

The Child Adoption Marketplace: Parental Preferences and Adoption Outcomes

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Abstract

In the United States child adoption costs vary considerably, ranging from no out-of-pocket expense to \$50,000 or more. What are the causes for the variability in adoption expenses? We administered a survey to a sample of Michigan adoptive families to link adoptive parent characteristics, child characteristics, and adoption-related expenses and subsidies. We then estimate “hedonic” regressions in which adoption cost is a function of child characteristics. The analysis shows that most of the variation in adoption costs is explained by child characteristics. In particular, costs lower for older children, children of African descent, and special needs children. Findings inform policies regarding the transition of children from foster care to adoptive families.

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I. Introduction

Child adoption costs vary considerably, ranging from virtually no out-of-pocket expenses to \$50,000 or more. What factors determine the costs of child adoption? Why is there significant variability in child adoption costs? Are adoption costs related to the characteristics of the child being adopted? Are some adoptive parents willing to pay more in order to adopt a child with a particular set of parent-identified characteristics? While child welfare professionals generally acknowledge that some adoptive families have strong preferences for children with certain characteristics, these issues are not often framed within the context of a “market”. Economists typically characterize the price of a good or service as being related to the characteristics embodied in that good or service. In a sense, when potential adoptive parents consider child adoption, they must choose an adoptive child and they must choose the mode through which they will experience adoption based on some criteria. In some cases, adoptive parents might make choices based on the physical characteristics of a child. Consequently, if potential adoptive parents have especially strong preferences for certain characteristics, such as a new born child, or a child of a particular race, they may be willing to pay additional costs to obtain a child with that set of characteristics. At the same time, decision makers in human services departments and adoption agencies recognize this reality, and develop policies/subsidies aimed at placing all children, regardless of characteristics, into loving homes.

In this sense, the “market” framework may be useful for understanding parental and professional behavior and human services policymaking. Our core hypothesis is that there is a systematic and measurable relationship between adoption costs and the adoptive child characteristics as well as other characteristics of the adoption experience. Strong preferences for certain characteristics among some adoptive parents can result in the emergence of cost

differentials across different types of adoptable children and adoption experiences in the “market.”

Differentials in willingness to pay for various adoptive child characteristics can arise in several ways. Adoptive parents may perceive a higher cost of caring for a child of certain characteristics. For example, caring for a child with special needs may entail significant additional emotional and medical costs. In such a case, there is an economic rationale for a reduced willingness to pay by the potential adoptive parent, and there is a strong rationale for offering subsidies as compensation for these additional costs if the goal is to place such children into a stable home environment. Similarly, a parent may perceive additional psychological/social/emotional costs associated with interracial adoptions or the adoption of an older child, and therefore may be willing to pay a premium to have a child of the same race or of a younger age.

The objectives of this research are twofold. The first objective is to determine the underlying factors responsible for the significant differentials in the costs associated with adoption. In the United States, employment laws and legal constraints in other markets prevent one from fully acting on preferences regarding characteristics such as age, gender or race. For example, it is illegal to give preferential treatment in the hiring process to workers with certain characteristics that are unrelated to the specific qualifications such as education, training and experience.¹ However, there are no such legal constraints in adoption decisions. In fact, recent legislation encourages the placement of children in homes regardless of race or ethnicity.²

¹ ["Affirmative Action: History and Rationale"](http://clinton2.nara.gov/WH/EOP/OP/html/aa/aa02.html). Clinton Administration's Affirmative Action Review: Report to the President. July 19, 1995. <http://clinton2.nara.gov/WH/EOP/OP/html/aa/aa02.html>.

² The Multiethnic Placement Act of 1994 (MEPA) and the Interethnic Adoption Provisions of 1996 removed legal barriers to interracial adoption (Brooks, *et al.*, 1999).

The adoption “market” therefore provides a unique opportunity to examine the degree to which adoptive parents’ preferences for adoptive child characteristics are expressed and translate to differences in the costs of adoption. Consequently, differentials in adoption costs will emerge under two conditions: 1) At least some adoptive parents have strong preferences for specific characteristics and are willing and able to pay for those characteristics; and 2) there is a relative shortage of adoptable children who possess such characteristics. This first objective addresses a primary research question that will shed light on adoptive parent preferences related to race/ethnicity and other child characteristics. This research offers a fresh look at an old question: What measurable behavioral responses emerge from our perceptions of race, gender, age, and other human characteristics? The adoption “market” serves as a lens through which to examine how society values such characteristics. The study therefore offers a unique evaluation of societal preferences in general as revealed in a particular “market” that has no legal restrictions on the expression of such preferences.

A second objective of this research is to use the cost differential estimates to inform policies regarding the foster care to adoption transition. In recent years, nationwide there are typically more than 100,000 foster care children who are eligible for adoption; only about a third of those are actually adopted. Further, adoption rates are lower for African American children than for Caucasian children, and lower for older children.³ With the 1980 passage of the Adoption Assistance and Child Welfare Act (AACWA, P.L. 96-272), states began offering adoption subsidies in order to encourage adoption and reduce the length of stay in foster care.

However, states differ considerably in the size of and conditions under which the subsidies are made available. For example, in Michigan the Department of Human Services

³ According to the U.S. Department of Health and Human Services, Children’s Bureau, children waiting to be adopted are those whose parents’ rights have been terminated and/or with a stated case goal of adoption.

departments offer pre- and post-adoption subsidies to adoptive parents to cover the costs of adoption and assist in the ongoing care of children adopted through the foster care system.⁴

This research provides useful information to human services policymakers in determining and calibrating subsidy amounts. In some cases, the subsidies offered may be larger than is required, leading to inefficient use of limited resources. In other cases, the subsidy may be insufficient and thus children may remain in foster care for an extended period and may even age out of the system.⁵ Further, insufficient or misallocated post-adoption subsidies could result in considerable family stress and the inability to access needed physical and mental health services.

In the interests of the child, a key objective is to achieve permanency⁶; adoption is a clear path to permanency and thus improved overall well-being of the child. Further, prolonged periods in foster care may be an inefficient use of public monies as it is very costly to fund a child in foster care. Nationwide, thousands of adoptable children remain in the foster care system. The ultimate policy objective of this research is to provide assistance to human services departments in utilizing limited resources more efficiently, thus helping to achieve permanency and improve the well-being of children who find themselves in the foster care system.

In the next section, we provide a brief review of the most relevant research. In section 3, we discuss our research design and methods, and section 4 presents the survey instrument and data. In section 5, we present our empirical analysis, and section 6 concludes.

II. Literature Review

In this section, we present a brief review of several strands of research that are connected to the present research. Specifically, we consider the economic research on foster care policies

⁴ For details on Michigan's foster care adoption policies, see http://www.michigan.gov/dhs/0,1607,7-124-5452_7116---,00.html.

⁵ Once a foster care child reaches the age of 18, he/she is no longer a ward of the state and is considered an adult.

⁶ Permanency refers to the placement of a child into a permanent home.

and child adoption. We also offer a discussion of the now large body of work using the hedonic approach in a variety of contexts, including wage determination.

Perhaps the earliest work focusing specifically on child adoption was conducted by economists is that of Landes and Posner (1978). In this article the authors point to the “shortage” of “white babies” and the “glut” of “black babies” as evidence of disequilibrium in the market for babies. They argued that institutions and regulations prevent differential prices from emerging in the market such that the market for different types of babies would clear. In short, the authors argued that if a more formal market for “baby selling” were allowed, price differentials for babies of various characteristics would emerge and the market would clear, thereby improving outcomes.

Today, despite various policies designed to place children regardless of race, special needs, and other child characteristics, placement rates differentials still persist. Studies by Barth (1997) and Brooks and James (2003) examine probabilities of a child being adopted based on factors such as race and age. Generally, placement rates in the United States are lower for older, special needs, and African American children. Focusing more specifically on foster care, Wulczyn (2003) examines the duration of children in foster care and exit probabilities. Using hazard modeling analysis, he shows that length of stay in foster care is longer for African American children than otherwise similar Caucasian children, but that the differential has become smaller in recent years.

The work of Argys and Duncan (2008) illustrates how policies can affect adoption decisions. Specifically, they show that a decision on the part of a foster parent to adopt his/her foster child may carry a significant economic consequence: Adoption could mean a significant reduction in financial support the family receives to assist in the care of the child. Importantly,

differentials between foster care payments and post-adoption subsidies play a significant role in adoption decisions. That is, post-adoption subsidies that match foster care payment amounts (relative to post-adoption subsidies that are less than the foster care payment) increase the probability of adoption. Similarly, in a national study of adoption from foster care Hansen and Hansen (2006) and Hansen (2007b) find that the adoption subsidy rate is an important policy-related determinant of adoptions from foster care. In a nationwide study of adoption subsidies, Hansen (2008b) also shows that though federal adoption subsidies are intended to be an entitlement to children, in fact states use the characteristics of adoptive parents to determine the subsidy amounts.

