Child-Adoption Matching: Preferences for Gender and Race*

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Abstract

This paper uses a new data set on child-adoption matching to estimate the preferences of potential adoptive parents over U.S.-born and unborn children relinquished for adoption. We identify significant preferences favoring girls and unborn children close to birth, and against African-American children put up for adoption. These attitudes vary in magnitudes across different adoptive parents – heterosexual, same-sex couples, and single women. We consider the effects of excluding single women and same-sex couples from the process, and find that this would substantially reduce the overall number of adopted children. Finally, we show that a centralized matching process would greatly increase the number of matches.

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1 Introduction

1.1 Overview

Adoption is an important phenomenon in the U.S. According to the Census 2000, about 1.6 million or 2.5% of all children were adopted. Of these, 87% were U.S.-born and adopted through the domestic-adoption channel. In terms of revenues, the adoption industry is a substantial one, generating approximately 2-3 billion dollars annually (see Riben, 2007).

In most cases, a successful domestic adoption is the result of a match between a *birth mother* (BMO hereafter) who seeks to relinquish her child, and *prospective adoptive parents* (PAPs hereafter). The underlying matching process is fairly decentralized and involves a bilateral search characterized by several layers of mediation: Typically, adoption agencies represent BMOs, while PAPs work vis-à-vis adoption agencies, lawyers, or facilitators.

According to the Census, 54% of U.S.-born adopted children under the age of 10 are female, and 18% are African-American. In contrast, girls and African-Americans represent 48% and 15% of all children, respectively.[1] These differences can be explained by either the preferences of PAPs (the demand side), or the characteristics of children relinquished for adoption by BMOs (the supply side). In this paper, we exploit the unique nature of a new data set documenting the operations of an adoption facilitator in order to disentangle demand and supply effects on outcomes. We identify the preferences of PAPs over the attributes of children relinquished for adoption, the BMOs' choices, and the factors that determine ultimate outcomes (i.e., a successful adoption, a decision to parent by the BMO, or a child's placement in foster care).

The contribution of this paper is twofold. First, we provide a direct assessment of parents' preferences over children's attributes, in particular gender and race. Unlike consumers' preferences (that are observable through market behavior) or preferences over marriage partners (that are revealed in dating patterns), very little is known about parents' preferences over children's attributes.[2] For the specific case of adoptive children, our analysis is a step toward filling this gap.

[1] These figures are derived from the authors' own tabulation using the 5% PUMS.

[2] Important exceptions are Dahl and Moretti (2008) and Almond and Edlund (2008), which we discuss below.

The second contribution of the paper is, in fact, the evaluation of some potential institutional changes to the adoption process. Specifically, we assess the potential effects of a ban on adoption by same-sex parents (implemented in several states) and single women (still present in most developed countries) on the volume of successful adoptions. Furthermore, centralized matching systems have utilized in other environments, e.g. the matching of medical residents with hospitals (the annual National Resident Medical Program, know as NRMP, see Roth, 1984) and the matching of children with schools (see Abdulkadiroglu and Sonmez, 2003). Therefore, we use our estimated preferences to evaluate the potential impact of centralization on the volume of adoptions.

Our analysis uses a new data set constructed by following the matching process managed by an online adoption facilitator between 2004 and 2009. The data set is comprised of approximately 840 cases of either born or unborn children that the facilitator collected from multiple agencies and posted on a website designed for client PAPs. On the website, each child is identified by a code, by an array of attributes, by the adoption finalization costs, and by a set of restrictions imposed by the BMO specifying which categories of PAPs she considers acceptable (such as straight couples, same-sex couples, and single women).

Each PAP pays a fixed fee to the facilitator to enter this matching process. PAPs who participate in the matching process observe the children available for adoption sequentially and can express interest in any child by submitting an application to the BMO (as long as they meet the BMO's requirements). Our data records all the PAPs that apply for each child, as well as some BMOs' final choice, be it selecting an applicant PAP, matching through channels other than the facilitator, or deciding to parent the child.

