Adoption Subsidies and Adoption Outcomes: An Instrumental Variables Approach *

Kasey Buckles, Ph.D.
University of Notre Dame

December 2006

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Abstract

Over half a million children in the United States are currently in foster care, many of whom are at risk for long-lasting emotional and health problems. Because research suggests that adoption may be one of the most promising options for the placement of these at-risk children, various policies have been introduced at all levels of government to encourage adoption. In 1980, Congress passed the Adoption Assistance and Child Welfare Act, which provided federal funds for monthly adoption subsidies designed to promote adoptions of special-needs children and children in foster care.

Using data from the Adoption and Foster Care Reporting and Analysis Systems for 2000-2003, I consider the effects of adoption subsidies on children's average time to adoption and the characteristics of adoptive families. I employ an instrumental variables strategy to address issues of subsidy endogeneity, where the instrument is a dummy indicating that the child qualifies for "special needs by age" status in his or her state. I find that subsidy receipt and amount are associated with longer times to adoption, and increase the probability that a child is adopted by an individual with characteristics similar to those of a grandmother.

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* Department of Economics and Econometrics, University of Notre Dame, 436 Flanner Hall, Notre Dame, IN 46556. kbuckles@nd.edu.

I. Introduction

At the end of 2003, there were 523,085 children in the United States in foster care.[1] The vast majority of foster children come from disadvantaged backgrounds and are at much greater risk for emotional and health problems than their peers. For example, approximately one-third of these children with reported disability information had some form of clinical disability, such as mental retardation or a physical disability. Additionally, 67.9% of children for whom a reason for removal from the home is reported had been abused or neglected, and 22.5% had experienced drug or alcohol abuse by a parent. Among children for whom government funding information was available, 45.7% were eligible for Medicaid, and Duncan Lindsey (1991) finds that low family income is the single best predictor of a child's placement into foster care.

Research suggests that adoption may be one of the most promising options for the placement of these at-risk children. Relative to children in long-term foster care, Richard Barth and Marianne Berry (1994) show that adopted children have lower placement disruption rates, and the rate of abuse of children in adopted homes is even lower than that for the general population. Children adopted from foster care have better educational outcomes, and financial investment by families over the lifetime of adopted children is estimated to be $150,000 more than that for foster children. John Triseliotis and Malcolm Hill (1990) conclude that relative to foster children, adopted children are more attached to their caregivers, are more able to form healthy adult relationships, and experience fewer emotional difficulties later in life.

Because adoption is believed to be a desirable outcome for many foster children, various policies have been introduced at all levels of government to encourage adoption. In 1980, Congress passed the Adoption Assistance and Child Welfare Act, which provided federal funds

[1] Adoption and Foster Care Analysis and Reporting System (AFCARS), 2003.

for monthly adoption subsidies designed to promote adoptions of special needs children and children in foster care. From 2000 to 2003, 88.7% of the 202,087 children adopted through child welfare services received a subsidy, with the average amount being $544.83 per month.[2] By 2002, the program provided subsidies for 285,600 children at a cost to the Federal government of over $1 billion.

A few previous studies have attempted to examine the effects of adoption subsidies on adoption outcomes and adoption rates. Sedlak and Broadhurst (1993) find that children adopted with subsidies exited foster care to their adoptive families more quickly than children adopted without a subsidy. They also report that 29 percent of families who adopted from foster care in the mid-1980s said that they would have had difficulty adopting without the subsidy, and 35 percent said the availability of the subsidy had a positive influence on their decision to adopt. Hansen and Hansen (2006) find that a 1% increase in adoption subsidies is correlated with a roughly 1% increase in the demand for adoption services, though Dalberth, Gibbs, and Berkman (2005) report that states' median subsidy amounts are not correlated with either the rate of adoptions from foster care or the time to adoption.