Some research has sought to evaluate the costs and benefits to society of adoption through foster care. For example, Hansen (2007a) shows that in the U.S. a child who is adopted from foster care is likely to earn \$100,000 more over a lifetime than counterparts who “age out” of foster care without a permanent family. Further, she estimates that every adoption from foster care in the U.S. yields a net saving of \$350,000 in the child welfare, special education, juvenile justice, and welfare systems (adjusted to 2008 dollars). Her estimates suggest that every dollar spent on the adoption of a child from foster care yields about three dollars in benefits to society. Similarly, Barth et al (2006) also show that relative to foster care, adoption achieves cost savings for government.

In another article, Hansen (2009) suggests that the way post-adoption subsidies are offered is insufficient for dealing with the uncertainty/risk introduced when a family adopts a child. For example, one may not know the potential genetic history, or the degree of abuse that may have significant emotional/health repercussions as the child gets older. Hansen argues that insurance should be added as one type of subsidy to alleviate concerns that these potential

unknown future costs will be an excessive burden for the adoptive family. Such a mechanism may be more effective and efficient than offering monthly cash assistance sufficient to induce families to enter the adoptive family pool.

As we discuss in detail later, our framework for evaluating adoption costs relies on the hedonic approach. The key insight that emerges from this type of evaluation is that the adoption experience embodies a set of attributes (e.g., child characteristics, the experience of travelling to a foreign country, etc...), and each attribute offers a benefit to the adoptive parent. For this reason, we offer a discussion of how the hedonic analysis approach has been used to evaluate implicit prices of the individual components embodied in a good or service.

As first modeled by Rosen (1974), goods and services consist of bundles of characteristics. Hedonic analysis uses observations on the overall good or service to obtain implicit prices for the individual components of the good or service embodied therein. Hedonic analysis has been used extensively to estimate willingness to pay for product characteristics, evaluate differences in quality of life, assess the willingness to pay for various environmental quality attributes, and determine wage differentials in labor markets.

Hedonic pricing has been used extensively in housing markets to evaluate willingness to pay for characteristics embodied in a home (see for example Palmquist, 1984 and Orford, 2000). Similarly, Ready and Berger (1997) apply the hedonic price model to farmland to estimate the monetary value of external benefits and costs of preserving farmland. Other studies have used the technique to evaluate the monetary effects of poor environmental quality, as related to causal factors such as air pollution, sedimentation, and landfills (Freeman, 1979; Bejranonda, Hitzhusen, and Hite 1999).

The hedonic technique has also been used to evaluate willingness to pay for various product attributes in durable and non-durable goods markets (Berndt, 1990; Anstine, 1997; Stanley and Tschirhart, 1991). For example, Berndt (1990) estimates hedonic price models for the automobile and computer industries.

There is also a large related literature that has examined various forms of discrimination in the labor market. Researchers have studied the role that factors such as race, ethnicity, gender, age, disabilities, obesity, and even beauty play in wage determination. While the scope of this body of research is too expansive to summarize here, this work amply illustrates that decision makers may place value on worker characteristics that are often times unrelated to worker productivity, and this is manifested in differential labor market outcomes.⁷

While there are a number of studies from a variety of fields (foster care and adoption research, labor markets and discrimination, and hedonic analysis) that inform the current study, researchers have not used the hedonic approach to explicitly measured how the preferences of adoptive parents may be reflected in an “adoption market,” which result in a pattern that links adoptive child characteristics to adoption costs. We offer a contribution to the existing research by obtaining specific implicit prices for the various characteristics of the child, thereby informing the range of subsidies that could be made available to adoptive parents to place children into homes. The present study also provides insights on the potential barriers to placement of certain types of children into adoptive homes. We now turn to the presentation of our research design and the methods we use to evaluate the adoption market.

III. Research Design and Methods

⁷ See Cain (1986) for a review of this literature. For specific examples of this research see: Bertrand and Mullainathan (2004), Blau and Beller (1992), and Borjas and Tienda (1985) [race/ethnicity]; Bloom and Grenier (1992) [linguistic minorities]; Adams (2004) [age]; Baldwin and Johnson (1994); Famulari (1992); Kidd, Sloan, and Ferko (2000) [disabilities]; Carr and Friedman (2005) [obesity]; and Hammermesh and Biddle (1994) [physical attractiveness].

We developed a survey instrument in order to match parent and child characteristics with detailed information about the full range of adoption-related expenses. Further, our analysis requires that we obtain a representative sample of adoptive children who have been adopted through different agencies and organizations. It should be noted that existing surveys do not provide the full array of information we require for our analysis. For example, although the Adoption and Foster Care Analysis Reporting System (AFCARS) contains extensive survey data, it does not provide detailed information on adoption expenses incurred.

The survey was designed to obtain detailed information regarding family characteristics, the characteristics of the adopted child, and the various costs incurred in adopting the child. Identifying the full costs of adoption requires a detailed discussion, which we provide later. These data are used to estimate a hedonic price regression in which the sum of all adoption costs (the price variable) is assumed to be a function of the specific characteristics of the child. We hypothesize that variation in adoption costs is systematically related to child characteristics, such as race/ethnicity, gender, age, special needs, and other characteristics.

Specifically, we use the hedonic price technique to determine estimates of the willingness to pay for various adoptive child characteristics. While it is perhaps unconventional to refer to adoption decisions as being made in the context of a market, we assert that child adoption decisions are indeed made in the market place. Adoptable children, like goods and services, embody a set of characteristics. Adoptive parents often express their preferences for particular characteristics, and we propose that at least some parents are willing to pay more to adopt a child that embodies a preferable set of characteristics. While many child characteristics are not quantifiable, many are measurable. Our research method is designed to evaluate willingness to pay for these measurable attributes. The hedonic pricing model treats goods and services (in our

case an adoptive child) as providing a collection of characteristics. However, it should be acknowledged that the process of allocating adoptable children to adoptive parents contains elements other than price. These other elements are diverse and differ from agency to agency. For example, adoption agencies may require that adoptive parents be married and of a certain age (typically between the ages of 25 to 40). Some agencies will only place children in homes with parents who do not have and/or are unable to conceive children of their own. Financial resources and the health of parents are also considerations.

In the context of thinking of adoption as market, adoption agencies sometimes offer different fee-based opportunities for potential adoptive parents to play a role in the adoptive child's life prior to placement. For example, some adoption agencies offer the opportunity for an adoptive couple to pay for the nutritional and healthcare needs of the birth mother during pregnancy. In this sense, different agencies offer different combinations of services at different prices; adoptive parents choose among the agencies that offer the best chance at obtaining a child with the desired characteristics. Before presenting the empirical analysis, we first offer a brief theoretical discussion that is used to guide our empirical analysis.

In the case of adoption decisions, each adoptive parent receives a different benefit (utility) from the child adoption experience. The utility (U) of the adoptive parent is a function of a composite good, Y , the adoptive child experience, A , and taste parameters, T . This relationship is expressed as $U = U(Y, A, T)$. The adoptive child experience includes a number of components. Embodied in A are the specific characteristics of the adoptive child, but there are other considerations. For example, adopting a child internationally often requires travel to a foreign country. The adoptive parent may develop a strong connection with the adoptive child's home country, home city/village, and orphanage. These experiences can be quite different than

the experience of adopting a child domestically. Further, with many domestic adoptions there is often a possibility of complications resulting from a birth parent who wishes to resume a relationship with the adopted child. International adoptions are far less likely to develop such complications. For these reasons, some adoptive parents may be willing to pay for an international adoption experience. Conversely, international adoptions may pose a set of complications for prospective adoptive parents. In our regression analysis we consider these various aspects of the adoption experience.

Utility is maximized subject to a budget constraint, $P_Y * Y + P_A * A = M$, where P_Y represents the price of the composite good Y , P_A represents the cost or “price” of providing for the adoptive child, including the initial costs of adoption⁸, and M is family income. Constrained optimization yields a set of demand functions where $A = A(P_Y, P_A, T, M)$. Each adoptive parent has a collection of indifference curves representing his or her trade-off between the different adoption experiences (including preferred child characteristics) that they want; higher indifference curves are associated with higher utility levels and higher willingness to pay for the adoption experience. An adoptive child experience offers a set of characteristics that matches the preferences of the adoptive parent. The bid function for the adoption experience (θ) is determined by the price, P_A , a vector of child attributes and other characteristics of the adoption experience, Z , and the benefit of the adoption experience to the parent, π : $\theta = \theta(P_A, Z, \pi)$. In this framework, each child adoption has a different set of attributes and thus (potentially) a different cost. Hedonic analysis uses variation in adoptive child characteristics and other

⁸ To simplify, we assume that except for the adoption costs (and subsidies), the costs of raising a healthy child are equal across all children (adopted and non-adopted). Of course, caveats would have to be made in the case of special needs, etc... In some cases, post-adoption subsidies are available to adoptive families to assist in the expense of raising the child. As we discuss later, these subsidies are expressed in net present value terms.

adoption experience attributes and adoption costs to generate estimates of implicit costs (or prices) for each of the child adoption attributes.