As motivation for our analysis, consider Table 1, documenting attributes of children in our data set for whom we know the ultimate adoption outcomes (whether they were matched at all and whether they were matched through the facilitator). Focusing on gender, 25.9% of the children are girls, while 34.4% are boys (the rest being of an unknown gender). The matching outcomes seem to reflect a similar comparison – be it on the website, or overall, more boys are ultimately matched than girls (in fact, the wedge is greatest for children matched through the facilitator). However, when looking at the volume of applications children receive, this pattern is reversed. The percentage

Variable	All	No Applications	Five or More Applications	Matched	Matched on Website
Already Born	9.4%	24.2%	5.6%	8.3%	5.4%
Girl	25.9%	21.7%	35.7%	26.7%	29.2%
Boy	34.4%	33.7%	25.9%	35.7%	44.6%
Caucasian	35.8%	26.6%	50.4%	36.8%	38.5%
African-American	40.9%	51.2%	22.9%	38.6%	35.9%
Hispanic	14.5%	13.8%	18.4%	15.5%	16.0%
BMOs	662	91	143	409	65

Table 1: Aggregate Statistics on Applications for Matched Children

of boys receiving no applications is substantially higher than that corresponding to girls, and large volumes of applications (five or more) are much more likely to occur for girls than for boys (35.7% relative to 25.9%). A similar effect emerges with respect to race. For example, Caucasian children constitute 35.8% of the sample, while African-American children constitute 40.9%. The differences in matching outcomes are also rather small, both overall and through the facilitator (though slightly more Caucasian children are matched on the facilitator's website). However, a rather different image emerges from the applications profile. Of those children receiving no applications, 26.6% are Caucasian, while 51.2% are African-American; Of those children receiving five or more applications, 50.4% are Caucasian, while only 22.9% are African-American. This suggests that the matching outcomes in and of themselves provide a partial picture of the attributes parents are looking for, while their application choices entail much more information.

In order to elicit parents' preferences directly from their behavior in the application process, we need to account for the supply of children of different attributes. A revealed preference assumption is at the root of our estimation: *whenever PAPs apply for a subset of the children available, the PAPs prefer the children they apply for over those they do not*. This approach enables us to estimate the preferences on each side of the matching process separately. We estimate PAPs' marginal rates of substitution over children's attributes (gender, race, and time to birth) and adoption finalization costs.

The main advantage of our estimation strategy is that it is not sensitive to either demand or supply shifts. On the demand side, our estimation hinges on the PAPs' ranking of the children available on the website according to their preferences. In particular, it is unaffected by PAPs' participation in alternative adoption channels that we do not observe. On the supply side, changes in the population of available children, in terms of either volume or distribution of types, will only affect the constant term in our estimation.

We show that PAPs exhibit a preference in favor of girls and against African-American children. Specifically, if we consider a non-African-American child, the probability that a given PAP expresses interest in such a child is 11.6% if the child is a girl and 8.2% if the child is a boy. The effect of the estimated adoption cost on child desirability is significant and negative. That is, ceteris paribus, an increase in expected adoption costs lowers the desirability of a child. This allows us to convert the gender preference into dollars. We find that the increase in desirability of a non-African-American girl with respect to a non-African-American boy is equivalent to about $\$18,300$ decrease in adoption finalization costs.

With regard to race, most children in our data are characterized by the composition of varying percentages of three ethnicities: Caucasian, African-American, and Hispanic. For an unborn child of unknown gender, the probability that a given PAP expresses interest in the child is about 13.1% if the child is non-African-American and 1.8% if the child is African-American. Again, converting the racial preference into dollars, we find that the increase in desirability of a non-African-American child with respect to an African-American child (both of unknown gender) is equivalent to about $\$37,600$ decrease in adoption finalization costs. However, we do not observe any significant bias against Hispanic children, who represent a substantial fraction of the children in our data set.

It is interesting to contemplate what underlies these observed preferences. Consider, first, the gender preference. The existing literature on parents' preferences for the gender of their biological children has invariably identified a preference for boys. This is believed to be the case both within the U.S. and abroad (e.g., as manifested in the case of the missing women in China). However, our results on gender preferences constitute a reversal of this evidence in the adoption environment.