Each of these papers, however, suffers from possible endogeneity bias due to the fact that the subsidy amounts are negotiated on a case-by-case basis, and therefore may be correlated with other characteristics of the involved parties. This paper will consider how adoption subsidies affect a child's time to adoption and the characteristics of his or her adoptive family, using an instrumental variables strategy to account for the endogeneity of subsidy receipt and amount. The IV strategy is based on differences across states in the minimum age at which children may

[2] In comparison, the average monthly amount of AFDC payments to families in 2002 was $395.96 (www.ssa.gov).

be designated "special needs" by age. The special needs designation is positively correlated with the probability of receiving any subsidy, and the amount of subsidy conditional on receipt. The IV results suggest that children adopted with subsidies actually have a longer time to finalization. Also, subsidies increase the probability that a child is adopted by older parents, relatives, and single women—characteristics consistent with adoptions by grandmothers or similar relatives. Increases in subsidy amount have similar effects, though the coefficients are consistently smaller and are often insignificant.

Section II provides background information on adoption subsidies, and Section III describes the data and sample. I discuss the endogeneity problem and present the instrumental variables strategy in Section IV. Results are presented in Section V, and Section VI concludes.

II. Adoption Subsidies

The Adoption Assistance and Child Welfare Act, signed into law on June 17, 1980, established and funded "a program of Federal support to encourage adoptions of children with special needs".[3] The law amends Title IV of the Social Security Act, and requires states to make monthly adoption assistance payments to adoptive families. Subsidy amounts are determined by the states, based on the circumstances of the child and the adoptive family. States' contributions are matched with Federal funds according to the Federal medical assistance percentage (FMAP), which matches contributions for states with lower per-capita incomes at higher rates than states with higher incomes.

Each individual adoptive family negotiates with their state child welfare agency to determine their subsidy eligibility and amount. To be eligible for Federal funds, the state must

[3] Library of Congress, Thomas bill summary, accessed December 2005.

first have made reasonable efforts to place the child without assistance, and the child must have been AFDC/TANF- or SSI-eligible prior to removal from their pre-adoption home. Additionally, the child must be classified as having special needs, where special needs are defined as a condition making it difficult for the child to be placed in an adoptive home. Such conditions include age, medical disability, or membership in a sibling group, ethnic group, or minority race. States can and do award subsidies to children that do not meet the Federal requirements. Federally-matched payments must be less than the foster care subsidy the family would receive for the child, and terminate when the child reaches the age of 18 (or 21 in the case of mental or physical disability).

In determining subsidy amounts, states consider the income of the adoptive parents, as well as the needs of the child. Some states choose to offer a basic subsidy rate, perhaps based on the child's age, that they rarely modify. Others have basic guidelines but leave the actual amount to the discretion of the case worker. Dalberth, Gibbs, and Berkman (2005) find that subsidy amounts are generally higher for male children, older children, and when the time since termination of parental rights is greater. Additionally, subsidy amounts are correlated with the pre-adoptive relationship—for example, children adopted by their foster parents tend to receive higher subsidies.

Differences in child characteristics, combined with the flexibility that states have when operating their subsidy programs, yield considerable variation in subsidy amounts. In 2002, 85.7% of children adopted received a subsidy (this number is slightly lower than the 88.9% reported above because children receiving deferred subsidies are not counted here). The median subsidy amount was $462, with an average of $558.27 and a standard deviation of $376.24. The total cost to the Federal government of the subsidy program in 2002 was over $1 billion, serving

285,600 children. These figures represent dramatic increases since the program's inception in 1981, when only 163 children received adoption assistance for a total of about $400,000. The cost is projected to grow to over $2 billion by 2008. Inflation-adjusted per-child expenditures exhibit a slight upward trend since the early 1980s. However, the majority of the increase in cost (over 85%) has come from increases in the number of children receiving assistance, rather than changes in the amount of assistance received. Figure 1 shows the dramatic increase in both cost and average number of monthly recipients.

III. Data and Sample Selection

Data for this analysis are from the Adoption and Foster Care Analysis and Reporting System (AFCARS) for 2000 to 2003, from the National Data Archive on Child Abuse and Neglect. States are required to report data on all children who are adopted through their child welfare agency, with detailed demographic data for each child, characteristics of birth and adoptive parents, and information on subsidy sources and amounts. The data are combined to form a pooled cross-section. Additionally, information on states' requirements for special needs designation was collected from the North American Council on Adoptable Children.[4]

The sample includes children from 37 states and the District of Columbia who were adopted during this time from the public welfare agency. The remaining 13 states were omitted due to incomplete reporting (Arkansas, Georgia, Kansas, New York) or because they do not have a strict cutoff for special needs designation by age (Hawaii, Idaho, Kentucky, Massachusetts, Minnesota, North Carolina, South Dakota, Vermont, and West Virginia). Additionally, children who were already designated as special needs due to race, sibling group, medical condition, or

[4] www.nacac.org/subsidy_stateprofiles.html.

other are dropped from the sample because they should not be affected by the instrument (qualifying for special needs by age). After imposing this restriction, the number of black children in the sample was small and the correlation between their subsidy receipt and special needs status was low. Therefore, the study is restricted to white children. Finally, the regression sample is limited to children under 18 with full medical information, leaving 30,587 adopted children.