In the hedonic framework, the market is assumed to be in equilibrium. That is, the adoptive child experience offer function (of the adoption agency) is equal to an adoptive parent's bid function so that the marginal cost of the adoption experience is equal to the marginal valuation of the adoptive parent. Differences among adoptive parents in their desire for different adoption experiences and child attributes, and differences in the types of experiences and adoptive child attributes, result in a heterogeneous adoption market. If the assumptions of the hedonic framework hold true for the child adoption market, the cost (or price) of adopting a child is a function of both the characteristics of the child and the other characteristics of the adoption experience.

Given that the "adoption market" does not necessarily operate in the way a market for a typical good or service might, further discussion is in order. In particular, we must consider what being in "equilibrium" (a key assumption of the hedonic framework) means in the case of adoption. We think that adoption activities can be characterized as a market and that the adoption market is in equilibrium, and that this is particularly true in the cases of international and domestic non-foster care adoptions. Some adoption costs are universal, such as home study and court costs, whereas other costs are adoption specific and vary depending on a number of factors. For example, adoptive parents may have the option to pay costs associated with social work services to assist in the matching of a child with the prospective family, advertising expenses associated with finding child with the desired characteristics, birth parent counseling, birth mother nutritional and medical expenses, adoptive parent preparation and training and international travel and other international adoption expenses. . The choice on the part of

prospective adoptive parents to use and pay for some of these services is related to the preferences they have for child characteristics. For example, adoptive parents with strong preferences might be willing to travel internationally, utilize the services of a social worker to find a good match, advertise, and pay for birth parent nutritional needs and medical expenses. The choice to use such services depends on the adoptive parents' willingness to pay for such services, which in turn depends on their preferences for child characteristics. If domestic children fail to be matched with an adoptive family and no other placement options are available for the child, the child may become a ward of the state and be placed in the foster care system. Similarly, in the international arena, children not being matched with adoptive parents either become wards of the state and/or are sent to an orphanage. In this sense, the market for adoptive children works in a fashion similar to a typical market. If there is excess supply, the price may drop to zero. If a typical good is deemed undesirable or inferior and the costs of holding inventory are high, the good may be disposed of. Fortunately, we do not "dispose" of a child, but when a child becomes a ward of the state or is placed in an orphanage, the child can be thought of as being taken off the primary market and placed into a secondary market. In the United States, foster care can be considered a secondary market; many foster care children are eligible for adoption, but every year thousands of foster age out of the system without having been adopted. With properly scaled adoption subsidies that are informed by the preferences of parents, it may be possible to substantially reduce the number of children aging out of the foster care system. Our goal is to measure the value of adoptive these parent preferences as expressed in the adoption market using hedonic analysis in order to better inform subsidy policies.

To identify the factors preferred by adoptive parents and the range of characteristics that might be considered in an adoption decision, in consultation with adoption specialists, we

prepared a comprehensive, four-page hardcopy survey titled *Questionnaire about Adopting a Child* (which is available upon request from the authors). In the next section, we provide a detailed discussion of the type of information we collected from this survey.

Our statistical analysis is based on the following equation:

$$P_{Ai} = \alpha + \beta(X_i) + \varepsilon_i$$

where P_{Ai} represents the cost (or price) of the adoption of child i , X_i is a set of adoptive child characteristics as previously described, β is the corresponding vector of parameters and α the constant term to be estimated, and ε_i is the error term. The primary objective of this examination is to provide clear estimates of the willingness to pay for various observable adoptive child characteristics.

IV. Survey and Data

The survey is designed to capture three sets of information: 1) characteristics of the adoptive families; 2) detailed characteristics of adoptive parents' most recently adopted child/children; and 3) the detailed costs of child adoption, including subsidies for pre- and post-adoption. We include a range of questions to capture information about the adoptive family, including age, race, income, education, motivations for adoption, and religious beliefs. Similarly, we include a series of questions to identify both the characteristics of the adoptive child and the adoption experience, including domestic vs. international, foster care vs. other adoption, age, gender, race, ethnicity, skin and eye color, and special needs. It is also critical for our analysis that we fully identify the costs (including tax credits and subsidies) of child adoption. As we discuss later, the survey instrument captured detailed information on costs as well as subsidies.

We conducted a sample survey of 1,183 adoptive families from a total Michigan population of 8,331 non-relative adoptive families who adopted over the 2007-2009 period.⁹ Importantly, the sample includes adoptive families who adopted children through a variety of methods: through private legal services, through private adoption agencies, and through the foster care system. This sample included families involved with special needs adoptions, infant adoptions, and international adoptions.

The survey was sent by post in June 2010, and a follow-up reminder postcard was sent two weeks later. Table 1 shows the number of adoptions that were voluntary release, direct consent, permanent wards, and international adoptions for each adoption agency participating in the study.¹⁰ In total, 1,183 potential respondents were identified by adoption agencies, and surveys were mailed to these individuals. About 100 surveys were returned by the U.S. Postal Service due to wrong address; thus 1,083 families actually received the survey. Of the surveys that were received by adoptive households, 223 families returned the survey (21 percent response rate), yielding 182 useable surveys.¹¹ A number of families (39) adopted more than one child in their most recent adoption experience. In the hedonic framework, it is appropriate to use the adoptive child as the unit of analysis; thus the total number of observations based on number of adopted children is 236.¹² Given that there were 8,331 children adopted in Michigan between

⁹ The decision on the part of the agency to participate in the study was voluntary. Each agency that chose to participate in the study sent the survey to all families with whom it placed an adoptive child in 2007, 2008, and 2009.

¹⁰ To protect the privacy of the participating agencies and adoptive families, the names of participating agencies are omitted. We exclude within-family adoptions (e.g., a grandparent adopting a grandchild) from our sample. Voluntary release refers to the surrender of newborn by parent their parental rights to their newborn child. Direct consent refers to the agreement by a parent, or a person or agency acting in place of a parent, to relinquish a child for adoption and release all rights and duties with respect to that child. Permanent ward refers to children in foster care who become permanent wards of the state.

¹¹ Most of the non-useable surveys were adoptions by family members as noted in the previous footnote.

¹² In some regression estimates, we used the adoption experience (most were single child adoption, but some experiences entailed the adoption of two or more children at once) as the unit of analysis. These estimates, which are available upon request, yielded results that were qualitatively similar to those presented in the paper.

2007 and 2009, our sample includes 2.2 percent of all adopted children in Michigan over this period.

Given that we use a limited sample frame, there is a concern about the degree to which the sample is representative of the population of Michigan adoptive children. Table 2 provides a comparison proportions the adoptive children in Michigan based on 2000 census of adoption agencies (column 1) with our sample (column 2) with regard to key child characteristics (race, international adoption, and special needs). Our sample has similar portions to Michigan with regard to children who are Caucasian, Asian, and International, but differ from the Michigan population in terms of the proportions of children who are African American, multi-racial, and special needs. All of the statistical analyses reported in this paper use the appropriate survey weights based on adoptive child characteristics presented in column 1 of Table 2. The weights insure that our sample reflects the actual adoptive child population in terms of race/ethnicity, special needs, and international adoptions. Nevertheless, there is still the potential for sample selection bias to be present in our analysis. In addition, our sample frame is for Michigan and should not be regarded as generalizable to the entire United States. The purpose to the survey was to conduct a preliminary evaluation that would motivate and inform a more comprehensive study to be conducted at a later date. Given the potential controversy the associated with explicitly linking adoption costs to specific child characteristics, we were fortunate to have administered this small scale survey. Despite these limitations, the analysis present in this paper offers a useful initial evaluation that informs foster care/adoption policies.

Summary statistics of child characteristics are shown in Table 3a. The first set of variables includes several measures of adoption costs. The survey was designed to capture a full range of adoption-related expenses: Pre-placement assessment /home study; adoptive parent

counseling; travel expenses; attorney fees; fees charged by an international adoption agency; fees charged by international country of origin; court filing fees; opportunity cost of adoptive parent time; and biological parent counseling, medical expenses, living expenses, and travel expenses, etc..., paid for by the adoptive parents. Definitions for the alternative cost measures are provided in Table 3a and other variable definitions are provided in the Appendix Table A.