Consider, now, the racial preference. *Homophily*, defined as individuals' preference for similar-

ity, is well-established in the sociological literature. In the adoption context, homophily can translate into PAPs preferring adopted children that resemble them in looks, who can potentially pass as their biological children. Given that the PAPs in our sample are predominantly Caucasian, the desire for similarity is consistent with a preference for Caucasian children. While we suspect that this taste for similarity is at the root of some of the racial preferences we observe, it cannot fully explain the preferences we document. Indeed, to the extent that Hispanic children are more likely to appear different from Caucasian PAPs relative to Caucasian children, homophily would suggest a (possibly weaker) bias against Hispanic children as well. However, as highlighted above, this is not confirmed by the data.

A natural concern pertains to the selection of participants on both sides into the matching process. In particular, observed characteristics of children (such as gender and race) may signal important health and behavioral attributes. Consequently, estimated PAPs' preferences may simply reflect their concerns regarding health and behavior. To address this, we look at the correlation between gender and race of the children in our data and an array of health and behavioral measures of the BMOs. We find no significant difference in any of these measures across gender and race. If anything, we find that African-American BMOs are associated with slightly more desirable health and behavioral markers. On the other side of the process, the preferences of the PAPs that select into the facilitator's operations may not be representative of the entire population of adoptive parents. However, using the Census 2000 data, we find that the cases available through the facilitator end up with adoptions of substantially more boys and African-American children relative to the average adopting household in the U.S. This suggests that PAPs selecting into the facilitator's client pool are potentially more open to adopting boys and African-American children.

We also estimate the extent to which PAPs' preferences depend on their own characteristics. We differentiate between PAPs according to whether they participate as a couple or as a single person, as well as according to their sexual orientation (heterosexual and same-sex couples). We find that same-sex couples submit applications at nearly three times the rate of straight ones. The preferences mentioned above hold true for all of these categories of PAPs, and the racial preference is stronger for same-sex couples.

On the normative side, the question of which parents are legitimate prospective adoptive parents (specifically, for the case of same-sex or single PAPs) is a topic of ongoing debate in the U.S. and abroad. Our analysis sheds light on this debate. Banning a certain category of PAPs from the adoption process has two effects. First, it affects the volume of PAPs involved in the process, and therefore the number of expected matches. Second, given the differential preferences across PAPs' categories, it changes the distribution of preferences among active PAPs and consequently impacts the type of children that are adopted. Focusing on the effects of participation of same-sex couples, we perform a natural experiment. We shut down the possibility for same-sex PAPs to submit applications to BMOs, and we find that this results in a 9% decrease in the probability of being matched (while only 20% of matched children allow for same-sex applications). Furthermore, there are significantly more boys and African-American children within the lost matches. Similarly, when we shut down the possibility of single PAPs to submit applications, we find a reduction of 9% as well in overall matches (out of 57% of matched children that allowed for single PAP applications).

Finally, to assess the potential value of centralization in our environment, we consider an alternative and more centralized matching system and we compare its performance to the outcomes observed in our decentralized setting. In particular, we simulate a variant of the Deferred Acceptance algorithm (see Gale and Shapley, 1962). Since our data encompasses several years and participants tend to stay active only for a short period of time, we divide the time frame of our data set into time windows and we simulate the Deferred Acceptance algorithm with the participants active within each window. Each instance of our simulations utilizes the preferences we estimate for the participants active in that window, allowing for the realization of an idiosyncratic individual term. We find that the volume of adoptions increases substantially using this more centralized system, particularly with short windows that generate over double the number of adoptions observed in our data. Furthermore, shorter intervals between times at which the clearinghouse operates are associated with greater adoption volumes, generating up to more than twice as many adoptions observed in our data.

1.2 Literature Review

Despite the scope of the adoption industry in terms of volume of children and annual revenues, as well as the unique matching mechanisms it employs, adoption has, thus far, received little attention in the economics literature. There are, however, a few important exceptions.