IV. Endogeneity and the Instrumental Variables Strategy

To evaluate the subsidy program, we would like to estimate the following model:

$$(1) \qquad Y_{is} = \beta_0 + \beta_1 SUBS_{is} + \gamma \mathbf{X_{is}} + \delta_1 y01 + \delta_2 y02 + \delta_3 y03 + u_{is}$$

where Y_{is} is the dependent variable of interest; $SUBS_{is}$ is either a dummy variable indicating subsidy receipt, or a quantitative variable measuring the subsidy amount; $\mathbf{X_{is}}$ is a vector of individual characteristics; and *y01*, *y02*, and *y03* are year dummies. The subscript *i* indexes the individual and *s* identifies the state. The dependent variables that will be considered are the time to adoption (where time to adoption is defined as the number of days between the termination of parental rights and the finalization of the adoption.), and characteristics of the adoptive family.

As discussed briefly above, the difficulty in estimating the above equation arises from the endogeneity of the $SUBS_{is}$ variable. Because $SUBS_{is}$ is a choice variable which is potentially correlated with child, family, and state characteristics, β_1 is likely biased, though the direction of the bias is unclear. First, consider the bias that would result if $SUBS_{is}$ is correlated with unobservable child characteristics, where the dependent variable is time to adoption. Children who are difficult to place for emotional, behavioral, or other unreported reasons might receive higher subsidies and also have longer times to adoption—resulting in a positive bias in β_1.

Alternatively, characteristics of the case worker might negatively bias the coefficient, if particularly effective or aggressive case workers award higher subsidies and have lower average times to adoption. Correlations at the state level might also result in a negative bias, if states with greater resources devoted to child welfare services are simultaneously able to provide more subsidies and also have more case workers, resulting in shorter times to adoption. Finally, wealthier adoptive families, who receive lower subsidies, might also be able to navigate the child welfare system more quickly and therefore have shorter times to adoption, resulting in a positively biased coefficient. These are just a few plausible sources of bias in OLS estimation, though there are likely others.

Table 1 details differences in observable characteristics of children in this sample who are adopted with and without subsidies. Within the restricted sample, children adopted with subsidies are older and more likely to be Hispanic. Because these two groups of children are different in observable ways, they are likely different in unobservable ways as well. Table 1 also shows that children adopted with subsidies have different adoption outcomes—they take longer to be adopted on average and are more likely to be adopted by a foster parent or an older relative, and less likely to be adopted by someone of a different race.

In order to understand the relationship between subsidy receipt and these outcomes, this paper uses an IV strategy to resolve the endogeneity issue and to identify the effect of subsidies on adoption outcomes.[5] The estimation strategy makes use of variation in states' definitions of

[5] The estimation strategy used here is similar to the one described in Angrist, Imbens, and Rubin (1996). In their paper, the authors propose using instrumental variables to identify a causal Local Average Treatment Effect (LATE). Their example of using draft lottery number as an instrument for veteran status is analogous to my use of a child's qualification for special needs

special needs. Families adopting children who meet a states' definition of special needs qualify for an adoption subsidy. Again, such conditions include age, medical disability, or membership in a sibling group, ethnic group, or minority race. The correlation between eligibility and receipt is not perfect, as states can and do award subsidies to children that do not meet these requirements. Also, because states must make an effort to place a child without a subsidy before Federal funds will be awarded, some children who appear to qualify for a subsidy on the basis of age do not receive one. Table 1 shows that children who receive a subsidy were more likely to have qualified for special needs by age status and are also more likely to have officially been designated as having special needs.