The first variable is Adoption Cost, which represents the total out-of-pocket expense. For the 237 children, the average out-of-pocket expense is \$10,704. There is a wide range measured by the standard deviation; some children had zero costs while the maximum cost out of pocket for an adopted child was \$50,000. We also report other costs and pre-adoption subsidies associated with adoption: the opportunity cost of the parents' time off to complete the adoption (\$2,083)¹³, and array of pre-adoption subsidies such as federal and state tax credits, employer provided subsidies, and any other sources of pre-adoption subsidies. In the context of hedonic analysis, it is appropriate to focus on out of pocket expenses. The hedonic model is based on the idea that buyers who value certain characteristics bid up the "price" in the market, making it such that children with such characteristics cost more for everyone. Whether a family claims a tax credit or qualifies for a subsidy is a function of family characteristics and not child characteristics. Further, search costs (opportunity costs of waiting in the adoption cost) are not typically included as a component of price in typical hedonic analyses. We therefore focus the first portion of our analysis on out of pocket expenses. We note, however, that the results are qualitatively similar if we include opportunity costs and pre-adoption subsidies in the calculation of adoption costs.¹⁴

¹³ Opportunity cost is calculated for both parents and is equal to the total value of time off from work to attend to adoption-related activities.

¹⁴ These estimates are available from the author upon request.

Post-adoption subsidies, however, require a more detailed explanation. In Michigan, the Department of Human Services offers adoptive parents the opportunity to receive monthly post-adoption support for children adopted through the foster care system. This subsidy is negotiated at the time of adoption and varies according to the needs of the child. However, the post-adoption subsidy cannot exceed the foster care rate the child received, or would receive, in a family foster care home prior to adoption.¹⁵ To evaluate the subsidies, we must consider the fact that typically an adoptive family will receive a monthly subsidy until the child reaches the age of 18. Thus, we calculate the present value of the stream of payments using a five percent discount rate. The post-adoption subsidy in Michigan can be substantial. While the average present value of the post-adoption is about \$43,000, as shown in the “Max” column for present value of annual post-adoption subsidy in Table 3a, the highest value (as reported by the parent) in our sample is \$506,935.¹⁶ Further, post adoption subsidies may depend on both foster child characteristics as well as family characteristics (Hansen, 2008b). Thus, in regressions focusing on the post-adoption subsidy it will be important to include both child and adoptive family characteristics in the specification.

Consider now the child characteristics. For those familiar with adoption it is not surprising to see that the racial make-up of adoptive children is quite different than the Michigan population as a whole. Specifically, the percentage of children available for adoption (in our sample and in the population of adoptable children) who are Caucasian is much lower and the percentages of African American and multi-racial children are much higher than the general population. However, the proportions of children who are of Asian or Hispanic descent roughly

¹⁵ For more details, see “Michigan’s Adoption Subsidy Program: Information for Prospective Adoptive Parents” prepared by the State of Michigan Department of Human Services, http://www.michigan.gov/documents/DHS-Pub538_132926_7.pdf.

¹⁶ In this case, the child is one with special needs.

match the general population in Michigan. We also report skin color as identified by the adoptive parents (very fair or somewhat fair, brown, somewhat dark or very dark) as well as information on special needs. About 45 percent of the sample was categorized as having a special need, with “emotional impairment and behavior condition” as the highest sub-category of special need at approximately 20 percent. A number of children had multiple special needs. Finally, we also included indicator variables for whether the child was adopted by a foster parent and whether the child was an international adoption. Twenty-six percent of children in the sample were adopted by a foster parent¹⁷, and 20 percent of children were adopted internationally.

In Table 3b, we report the same set of statistics as in Table 3 except summary statistics are reported for each racial class: Caucasian, African American, Asian, Hispanic, and Multi-race. These data show remarkable differences in costs across these subsets. Namely, the costs of adopting children of Multi-race and of African American descent are much lower relative to the other categories. Adoption costs for Caucasian children are higher than multi-race and African American costs, but substantially lower than Asian and Hispanic child adoption costs. Nearly all Asian and Hispanic adoptions are international, and thus entail substantial travel costs and additional administrative costs. In the context of the hedonic framework, one must ask why adoptive parents are willing to pay a higher cost when a domestic child is available at a lower cost. There are multiple potential explanations. For example, adoptive parents may experience a “warm glow” or good feeling for having adopted internationally. An international adoption experience may offer benefits to the parents in that the parents not only form a new relationship with the child but also with the country from which the child came. Alternatively, a parent may

¹⁷ Also represented in our sample are adoptions through foster care that were by families who were not first foster parents of the adopted child.

believe that he/she has a better chance at obtaining a child with the preferred characteristics. In any case, in choosing an international adoption the adoptive parent reveals his/her preference; we hope to uncover the implications of these expressed preferences in our analysis.

Table 4 provides the summary statistics for the adoptive parent characteristics. Household income of adoptive parents in this sample is exceptionally high, more than twice the Michigan average. Adoptive parents are also primarily Caucasian, Christian, and highly educated. About 90 percent of respondents reported that they were Caucasian and held Christian beliefs (Catholic, Protestant, or Other Christian), and more than 60 percent held a Bachelor's degree or higher. Almost half of adoptive parents report not being able to have a birth child of their own. In terms of race/ethnicity, our sample is roughly proportional to the nonrelative adoptive parent population in Michigan.

V. Regression Analysis

Relationships between Parent Characteristics and Child Characteristics

To examine the connection between child adoption costs and child characteristics, it first is useful to consider whether child characteristics are correlated with the characteristics of adoptive parents.¹⁸ Are more highly educated adoptive parents more (or less) likely to adopt a special needs child? Similarly, are higher income parents more (or less) likely to adopt children through foster care? Establishing that there is a relationship between adoptive parent characteristics and adoptive child characteristics is a first step in affirming the notion that parents with preferences for certain child characteristics may in fact be willing to incur additional adoption expenses to obtain a child with such characteristics. We therefore estimate a series of

¹⁸ Chandra and Maza (1999) conduct a nationwide evaluation of the characteristics of adoption seekers and their preferences for adoptive child characteristics, showing that adoption seekers express strong preferences for child characteristics such as age, race, gender, and disabilities. Hansen (2008) examines the structure of families who adopt foster care children. The analysis we offer here is based on our limited sample, but is useful for motivating our primary hedonic analysis.

regressions in which various child characteristics are used as dependent variables and are functions of parent characteristics. With the exception of the age of the adoptive child, all child characteristic variables are binary (0-1) indicator variables. These regressions are therefore estimated using a Logit estimation procedure.¹⁹ In addition, in the context of adoptive child race/ethnicity, it is important to use a Multinomial Logit so that coefficient estimates can be interpreted relative to a single reference category. In our estimates, the omitted reference category is Caucasian adopted children.

We offer a brief summary of these results, which are found in Table 5, but do not offer a lengthy discussion. These results suggest that adoptive families with higher income are less likely to adopt through foster care, but tend to adopt older children, all else equal. Higher income families are also less likely to adopt African American children, relative to the base category of Caucasian children. Caucasian/White families are less inclined to adopt boys, less likely to adopt as a foster parent, and less likely to adopt African American and multi-racial children. Adoptive families who characterize themselves as Christian (Catholic or other Christian faiths) are more likely to adopt an African American/Black child than they are a Caucasian child, all else equal. Interestingly, families in the “other Christian” faith category are also more likely to adopt a multi-racial child than a Caucasian child. Older adoptive parents tend to adopt older and special needs children, relative to their younger counterparts.

Generally, families with higher levels of education are less likely to adopt African American/Black children and more likely to adopt Asian and Hispanic/Latino children. Adoptive parents who have at least one birth child at the time of adoption are more likely to adopt as a foster parent and tend to adopt older children, and are less likely to adopt a Hispanic child. Finally, adoptive parents who indicated an inability to have a child by birth tend to adopt

¹⁹ Average partial effects are reported in the Logit regressions.

younger children. With this brief summary, it is clear that parents with certain characteristics have tendencies toward or away from certain child characteristics. In some cases, these relationships are somewhat surprising and informative. As we discuss in some detail later, these results can be used to inform marketing efforts and the matching of children with adoptive parents. This sets the stage for the core portion of our analysis—an examination of the relationship between child characteristics and child adoption costs using the hedonic regression approach.

Hedonic Regression Results: Adoption Cost I and Adoption Cost II

Consider first the Adoption Cost regressions found in Table 6. The estimates found in columns 1-2 represent our core specifications, which is based on the full sample and includes a full range of child characteristics. In columns 3-4, 5-6, and 7-8, we report similar regressions for international, domestic non-foster care, and foster care subsamples. In columns 1, 3, 5, and 7 we focus on race (Caucasian, Black/African American, Asian, Hispanic/Latino), and in columns 2, 4, 6, 8 we focus on skin color (fair, brown, dark).

