinquishment of biological parents' rights to their children, and the legal adoption of children by non-biological children, are two separate steps that must take place in sequence for an adoption to occur.

⁴² For a review, see Gibson, P.A., J. Nelson-Christinedaughter, H.D. Grotevant, and H-K. Kwon. 2005. The well-being of African American adolescents within formal and informal adoption arrangements. *Adoption Quarterly*, 9(1), 59-78.

⁴³ For a review, see Kreider, 2003.

⁴⁴ Kreider, 2003. The Census report notes that this estimate is likely to be an undercount of the number of step-children due to the manner in which the data were collected. Additionally, in the Census, families simply reported whether or not their child was a "stepson/stepdaughter" or without identifying whether or not the householder had adopted that stepchild.

⁴⁵ The two samples of adopted children are not identical because, as noted above, some focal children who were identified as adopted in the NSCH had parents who did not participate in the NSAP interview.

⁴⁶ In the public use version of the NSAP data, the 51 strata for the 50 states plus Washington, DC have been collapsed into ten categories in order to protect respondent confidentiality. The chartbook analyses of the NSAP sample use the original, un-collapsed state identifier as the PSU identifier. Analyses of the NSCH data presented in this chartbook also use the state as the PSU identifier. Although the state was used as the PSU identifier, reliable state-level estimates cannot be calculated from the NSAP sample due to small sample size by state.