States can choose how they define a special needs child, and in particular, states vary on the age at which a child is designated as being special needs by age. As a result, children of the same age can be designated as special needs in some states and not in others. It is this variation that will be used in the IV strategy. Table 2 lists the minimum age at which a child can be designated as having special needs by age in each state, with the age requirement for white children ranging from 1 to 12 years.

The instrumental variable will be a dummy equal to one if the child qualifies as special needs by age in his or her state and zero otherwise. This variable should be positively correlated with subsidy receipt, but should not be correlated with the error term in the above model, conditional on age. First-stage results are presented in Table 3. Results are from an OLS regression of subsidy receipt on the IV and all exogenous variables. Being eligible for special needs designation by age increases the probability of receiving a subsidy by 0.1815, and the

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status by age as an instrument for subsidy receipt. In both cases, treatment is not perfectly correlated with eligibility (the instrument), but a causal relationship can still be identified.

coefficient is significant at the 5 percent level.[6]

Furthermore, the results in the second column of Table 3 suggest that for those children who receive a subsidy, qualifying for special needs status by age is correlated with a $66 increase in subsidy amount. This is not surprising, since states likely prioritize special needs children when allocating subsidies, and a special needs designation increases the bargaining power of the adoptive family by increasing the legitimacy of their case. The dummy indicating that the child qualifies for special needs status by age will also be used as an instrument for subsidy amount.

V. Results

Results from both OLS and instrumental variables estimation are presented in Table 3. Regressions include controls for age, sex, Hispanic origin, region, and year, with standard errors clustered at the state level. First, consider the effects of receiving a subsidy. With OLS, there is no significant effect of subsidy receipt on time to adoption. However, IV estimation yields a significantly positive effect of about thirteen months, though the standard error is quite large. The difference in the two coefficients suggests that the OLS coefficient is negatively biased. Returning to the previous discussion, a likely cause of the bias would be endogenous state or case worker characteristics. A positive effect of subsidies on time to adoption might be observed if the time it takes to finalize an adoption with the state is drawn out by the bureaucratic process of negotiating the subsidy. Also, Federal guidelines require that attempts be made to place a child without a subsidy—possibly creating a disincentive to adopt a child quickly. Further study

[6] Without controls, 89.4% of children who qualify for special needs status by age in their state children receive a subsidy, compared to 64.1% of those who do not qualify.

is required to determine how much of the increased time to adoption for subsidy recipients is due to these effects.

Additionally, subsidy receipt affects the probability that a child is adopted by certain types of people. In both sets of results, receiving a subsidy increases the average age of the adoptive parents, though the magnitude is larger using instrumental variables. There is also some evidence that subsidies decrease the probability of being adopted by someone of a different race. In results not reported here, receipt also increases the probability of being adopted by a relative other than a step-parent, and by an unmarried female. Taken as a group, these characteristics seem to describe a grandmother or similar relative. To proxy for this type of relationship, I created a dummy variable equal to one if the adopting family is related to the child (but not a step-parent) and the adoptive mother is over 49, and 0 otherwise. The results show that subsidy receipt increases the probability of being adopted by a grandparent-type person by about 24.6 percent.

The results for the effects of subsidy amount are also presented in Table 3, where the sample is limited to children who received any subsidy. Here, in both the OLS and IV estimate, higher subsidies are correlated with longer times to adoption, with marginally significant coefficients. Again, Federal requirements that a child be "hard to place" if he or she is to receive a subsidy may contribute to this result, as the delay incentive will be stronger when subsidies are larger. The IV results suggest that higher subsidies increase the average age of the adoptive parents by 2 to 3 years. While the results are not statistically significant, adoption by older relatives in particular seems to increase with subsidy amount.

VI. Discussion

Since the introduction of the Adoption Assistance and Child Welfare Act in 1980, Federal and state spending on adoption subsidies has increased dramatically, due largely to the rise in the number of eligible children. As a policy matter, it is important to know whether this large government program is having any impact on children in child welfare services. For policy makers, the results are particularly timely. President Bush's proposal for the 2007 Federal budget cuts by almost 30% Title XX Social Services, which many states use to finance adoption and foster care support programs[7]. Additionally, the budget proposal places a cap on Federal support for Title IV-E foster care payments. Because Federal funding for adoption subsidies can not exceed that for foster care payments, this would result in a cap on adoption subsidies under the current law.