The full sample specification yields an R^2 of about 0.71, which is high for a cross-sectional analysis; child characteristics explain a substantial amount of variation in child costs. Adoption cost are lower for multi-child adoptions, adoptions via foster care, and higher for international adoptions, all else equal. The multi-child result makes sense in that adoptive parents are able to achieve economies of scale by spreading the fixed costs across the adopted children. The lower costs of adopting a child as a foster parent and the higher costs associated with international adoptions are also intuitive. However, these factors can be thought of as control variables as our main interest is in measuring the linkages between child characteristics and costs. While there is no statistically significant gender differential, we see that adoption

costs are lower for older children (Age). We also observe statistically significant race effects: Relative to a Caucasian child, the costs of a child of African or Asian decent is \$4,900 and \$6,200 lower. In column 2, we see that relative to a “fair” child, children with Brown and Dark skin had costs that were \$2,900 and \$4,600 lower. Hispanic adoption costs were similar to Caucasian costs, however. In these regressions, the Special needs and Physical disability indicator variables were negative but not statistically significant. This initial set of regressions provides an baseline assessment of the relationship between child characteristics and adoptions costs. Consider now the regressions for the international, domestic non-foster care, and foster care samples. The results for the international adoptions indicate a higher overall expense, but a consistent pattern of cost differentials based on child characteristics. Namely, relative to a Caucasian child, children of African and Asian decent have a lower cost. Similarly, relative to children with “fair” skin color, children with brown and dark skin color had a lower cost (about \$8,200 and \$13,700, respectively). However, no cost statistically significant cost differentials emerged for gender, age, or special needs in these regressions. Turning to the domestic non-foster care subsample, we see significant differentials emerging for Age, African American, and children with Physical disabilities. Costs are more than \$600 lower for every year older a child is, and \$4,400 lower for a African American child, relative to Caucasian child. Relative to a healthy child, costs for children with physical disabilities are more than \$4,000 lower. Again, there is no systematic relationship between child gender and adoption costs.

Thus far, we have considered the full sample of adopted children as well as the international and domestic non-foster subsamples. In these regressions, we explain a substantial portion of variation in adoption costs and we observe statistically significant coefficient on child characteristics. Consider now the regression results on the foster care subsample. Note that in

these regressions little of the variation in out of pocket expenses is explained by child characteristics. With the exception of Age (in one regression), none of the child characteristics are significant predictors of costs. This result is perhaps not too surprising because post-adoption subsidies are offered to many foster care children, and we do not account for those subsidies here. Later, we will offer detailed evaluation of the determinants of the post-adoption subsidies.

In Table 7, we present another series of regressions based on the full sample. Because international adoptions are in many ways distinct from domestic adoptions, in these regressions we generate a separate set of coefficient estimates for child characteristics for domestic and international adoptions. Specifically, we interact a domestic adoption binary variable (Domestic) with child characteristics, and then we interact International with child characteristics. As the Table 6 results suggest, we expect that implicit values for child characteristics differ across domestic and international adoptions.

Inspection of the results in Table 7 shows that the regressions explain a substantial amount of variation in costs with the R-square ranging between 0.725 and 0.739, relatively high in the context of cross sectional data. A number of the coefficient estimates are statistically significant. Holding other factors constant, we see that costs of adopting multiple children at the same time are lower. Similar to the results found in Table 6, the costs of adopting a child as a foster parent are also lower, and the costs of adopting internationally are higher. Gender, however, is not a significant determinant of costs.

Consider now the domestic interaction terms. Child age is statistically significant: The costs fall by roughly \$335 to \$368 for each year older the child is. Ethnicity is also important; relative to the adoption of a domestic child of Caucasian descent (the omitted category), adoption

costs for African American children are significantly lower, but there is no cost differential for Hispanic or Multi-racial children. Note that there were no domestic Asian children in our sample. Among domestic children, skin color is not a significant determinant of child adoption costs (see columns 2 and 3). The coefficients on Special needs and Physical Disability are statistically significant, indicating the adoption costs are lower for such children.

We next discuss the international interaction terms. Note that there were no children of mixed race who were adopted internationally. Here, age is not a significant determinant of costs. However, both race/ethnicity and skin color emerge as important determinants of costs. Analogous to domestic adoptions, the omitted racial group among international adoptions is Caucasian. Thus, among international adoptions, relative to Caucasian adoptions African and Asian adoptions have a lower cost. Hispanic/Latino adoption costs, however, are similar to Caucasian adoption costs. It is also interesting that adoption costs for children with “dark” skin tone are lower (by some \$13,000) than for “fair” children and lower than for children of “brown” skin tone as well (column 2). Last, no cost differentials emerged for international children with special needs.

Generally, we find that child characteristics such as age, race, skin color, and special needs play a role in determining adoption costs. Below, we consider post adoption subsidies that are available for adoptions through the foster care system. In these regressions we find that race/ethnicity and skin color are no longer significant predictors.

Regression Results: Post-Adoption Subsidy

The regressions in Tables 6 and 7 do not account for the fact that the State of Michigan Department of Human Services offers significant post-adoption subsidies for children adopted through the foster care system. In Table 8, we present a set of regressions using the post-

adoption subsidy as the dependent variable. As noted earlier, because adoptive parent characteristics play a role in determining the size of the post-adoption subsidy, adoptive parent characteristics are included in these regressions as explanatory variables.²⁰ We offer two sets of post-adoption subsidy regressions. The first two regressions (columns 1 and 2) are based on the full sample of adopted children, and the second set of regressions (columns 3 and 4) are based on the foster care subsample. For the full sample, given that many of the adoptions do not qualify for post-adoption subsidies, this dependent variable is left-censored at zero. We therefore use the Tobit procedure (Tobin, 1958). Because none of the international adoptions qualify for a post-adoption subsidy, the Tobit estimation does not generate estimates of the international indicator variable interacted with the child characteristics. While both approaches yield qualitatively similar findings, because the sample frame and baseline are different, the sizes of the coefficients differ. That is, the full sample includes non-foster care adoptions, where costs, child characteristics, and adoptive parent characteristics differ from the foster care sample.

The Post-adoption subsidy regressions (Table 8) exhibit some notable patterns. First, the evidence here shows that lower income households tend to receive larger post-adoption subsidies; this result suggests that the subsidy program has a progressive nature. Similarly, families with lower educational attainment also receive higher subsidies (columns 1 and 2). However, these are the only adoptive parent characteristics that are correlated with the post-adoption subsidy amount, and they are only present in the column 1 and 2 Tobit results. Subsidies are significantly higher for multi-child adoptions (typically sibling adoptions), for foster parent adoptions, and for special needs children, particularly those with physical disabilities. The average subsidy for a child with a physical disability is roughly \$200,000. Last,

²⁰ However, additional regressions, not shown in this manuscript, indicate that the estimated implicit prices of child characteristics are similar regardless of whether or not adoptive parent income is included in the regressions.

older children also receive larger subsidies. Note, however, that post-adoption subsidies are unrelated to race/ethnicity or skin color. This is not too surprising given that the subsidies are linked to the costs of caring for a child in foster care, and these costs are set by formulae which are independent of race/ethnicity.

To summarize, the estimates presented in Tables 6, 7, and 8 show that for non-foster care adoptions there is a consistent pattern of cost differentials based on child characteristics. However, among foster care children, both the out of pocket expenses and the post-adoption subsidies do not exhibit the same pattern. We think the rate of foster care adoptions could be improved if it were more fully informed by the results we presented on international and domestic non-foster care adoption cost regressions presented in Tables 6 and 7. In the concluding section, we offer a more detailed discussion of the ways the post-adoption subsidy system could be modified to improve outcomes.

VI. Conclusions

This study offers an examination of the “adoption market” using the hedonic technique, revealing new information regarding the link between adoptive parent preferences, willingness to pay child adoption costs, and adoptive child characteristics. While the study provides potentially policy-relevant information, there are limitations that should explicitly be acknowledged. With 236 observations the sample is small and not necessarily representative of the population of Michigan adoptions.²¹ Though we have used proper weighting techniques typically used with samples, we are cautious to draw definitive conclusions based on this limited sample frame. In addition, because the sample includes only Michigan adoptions, one must be careful in drawing inferences to the rest of the nation. Further, it must be acknowledged that elements other than

²¹ We offer our sincere appreciation to the Michigan Federation for Children and Families and the participating adoption agencies for working with us to develop and administer this survey. Without their trust, participation, and willingness to support this effort, the survey would not have been possible.

price can and do play a role in the allocation of adoptable children to adoptive families. Even so, because agencies offer a range of fee-based opportunities for adoptive parents to improve their chances of obtaining a child with desired characteristics, and because adoptive parents can choose among agencies and modes of adoption to best meet their needs, price is important. While the presence of other factors that play an allocative role suggests that caution is warranted in interpreting our analysis in purely “hedonic” terms, this research provides new evidence that price is an important determinant of the placement of children into adoptive homes. Despite these limitations and considerations, this research offers insight on relationships between adoptive parent characteristics, willingness to pay for adoption expenses, and child characteristics.