The paper that is closest to ours in terms of questions addressed is Bernal, Hu, Moriguchi, and Nagypal (2009). That paper presents a historical analysis of domestic adoption, uncovering the trends in different types of adoption: domestic and international, related and unrelated, as well as standard adoption and foster care. At the individual level, the paper estimates the propensities of PAPs to adopt and of BMOs to relinquish their children across time. These findings provide an important springboard for our analysis, which takes PAPs' and BMOs' decisions to participate in the adoption process as given and focuses on their behavior *within* that process.

From a policy perspective, Landes and Posner (1978) propose a strategy for amending the shortage of children relinquished for domestic adoption and the abundance of children in foster care. They suggest the opening of a market for children that would allow for equilibrating monetary transfers between PAPs and BMOs. Our analysis is useful in assessing this proposal, in that it identifies parents' preferences that would feed into estimating efficiency and the likelihood of entry to foster care in a fully decentralized mechanism as such.

Sacerdote (2002, 2007, 2009) makes use of adoption data to study questions regarding the impacts of nature as opposed to nurture. Björklund, Lindahl, and Plug (2006) also focus on the long term effects on both education and income of Swedish adoptees. Most recently, Chen, Ebenstein, Edlund, and Li (2010) show that in domestic Chinese adoption a propensity to adopt girls is compatible with post-natal discrimination against them.

The adoption industry has received attention in other disciplines, ranging from legal studies, to sociology, psychology, and history. For detailed accounts of child adoption in the U.S., we refer the interested reader to Melosh (2002), Pertman (2000), and references therein.

From a methodological point of view, our revealed preference assumption is in line with a two-sided matching with search model (e.g., Adachi, 2003; Burdett and Coles, 1997; Eeckhout, 1999;

and Smith, 2006). We know of very few other empirical estimations of two-sided matching with frictions (see Abramitzky, Delavande, and Vasconcelos, 2011 and Botticini and Siow, 2010, Del Boca and Flinn, 2011, as well as some of the work on online dating discussed below). The existing work focuses mainly on the marriage-market context. We note that the commitment entailed in the successful conclusion of an adoption (that is arguably irreversible) makes this process a particularly good fit for this class of models.

Gender and racial preferences are both common and well documented (for overviews see Loury, 2002, and Nelson, 2009). Related to this paper, several recent papers have used matching environments of other types, particularly the online dating market, to estimate racial preferences (e.g., Fisman, Iyengar, Kamenica, and Simonson, 2006, 2008; Lee, 2009; and Hitch, Hortacsu, and Ariely, 2010). This work identifies a preference for same-race partners, much in the spirit of the racial preferences we observe.[3] Technically, adoption through facilitators and online dating are similar in that both involve a two-sided search. However, unlike most online dating markets, in which an outcome is an agreement for a rather preliminary contact, outcomes in the adoption environment are effectively binary and irreversible: A match means a likely successful adoption. In terms of gender preferences, there is some work suggesting preferences for biological sons in the U.S. (see Dahl and Moretti, 2008; and Almond and Edlund, 2008) and abroad (for instance, the case of the missing women in Asia, as noted by Sen, 1990). Most of this work uses indirect indicators (e.g., separation rates of couples as a function of their children's gender) to assess these preferences. In this paper, we use the detailed matching data to estimate parents' preferences over children's attributes directly, and we identify a substantial preference for girls in the adoption context.

[3]See also Banerjee, Duflo, Ghatak and Lafortune (2010) for an empirical analysis of the arranged marriage market in India. They document strong preferences for within-caste marriages, similar to the preferences for same-race partners unearthed by the online dating literature.

2 Institutional Setting and Data

2.1 The Adoption Process in the U.S.

In this Section, we summarize the main elements of the adoption process in the U.S. (see Jasper, 2008 or Mabrey, 2006 for a full state-by-state survey of adoption jurisdiction).

The supply side of domestic adoption is represented by a population of BMOs who intend to relinquish their children for adoption. The children can be either born or unborn. When not searching for adoptive parents on her own, the BMO looks for (or is located by) an adoption agency or some other organization in order to be matched with PAPs.[4] Adoption agencies can be either private or public. While public adoption agencies typically specialize in special-needs children, private agencies match all types of children, and can be either non-profit or for-profit organizations, depending on state law.