In this paper, I use variation in states' definition of special needs by age to identify the effect of subsidy receipt and subsidy amount on adoption outcomes. Conditional on age, I show that being designated special needs by age is positively correlated with subsidy receipt and amount. Using this variation in an instrumental variables framework, I find that subsidy receipt and amount increase time to finalization, and seem to increase the probability that children are adopted by individuals with characteristics similar to those of grandparents or other relatives. This is an interesting finding given the growing importance of kinship care in child welfare policy (Joseph Doyle, Forthcoming). These results may also have important welfare implications, if grandparents are better (or worse) caretakers of their grandchildren than other

[7] http://www.cwla.org/advocacy/2006legagenda09.htm

adoptive parents.[8]

This paper also raises important questions about the estimation strategy used to evaluate the effects of this large government program. Differences in OLS and IV estimation results suggest potential bias in OLS results, possibly due to unobserved characteristics of states or case workers. However, there is a tradeoff here, as the IV results have much larger standard errors which make it difficult to reach reliable conclusions. At a minimum, the IV results indicate that caution should be used when making policy recommendations based on OLS results.

It is important to remember that the results presented here are based on a restricted sample of adopted children. In particular, children with special needs due to race, sibling group, or medical conditions are omitted. If these children are more difficult to place than the children in the regression samples, subsidies may have very different effects on their adoption outcomes.

Finally, this paper has not addressed the effect of the effect of subsidies on the probability that a child in foster care is adopted. Research in progress includes this important outcome.

[8] Esther Duflo (2003) finds that cash transfers to grandmothers in South Africa resulted in improvements in the health of their granddaughters.

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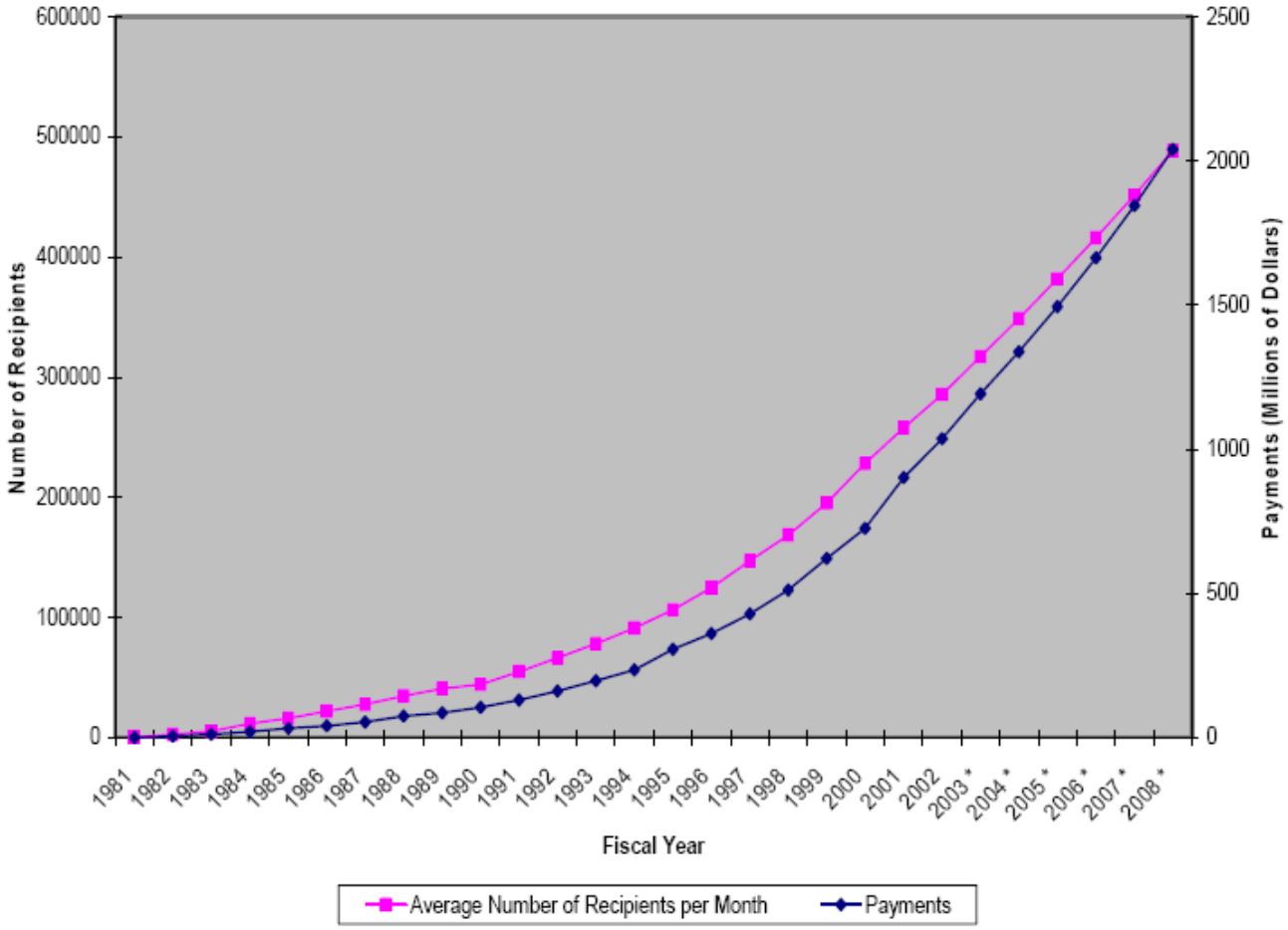
Figure 1. Title IV-E Adoption Assistance Payments,
Federal Funding to States, 1982-2008*