The findings reported here provide useful information about adoptive parent behavior interpreted in the context of an “adoption market.” Generally, we see that costs are lower for parents who adopt special needs children. Of course, we know that, particularly for special needs children, parents may expend a great deal of emotional as well as other monetary and nonmonetary costs. To some extent, the subsidies serve to offset these other costs which we are not able to fully account for in our analysis. The study also reveals differences in adoption costs across adoptive child age as well as race/ethnicity.

Permanency for children, that opportunity for a life-long connection to a loving family, is a central tenet of child welfare policy. When children are unable to be safely maintained with their families and potential efforts to restore the family unit have been unsuccessful or unwarranted, finding a new opportunity for attachment and love is essential for the child’s long-term wellbeing. From a societal point of view, placement to such children into a stable family environment often results in reduced long-run social costs of addiction, abuse, crime, and prison

associated with adults who lack significant and meaningful social linkages (Hansen, 2007). The present study provides additional information on the potential barriers to placement of certain types of children into adoptive homes.

This research can be used by child welfare policymakers as a guide in setting appropriate post-adoption subsidies to encourage timely placement of “hard to place” children into adoptive families. In Michigan, the current policy is such that post-adoption subsidies cannot exceed the foster care payment that child would receive in the foster care system, and the amount is determined on a case by case basis. This approach reduces the moral hazard in adoption (adopting for the financial benefit) but it does not properly price the societal benefit of establishing a permanent attachment for the child. This study provides parameters upon which the social work decision maker can set the subsidy. In this sense, the efficiency of policy practice could be improved: Placement of some children may require a subsidy that is less than what is currently offered to potential adoptive parents, and in other cases the subsidy required might be more. There are many children who remain permanent wards of the state through adulthood because they are never successfully placed into an adoptive family. In some cases, it may be in society’s benefit to offer a post-adoption subsidy that exceeds the costs of caring for the child in the foster care system. Adjusting subsidy rates or subsidy type using the willingness to pay for specific child characteristics and differential placement rates as guides could improve overall placement rates.

Further, the composition of subsidies could be modified to increase the pool of potential adoptive parents. As highlighted in the literature review, Hansen (2008b) suggests that the manner in which post-adoption subsidies are offered is insufficient for dealing with the uncertainty/risk introduced when a family adopts a child. She suggests that insurance should be

added as one type of subsidy to alleviate concerns that these potential unknown future costs. Such a mechanism may be more effective and efficient than offering monthly cash assistance sufficient to induce families to enter the pool. Indeed too high a subsidy could potentially attract adoptive parents who are motivated more by financial incentives than the desire to develop a relationship with a child in need of a home.

This analysis also provides information on the types of adoptive parents who are more likely to adopt children with various characteristics. This component of the analysis informs recruitment of potential adoptive parents as well as the matching of children with adoptive families. For example, in our sample older adoptive parents are more likely to adopt older children, and those with Christian backgrounds are more likely to adopt African American children. Thus, matching older Christian couples with older African American children might be an effective strategy.

Generally, this paper advances our understanding of how preferences translate to differential costs in the child adoption “market.” These findings offer insights that may be of interest to researchers in general as well as to social work policymakers, specifically. Given the demonstrated importance of permanency for the wellbeing of the child and the cost of prolonged and long-term child placement in foster care, as well as the long-run potential societal costs associated with failure to achieve permanency, there is general agreement among social work policymakers that adoption subsidies and other non-monetary incentives/supports are warranted. This research suggests that more closely aligning subsidies with estimated willingness to pay for child characteristics could significantly improve placement rates and the overall effectiveness of adoption subsidy programs.

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**Table 1. Michigan Federation for Children and Families Adoption Agencies
Participating in the *Questionnaire about Adopting a Child* Survey Project**

Agency	Approximate breakdown of adoptive child placements				TOTALS
	Voluntary Release	Direct Consent	Permanent Wards	International	
Agency A	3	57	218	54	332
Agency B	5	5	85		95
Agency C	34	23			57
Agency D			46		46
Agency E			167	33	200
Agency F			182		182
Agency G			55		55
Agency H			33		33
Agency I		28	22	133	183
TOTAL	42	113	808	220	1183
Surveys coming back with “return to sender” due to wrong address					100
Completed Surveys (response rate)					223 (21%)
Usable Surveys (# of observations using adopted children as unit of observation)					185 (237)
Total Adoptions, 2007-2009					8,331

Table 2. Sample Weight Variables

Variable	Mean	
	Michigan	Sample
Caucasian/White	0.380	0.439
Black/African American	0.410	0.198
Asian	0.090	0.114
Hispanic/Latino	0.022	0.068
Multi-racial	0.098	0.181
International Adoption (1=Yes; 0=No)	0.229	0.203
Special needs (1=Yes; 0=No)	0.696	0.447

Table 3a. Summary Statistics for Child Characteristics (overall sample)

Variables	Obs.	Mean	S.D.	Min	Max
Adoption Cost	236	10,704	12,223	0	50,000
Pre-Adoption Tax Credit or Subsidy and Post-Adoption Subsidy					
Pre-adoption federal and/or state tax credits: 0.338*	236	4,117	5,671	0	25,000
Pre-adoption employer-paid benefits: 0.051*	236	795	2,105	0	10,000
Other sources for pre-adoption subsidies: 0.030*	236	419	3,255	0	35,000
Post-adoption support subsidy: 0.354*	236	394	677	0	2,885
Post-adoption medical subsidy: 0.152*	236	33	243	0	3,500
Other sources for post-adoption support: 0.093*	236	41	299	0	3,500
Present value of annual post-adoption subsidy ¹	236	42,699	78,076	0	506,935
Value of time taken off from work					
Opportunity Cost	236	2,420	5,444	0	44,521
Adopted Child Characteristics					
Ethnicity					
Caucasian/White	236	0.439	0.497	0	1
Black/African American	236	0.198	0.400	0	1
Asian	236	0.114	0.318	0	1
Hispanic/Latino	236	0.068	0.251	0	1
Multi-racial	236	0.181	0.386	0	1
Skin Color					
Very fair or somewhat fair	236	0.418	0.494	0	1
Brown	236	0.270	0.445	0	1
Somewhat dark or very dark	236	0.312	0.464	0	1
Age	236	3.496	3.989	0	18
Gender (0=Female; 1=Male)	236	0.473	0.500	0	1
Multi-child	236	1.586	0.901	1	5
Special Needs and Type of Special Needs					
Special needs (1=Yes; 0=No)	236	0.447	0.498	0	1
Physical disability	236	0.042	0.201	0	1
Emotional impairment and behavioral condition	236	0.198	0.400	0	1
Learning disability	236	0.160	0.368	0	1
Visual or hearing impairment	236	0.101	0.302	0	1
Other	236	0.051	0.220	0	1
Foster Parent Adoption ²					
Foster parent adoption	236	0.257	0.438	0	1
International adoption					
International	236	0.203	0.403	0	1

Notes:

1. Annual post-subsidy is calculated as follows:

Annual post-subsidy = (post-adoption support subsidy + other subsidies for post-adoption) × 12

2. The child(ren) resided in the licensed foster home prior to the adoption.

* Indicates the proportion of children receiving pre-adoption subsidies or post-adoption subsidies (monthly)

Table 3b. Summary Statistics for Child Characteristics (sub-samples by ethnicity)

Ethnicity ¹	1	2	3	4	5
Adoption Cost	9,587	7,911	22,916	22,091	4,552
Pre-Adoption Tax Credit or Subsidy and Post-Adoption Subsidy					
Pre-adoption federal and/or state tax credits	3,610	3,717	6,772	9,175	2,233
Pre-adoption employer-paid benefits	780	1,255	704	1,625	74
Other sources for pre-adoption	175	1,538	241	10	52
Post-adoption support subsidy	452	287	0.000	357	631
Post-adoption medical subsidy	45	69	0.000	0.000	0.000
Other sources for post-adoption subsidies	45	67	0.000	0.000	42
Present value of annual post-subsidy ²	46,512	37,900	0.000	36,711	67,762
Children receiving pre-adoption tax credit	0.490	0.404	0.630	0.750	0.419
Children receiving pre-adoption subsidy	0.125	0.213	0.185	0.375	0.047
Children receiving other pre-adoption subsidies	0.087	0.085	0.111	0.063	0.116
Children receiving post-adoption support subsidy	0.375	0.319	0.000	0.250	0.512
Children receiving post-adoption medical subsidy	0.048	0.149	0.000	0.000	0.000
Children receiving post-adoption other subsidies	0.029	0.043	0.000	0.000	0.047
Value of time taken off from work					
Opportunity Cost	1,912	1,078	3,606	8,603	2,068
Adopted Child Characteristics					
Skin Color					
Very fair or somewhat fair	0.808	0.106	0.111	0.063	0.140
Brown	0.163	0.191	0.481	0.563	0.372
Somewhat dark or very dark	0.029	0.702	0.407	0.375	0.488
Age	4	3	3	2	4
Gender (0=Female; 1=Male)	0.452	0.532	0.296	0.375	0.605
Multi-child	1.625	1.511	1.185	1.563	1.837
Special Needs and Type of Special Needs					
Special needs (1=Yes; 0=No)	0.519	0.404	0.370	0.250	0.442
Physical disability	0.029	0.021	0.148	0.000	0.047
Emotional impairment and behavioral condition	0.269	0.128	0.000	0.125	0.256
Learning disability	0.240	0.106	0.000	0.063	0.163
Visual or hearing impairment	0.096	0.149	0.000	0.063	0.140
Other	0.077	0.043	0.037	0.000	0.023
Foster Parent Adoption [†]					
Foster parent adoption	0.327	0.255	0.000	0.188	0.279
International adoption					
International	0.115	0.213	0.704	0.438	0.000
Observations	104	47	26	16	43