The demand side of domestic adoption consists of PAPs. These PAPs can be either (straight or same-sex) couples and singles. After undergoing a certification based on a home study, the first choice that PAPs face is whether to participate in either the international or the domestic adoption process, or in both. The PAPs who decide to search for a child domestically can use adoption agencies, pursue a private adoption with the aid of specialized attorneys, or advertise in local magazines and newsletters.

Each of these channels can be problematic from the PAPs' point of view. Since adoption agencies often operate in geographical areas where they can easily locate BMOs, or where they are subject to less regulation, it can be difficult for PAPs (who usually reside in cities and high-income areas) to locate, screen, and interact with many agencies at the same time. Moreover, in many states, the law does not allow adoption attorneys to act as intermediaries in adoption matches. Finally, independent search through advertising is time-consuming and may entail significant cost uncertainty.

These considerations created a role for intermediaries, usually referred to as "adoption facilitators." Much like adoption agencies, the role of facilitators is regulated by state laws, and in some

[4] If the child is already born, the BMO can immediately relinquish her parental rights (legal custody of the child) to the agency, and forego her participation in the selection of the adoptive parents.

states their activity is restricted.[5] Often operating online, adoption facilitators connect with BMOs from multiple agencies and coordinate the matching process with PAPs.

Once a PAP is matched with a child, the ensuing process depends on whether the child is born or not. If the BMO of an already born child has not yet relinquished her parental rights to an agency, then she can relinquish them as soon as the match occurs. The child is then put in the custody of the PAP. If, instead, the child is unborn, the parties wait until birth, with no commitment to complete the adoption on either side. During this time, the PAP normally pays the living and the medical expenses of the BMO. At birth, with a lag determined by state law, the BMO can, if she still desires, relinquish her parental rights. In this case, the child is placed in the custody of the PAP.

This initiates the post-placement process. The adoption is finalized when a court transfers the parental rights to the PAP. The finalization is conditional on a series of legal requirements determined by the state. The court bases its decision on a post-placement report completed by a registered social worker on the basis of some visits to the adopting family. The court also screens the nature of the financial transfers that have taken place between the PAP and the BMO, as well as the transfers that the PAP has made to the adoption agency. In particular, the court checks that transfers to the BMO constitute allowed reimbursements of either living or medical expenses.[6] Successful PAPs can then file for an adoption tax credit that effectively reduces the cost of adoption by a fixed amount.

2.1.1 Gay, Lesbian, and Single Adoption

Adoption by gay and lesbian couples or individuals is permitted in only a few countries around the world. In the U.S., many states have enacted or attempted to enact legislation on gay and lesbian adoption since the early 2000s. However, state laws are still largely silent on the issue. While some states restrict adoption by sexual orientation or marital status, legislation with respect to this issue is still in flux, and gay and lesbian adoption is the subject of a very active and heated policy

[5] In fact, only in very few states, such as California and Pennsylvania, can adoption facilitators be legally paid (see, e.g., California Family Code Sections 8623-8638, Chapter 1.5).

[6] Any transfer from the PAP to the BMO that is aimed to obtain consensus of the adoption is illegal. State laws specify the precise categories of BMO expenses (such as medical, legal, and living costs) that can be covered by PAPs, which are classified as charity. If the BMO changes her mind regarding the adoption before finalization, all transfers are generally non-reimbursable.

debate.[7] The Census 2000 indicated that 4% of all adopted children in the U.S. live in a gay or lesbian household. Even though in 2000 the adoption rate of same-sex households was reported as 1.6%, this rate has the potential to increase dramatically if the current restrictions are lifted.[8]

Since the early 90s, there has been an increase in the number of adoptions by single individuals, the vast majority of whom are women. By 2000, singles accounted for at least 15% of all adoptive parents in the U.S. (see the Census 2000). While allowed in the U.S., adoption by local or foreign single individuals is prohibited in the majority of countries all over the world.

2.2 The Data

2.2.1 The Facilitator's Operations

We constructed our data set monitoring an online adoption facilitator who mediates between agencies dealing with BMOs and PAPs, over the period from June 2004 to December 2009.[9] Over a five year period, we collected data on the applications of 729 PAPs to 839 BMOs. The facilitator placed 65 children, while 409 were placed through other channels.