* Estimate based on current law. Source: U.S. House of Representatives, Committee on Ways and Means, Green Book, 1994, 1996, 2004.

Table 1. Characteristics of Adopted Children, By Subsidy Receipt

	Adopted Without Subsidy		Adopted With Subsidy	
Independent Variable	Mean	Std. Dev.	Mean	Std. Dev.
Monthly Subsidy Amount	-	-	590.69	382.68
Qualifies for Special Needs Status by Age	0.4247	0.4943	0.7773**	0.4160
Designated Special Needs	0.2789	0.4485	0.6858**	0.4642
Age at Adoption	5.92	4.33	8.17**	4.15
Male	0.4831	0.4998	0.4845	0.4998
Medical Condition	0.0373	0.1894	0.0352	0.1842
Hispanic	0.1578	0.3646	0.1680*	0.3739
Time to Finalization, in Days	394.56	365.50	474.96**	414.96
Age Adoptive Mom	42.28	9.10	43.96**	9.71
Age Adoptive Dad	43.68	9.34	44.96**	9.83
Adopted By:				
Foster Parent	0.5002	0.5000	0.5884**	0.4921
Relative Over 49	0.0723	0.2589	0.0992**	0.2990
Different Race	0.0817	0.2739	0.0712**	0.2571
Observations	5,729		26,380	

** Significantly different at the 5% level. * Significantly different at the 10% level. The sample is restricted to white children under 18 who were adopted from 2000-2003 from the public welfare agency. Thirteen states were omitted due to incomplete reporting or because they do not have a strict cutoff for special needs designation by age. Additionally, children who were designated as special needs for a reason other than age (race, sibling group, medical condition, or other) are dropped from the sample. Source: AFCARS data, 2000-2003.

Table 2. Minimum Age for Special Needs Designation, by State

State	Minimum Age for Special Needs Designation	Number of Chidren in Regression Sample	State	Minimum Age for Special Needs Designation	Number of Chidren in Regression Sample
Alabama	8	491	Nebraska	8	455
Alaska	8	18	Nevada	6	102
Arizona	6	736	New Hampshire	6	89
California	3	6,082	New Jersey	10	136
Colorado	7	986	New Mexico	5	397
Connecticut	8	438	North Dakota	7	227
Delaware	8	42	Ohio	6	1,717
District of Columb	2	0	Oklahoma	8	471
Florida	8	1,320	Oregon	8	258
Illinois	1	2,785	Pennsylvania	5	1,315
Indiana	2	284	Rhode Island	12	429
Iowa	8	1,142	South Carolina	10	212
Louisiana	Boys: 11; Girls: 12	359	Tennessee	9	562
Maine	5	885	Texas	6	1,189
Maryland	6	144	Utah	5	430
Michigan	3	4,432	Virginia	6	454
Mississippi	6	190	Washington	6	2,004
Missouri	5	1,314	Wisconsin	10	50
Montana	6	546	Wyoming	6	61