Notes:

1. 1: Caucasian/White; 2: Black/African American; 3: Asian; 4: Hispanic/Latino; 5: Multi-racial
2. Annual post-subsidy is calculated as follows: Annual post-subsidy = (post-adoption support subsidy + other subsidies for post-adoption) × 12

Table 4. Summary Statistics for Parent Characteristics

Variables	Father		Mother	
	Mean	Std. Dev.	Mean	Std. Dev.
Parents Characteristics				
Age	41	8	39	8
Income	67,887	39,604	42,031	39,775
Ethnicity				
Caucasian/White	0.897	0.305	0.920	0.272
Black/African American	0.046	0.211	0.042	0.202
American Indian/Alaskan Native	0.010	0.101	0.009	0.097
Asian	0.026	0.159	0.009	0.097
Hispanic/Latino	0.000	0.000	0.005	0.069
Multi-racial	0.021	0.142	0.014	0.118
Skin Color				
Very fair or somewhat fair	0.577	0.495	0.746	0.436
Brown	0.340	0.475	0.235	0.425
Somewhat dark or very dark	0.082	0.276	0.019	0.136
Religious Preference				
None	0.062	0.242	0.047	0.212
Christian – Catholic	0.206	0.406	0.188	0.391
Christian – Protestant	0.407	0.493	0.413	0.494
Christian – Other	0.284	0.452	0.319	0.467
Jewish	0	0	0	0
Muslim	0.005	0.072	0	0
Buddhist	0.005	0.072	0	0
Hindu	0.015	0.124	0.009	0.097
Other	0.015	0.124	0.023	0.152
Educational Attainment				
Less than high school	0.010	0.101	0.005	0.069
High school or GED	0.119	0.324	0.047	0.212
Some college or technical school	0.191	0.394	0.216	0.412
Technical training in the armed forces	0.015	0.124	0.005	0.069
Completed Associate's degree	0.067	0.251	0.094	0.292
Completed Bachelor's degree	0.356	0.480	0.366	0.483
Completed Master's degree	0.191	0.394	0.249	0.433
Completed PhD degree	0.052	0.222	0.019	0.136
Value of time taken off from work				
Opportunity cost	1,006	2,582	1,687	4,251
Birth Child	1.067	1.268	1.009	1.259
Inability to have a child	0.469	0.500	0.441	0.498
Observations	194		213	

Note:

1. The percentage of single-father families and single-mother families is 1.4% and 10.9%, respectively.

Table 5. Results for Child Characteristics Regressions

Specification	(1) Logit	(2) Logit	(3) OLS	(4)Logit	(5) Logit	(6) Multinomial Logit			
Dependent Var.	Gender	Foster Parent Adoption	Age	Special Needs	Int'l	Black/ African American	Asian	Hispanic/ Latino	Multi-racial
Household Income (\$1,000)	0.0010 (0.0007)	-0.0012* (0.0007)	0.0134*** (0.0042)	0.0001 (0.0007)	0.0008 (0.0006)	-0.0097** (0.0049)	-0.0014 (0.0044)	0.0036 (0.0046)	0.0008 (0.0037)
Family: Caucasian/White	-0.2982** (0.1219)	-0.2861* (0.1522)	1.1244 (1.3095)	0.0824 (0.1115)	5.11E-08 (5.28E-08)	-2.1895** (0.8806)	0.4584 (1.2045)	-1.0068 (0.9984)	-1.7005*** (0.6627)
Family Religion: Catholic	-0.1389 (0.1681)	0.0617 (0.1129)	1.1648 (1.0702)	-0.1547 (0.1393)	7.07E-09 (9.89E-09)	2.7624** (1.2701)	0.3988 (1.0206)	-1.4155 (1.0739)	-0.0356 (1.1270)
Family Religion: Christian	-0.0342 (0.1343)	0.0024 (0.1152)	-0.3072 (0.8783)	0.0147 (0.1109)	-5.47E-10 (2/75E-09)	5.0316*** (1.0116)	0.9853 (0.9124)	-0.8506 (0.7159)	1.7035** (0.7222)
Family: Age	-0.0028 (0.0045)	0.0047 (0.0056)	0.1075* (0.0547)	0.0156*** (0.0059)	-0.0045 (0.0054)	-0.0264 (0.0397)	0.0228 (0.0326)	0.0239 (0.0363)	-0.0343 (0.0410)
Family: Education I	0.1101 (0.1573)	-0.2098 (0.2189)	-0.0064 (1.4564)	0.1540 (0.1369)	0.0190 (0.0212)	-2.8018*** (0.9940)	10.4747*** (1.3687)	12.4151*** (1.2591)	0.1809 (1.5481)
Family: Education II	0.2091* (0.1090)	-0.2142 (0.2359)	0.1626 (1.3286)	0.1355 (0.1480)	0.0434 (0.0385)	-4.3890*** (1.0999)	12.1579*** (1.1782)	11.4772*** (1.2265)	-0.5452 (1.6471)
Family: Education III	0.1729 (0.1305)	-0.1187 (0.2345)	-0.7688 (1.2788)	-0.0373 (0.1790)	0.0687 (0.0641)	-2.9380** (1.2428)	13.7691*** (1.2695)	11.4094*** (1.1991)	0.9032 (1.6864)
Single Parent	-0.0606 (0.1403)	-0.3397 (0.2444)	1.6309 (1.1901)	0.0627 (0.1381)	5.82E-09 (8.62E-09)	0.1659 (1.0418)	0.1858 (1.1502)	-1.8363 (1.6311)	0.1869 (1.0872)
Birth Child	0.0108 (0.0358)	0.0667* (0.0400)	0.6376** (0.3205)	-0.0068 (0.0373)	0.0705* (0.0304)	-0.1539 (0.2565)	0.0615 (0.2657)	-0.7237** (0.3434)	-0.2829 (0.2631)
Inability to Have a Child	-0.0701 (0.0897)	-0.0560 (0.1036)	- (0.6500)	-0.1461 (0.0915)	-6.57E-10 (1.99E-09)	-0.9166 (0.6922)	-0.1685 (0.6501)	-0.5878 (0.7152)	-0.2329 (0.6174)
Observation	219	219	219	219	219	219	219	219	219

Notes:

1. The coefficients in the Logit estimations represent average partial effects. Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
2. Education I: some college or technical school or technical training in the armed forces or completed associate's degree; Education II: Completed Bachelor's degree; Education III: completed master's degree or completed PhD degree.
3. In this portion of the analysis, we are able to include only 219 of 236 observations in the sample due to missing some information on parent characteristics.

Table 6. Adoption Cost Core Regression Results

Specification	(1) OLS		(2) OLS		(3) OLS		(4) OLS	
Dep. Var.	Adoption Cost		Adoption Cost		Adoption Cost		Adoption Cost	
Sample	Full Sample		International		Domestic Non-Foster		Foster	
Race / Skin Color	Race	Skin Color	Race	Skin Color	Race	Skin Color	Race	Skin Color
Gender	817 (974)	972 (1,028)	-1,991 (2,725)	-1,997 (3,174)	2,521 (1,661)	2,451 (1,707)	417 (308)	517 (434)
Multi-child	-2,001*** (691)	-1,892*** (678)	-11,025*** (3,863)	-9,426*** (3,353)	-3,307*** (1,095)	-3,089*** (1,112)	-123 (106)	-131 (141)
Foster parent adoption	-4,184*** (1,020)	-4,171*** (1,078)						
International	20,955*** (2,194)	19,740*** (1,744)						
Age	-372*** (112)	-324*** (116)	496 (508)	436 (534)	-659*** (222)	-627*** (199)	-78 (47)	-65* (36)
Black/ African American	-4,890*** (1,272)		-12,023*** (3,882)		-4,420** (1,957)		-730 (503)	
Asian	-6,233** (2,958)		-13,719*** (3,729)					
Hispanic/Latino	1,211 (2,305)		-5,408 (4,122)		6,510 (5,611)		-249 (491)	
Multi-racial	-2,032 (1,802)				-1,122 (2,485)		-839 (563)	
Brown		-2,873* (1,641)		-8,228** (3,636)		-2,866 (2,647)		-496 (635)
Dark		-4,569*** (1,345)		-14,702*** (3,635)		-2,557 (1,887)		-500 (493)
Special needs	-1,331 (1,279)	-1,730 (1,336)	149 (2,627)	-3,268 (2,983)	-2,204 (1,928)	-2,709 (1,893)	-734 (873)	-490 (810)
Physical disability	-1,186 (1,726)	-1,262 (1,825)	-4,988 (4,190)	-2,290 (4,122)	-4,740** (1,908)	-4,076** (1,983)	-554 (356)	-730 (525)
Constant	13,465*** (1,547)	13,285*** (1,644)	49,381*** (7,282)	47,971*** (6,463)	15,782*** (1,884)	15,227*** (2,058)	1,969 (1,311)	1,567 (1,175)
No. of Observation	236	236	55	55	120	120	61	61
R-Squared	0.707	0.695	0.464	0.456	0.343	0.299	0.130	0.103

Note:

1. Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Additional Adoption Cost Regression Results

Specification	(1) OLS	(2) OLS	(3) OLS
Dep. Var.	Adoption Cost	Adoption Cost	Adoption Cost
Race / Skin Color	Race	Skin Color	Both
Gender	1,094 (904)	1,052 (982)	1,125 (916)
Multi-child	-1,978*** (715)	-1,902*** (721)	-2,068*** (718)
Foster parent adoption	-3,649*** (952)	-3,520*** (1,014)	-3,552*** (959)
International	22,162*** (3,893)	23,716*** (3,771)	23,647*** (3,963)
Interaction Terms: (Child Characteristics) × (Domestic Adoption Binary (0-1) Indicator)			
Age	-368*** (104)	-335*** (110)	-355*** (104)
Black/ African American	-3,231*** (1,205)		-3,060** (1,421)
Hispanic/Latino	3,163 (3,161)		3,838 (3,217)
Multi-racial	-1,150 (1,824)		-825 (1,955)
Brown		-2,186 (1,622)	-1,345 (1,435)
Dark		-2,083 (1,306)	-146 (1,633)
Special needs	-3,143** (1,290)	-3,126** (1,300)	-3,051** (1,283)
Physical disability	-2,833** (1,215)	-3,181*** (1,125)	-3,261** (1,280)
Interaction Terms: (Child Characteristics) × (International Adoption Binary (0-1) Indicator)			
Age	-72 (474)	-136 (403)	-128 (434)
Black/ African	-11,273*** (4,193)		-6,546 (5,945)
Asian	-10,097** (4,200)		-6,575 (5,434)
Hispanic/Latino	-2,139 (4,101)		-536 (5,045)
Brown		-6,864* (4,149)	-2,110 (4,722)
Dark		-13,079*** (3,781)	-7,348 (5,422)
Special needs	962 (2,602)	-1,879 (3,210)	-1,009 (3,307)
Physical disability	-1,753 (4,086)	936 (3,905)	320 (4,477)
Constant	13,633*** (1,549)	13,118*** (1,664)	13,857*** (1,629)
No. of Observation	236	236	236
R-Squared	0.730	0.725	0.739

Note:

1. Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. Results for Post-Adoption Subsidy Regressions

Specification	(1) Tobit	(2) Tobit	(3) OLS	(4) OLS
Dep. Var.	Post-Subsidy	Post-Subsidy	Post-Subsidy	Post-Subsidy
Sample	Full Sample	Full Sample	Foster	Foster
Mother Characteristics	No	Yes	No	Yes
Gender	9,960 (6,619)	8,470 (6,518)	14,001 (22,214)	3,696 (30,958)
Multi-child	21,367*** (4,622)	14,384*** (3,751)	48,955*** (5,271)	42,272*** (9,089)
Foster parent adoption	25,139** (11,441)	18,004 (12,112)		
Household Income	-0.169*** (0.053)	-0.122*** (0.046)	0.089 (0.305)	0.424 (0.475)
Child Characteristics				
Age	2,546** (1,151)	2,662* (1,370)	-2,970 (2,569)	-4,062 (4,010)
Black/ African American	3,823 (9,891)	-3,268 (11,380)	9,927 (26,224)	-16,516 (46,794)
Hispanic/Latino	21,422 (26,677)	23,275 (27,087)	5,184 (30,782)	-40,995 (42,874)
Multi-racial	11,628 (12,088)	12,176 (13,305)	-42,158 (30,618)	-23,496 (42,211)
Special needs	27,184*** (9,285)	32,683*** (9,655)	12,813 (20,306)	22,233 (27,339)
Physical disability	169,538*** (50,586)	174,342** (72,726)	172,891** (66,063)	189,098** (80,601)
Mother Characteristics				
Age		-106 (363)		1,448 (1,337)
Black/ African		-5,731 (13,339)		-10,312 (45,690)
American Indian/ Alaskan Native		113,459* (66,448)		63,585 (70,387)
Multi-racial		29,647 (30,999)		7,917 (56,690)
No Religion		22,459 (44,591)		
Christian – Catholic		29,630 (38,885)		6,807 (69,711)
Christian - Protestant and other		20,683* (11,120)		71,857 (76,390)
Some college and other		-32,692*** (12,069)		-5,710 (42,910)
Completed Bachelor's degree and more		-38,847** (17,051)		-30,668 (53,447)
Constant			-9,486 (45,602)	-115,559 (149,472)
No. of Observation	236	217	61	57
R-Squared	-	-	0.415	0.445

Note:

1. Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%
2. Columns 1 and 2 provide marginal effects after Tobit.

Appendix Table A. Variable Definitions

Variables	Variable Definitions
Adoption Cost	
Adoption Cost	Total adoption costs out of pocket
Pre-Adoption Tax Credit or Subsidy and Post-Adoption Subsidy	
Pre-adoption federal and/or state tax credits	Pre-adoption federal and/or state tax credits
Pre-adoption employer-paid benefits	Pre-adoption employer-paid benefits
Other sources for pre-adoption subsidies	Other sources for pre-adoption
Post-adoption support subsidy	Monthly post-adoption support subsidy
Post-adoption medical subsidy	Monthly post-adoption medical subsidy
Other sources for post-adoption subsidies	Other sources for monthly post-adoption subsidies
Present value of annual post-subsidy	Present value of the stream of annual post-subsidy payments ⁴
Adopted Child Characteristics	
Ethnicity	
Caucasian/White	Caucasian/White (1=Yes; 0=No)
Black/African American	Black/African American (1=Yes; 0=No)
Asian	Asian (1=Yes; 0=No)
Hispanic/Latino	Hispanic/Latino (1=Yes; 0=No)
Multi0racial or Undetermined	Multi Racial or Undetermined (1=Yes; 0=No)
Skin Color	
Very fair or somewhat fair	Very fair or somewhat fair (1=Yes; 0=No)
Brown	Brown (1=Yes; 0=No)
Somewhat dark or very dark	Somewhat dark or very dark (1=Yes; 0=No)
Age	Age
Gender	Gender (0=Female; 1=Male)
Multi-child	The number of child who adopted in a sibling group.

(Appendix Table A continued)

Variables	Variable Definitions
Special Needs and Type of Special Needs	
Special needs	Special needs (1=Yes; 0=No)
Physical disability	Physical disability (1=Yes; 0=No)
Emotional impairment and behavioral condition	Emotional impairment and behavioral condition (1=Yes; 0=No)
Learning disability	Learning disability (1=Yes; 0=No)
Visual or hearing impairment	Visual or hearing impairment (1=Yes; 0=No)
Other	Other (1=Yes; 0=No)
International adoption	
International	International adoption (1=Yes; 0=No)
Foster Parent Adoption	
Foster Parent Adoption	Adoption includes all children who were adopted by the licensed foster parent with whom the child resided prior to adoption (1=Yes; 0=No)
Value of time taken off from work⁵	
Opportunity cost	A father's value of time taken off from work plus a mother's value of time taken off from work

Notes:

1. Imputed value of time taken off from work
2. Approximate amount offset by federal and/or state tax credits, employer-paid benefits, and other sources of pre-adoption subsidies.
3. Post-adoption subsidies and other post-adoption support.
4. Present value of stream of annual post-adoption subsidies using a five percent discount rate. Annual post-subsidy = (post-adoption support subsidy + other subsidies for post-adoption support) × 12)
5. The number of paid leave days used × annual income divided by 365.