** Significantly different at the 5% level. * Significantly different at the 10% level. Observations are from AFCARS 2000-2003. The sample is restricted to white children under 18 who were adopted from 2000-2003 from the public welfare agency. Thirteen states were omitted due to incomplete reporting or because they do not have a strict cutoff for special needs designation by age. Additionally, children who were designated as special needs for a reason other than age (race, sibling group, medical condition, or other) are dropped from the sample. Source for age minimums: North American Council on Adoptable Children,www.nacac.org/subsidy_stateprofiles.html.

Table 3. Effect of Special Needs by Age Designation on Subsidy Receipt and Amount: First Stage of IV Estimation

	Dependent Variable	
Independent Variable	Subsidy Received	Subsidy Amount, in Hundreds of Dollars
Qualifies for Special	0.1815**	0.6412*
Needs Status by Age	(0.0427)	(0.3651)
Age at Adoption	0.0063**	0.1211**
	(0.0020)	(0.0322)
Male	0.0045	0.4221**
	(0.0046)	(0.0695)
Medical Condition	0.0390	-0.6773**
	(0.0392)	(0.3293)
Hispanic	0.0263	0.3145
	(0.0228)	(0.3364)
South	-0.1861**	-1.8034**
	(0.0897)	(0.6056)
Midwest	0.0561	-0.2268
	(0.0725)	(0.7892)
West	-0.0084	0.8367
	(0.0736)	(0.8090)
2001	0.0087	0.3106
	(0.0164)	(0.1954)
2002	0.0090	0.2906
	(0.0189)	(0.2486)
2003	-0.0126	1.5443
	(0.0186)	(1.2723)
Constant	0.6458**	3.6121**
	(0.0824)	(0.7091)
Observations	30,587	25,114
R^2	0.1426	0.1151

** Significantly different at the 5% level. * Significantly different at the 10% level. The instrumental variable is a dummy equal to one if the child qualifies for special needs by age designation in his or her state. Results are from an OLS regression, with standard errors clustered at the state level. The sample is restricted to white children under 18 who were adopted from 2000-2003 from the public welfare agency. Thirteen states were omitted due to incomplete reporting or because they do not have a strict cutoff for special needs designation by age. Additionally, children who were designated as special needs for a reason other than age (race, sibling group, medical condition, or other) are dropped from the sample. Source: AFCARS data, 2000-2003.

Table 4. OLS and IV Estimation of Effect of Subsidy Receipt and Amount on Adoption Outcomes

	Effect of Receiving Any Subsidy		Effect of $100 Increase in Subsidy Amount	
Dependent Variable	OLS	IV	OLS	IV
Time to Finalization, in Days	9.77	394.92*	6.84*	122.51*
	(16.65)	(210.94)	(3.64)	(61.38)
Age of Adoptive Mother	0.50**	9.56**	0.07*	2.39*
	(0.22)	(2.45)	(0.04)	(1.30)
Age of Adoptive Father	0.24	9.38**	0.10**	2.62*
	(0.23)	(2.49)	(0.03)	(1.39)
Adopted By:				
Foster Parent	0.0761*	-0.1251	0.0069*	-0.0529
	(0.0392)	(0.3709)	(0.0038)	(0.0906)
Relative Over 49	0.0063	0.2461**	-0.0034	0.0636
	(0.0079)	(0.1117)	(0.0020)	(0.0415)
Different Race	-0.0033	-0.1650	0.0018	-0.0611
	(0.0073)	(0.1798)	(0.0017)	(0.0693)

** Significantly different at the 5% level. * Significantly different at the 10% level. The instrumental variable is a dummy equal to one if the child qualifies for special needs by age designation in his or her state. Results are from an OLS regression, with standard errors clustered at the state level. The sample is restricted to white children under 18 who were adopted from 2000-2003 from the public welfare agency. Thirteen states were omitted due to incomplete reporting or because they do not have a strict cutoff for special needs designation by age. Additionally, children who were designated as special needs for a reason other than age (race, sibling group, medical condition, or other) are dropped from the sample. Source: AFCARS data, 2000-2003.