New cases of unborn children or already-born children available for adoption are posted on the facilitator's publicly accessible website regularly. Activity on the website follows this basic timing:

1. *An unborn child, or already-born child, is posted as a new case on the facilitator's website*. The child is identified by the BMO's code name. For every case, the facilitator publishes the following information: (a) the child's characteristics: date on which the case is presented, race composition, gender (when available), due date for unborn children, and age for already-born children;[10] (b) the costs of adopting the child. These include a fixed facilitator fee, adoption agency fees, BMO's

[7] At the time of writing of this paper, only Michigan, Mississippi, North Carolina, Ohio Utah, and Wisconsin imposed restrictions on gay and lesbian adoption. Nonetheless, in many states in which statutes do not prohibit adoption by gay men and lesbians, individual judges or courts have ruled against the practice. In fact, in 40 states, Statute or Appellate Court rulings have banned joint adoption by same-sex couples. For details regarding states' jurisdiction on gay and lesbian adoption, see American Civil Liberties Foundation (2006), Human Rights Campaign (2009), and National Conference of State Legislatures (2009).

[8] See Badget, Chambers, Gates, and Macomber (2007).

[9] See the Data Appendix, available at: http://www.hss.caltech.edu/~lyariv/Papers/Adoption_Data_Appendix.pdf, for detailed information on the construction of the data set.

[10] The website also reports fetus anomalies detected by an ultrasound or other documented health problems. However, these medical issues occur for only 0.2% of the children in our data set.

expenses (that may include living and medical costs), and legal fees; and (c) the constraints that the BMO or the adoption agency impose on PAPs. Specifically, the BMO can restrict the availability of her child from same-sex PAPs, single PAPs, etc.[11]

2. After paying the fixed fee to the facilitator, *a PAP can submit one or more applications to adopt any of the available children at no additional cost*.[12] As PAPs submit an application to a BMO, their first name (or initials) are posted on that child's case. The PAPs' application consists of a letter to the BMO sent through the facilitator and the agency. In this letter, the PAPs describe themselves, their life-style, and how they plan to raise the child. This letter is prepared by the PAPs, often with the help of the facilitator, at the beginning of the matching process and left with the facilitator. In other words, the only decision a PAP has to make when a child becomes available for adoption is whether or not to apply for that child. No other contact between BMO and PAPs is permitted prior to a match.

3. *The posted cases can be resolved in several ways*: (a) the BMO chooses the desired PAP among the applicants. As soon as a PAP is accepted by a BMO, *any active application of that PAP for other children is immediately dropped*.[13] The match is observable on the website, and both the BMO and the PAP leave the process; (b) the BMO is matched through a different channel, and the child is reported as "matched" on the website; (c) the BMO decides to parent, and the decision is reported on the website; (d) the facilitator reports a lost contact with the BMO; or (e) there are no applications for the case (after a wait of about one month, the facilitator reports the case as "closed"). This final outcome sometimes leads the BMO to parent, but in most cases the child remains unmatched.

[11]There are some additional restrictions on the PAPs' characteristics dictated by state laws or special adoption regulations. For example, the Indian Child Welfare Act of 1978 gives Native American Indian Nations and Tribes the right to control adoptions that involve their tribal members's children. In addition, the BMO can also express her preference toward an open adoption. In our sample, in only 4% of cases did the BMO specify a preference regarding a closed as opposed to an open adoption.

[12]In some cases, before applying, the PAPs receive additional information regarding the BMO and the child based on an interview the agency conducts with the BMO. This interview comprises questions regarding the BMO's health and life-style, her family and the birth-father characteristics. While the information posted on the website is verifiable by the agency and the facilitator, this additional information is not verifiable.

[13]In fact, the facilitator's policy specifies that if the selected PAPs reject a match, they will not be allowed any further applications through the facilitator. Thus, *applications are binding from the PAPs' point of view*. The BMO stops receiving applications from other PAPs upon a match. However, she can still decide to parent until she relinquishes parental rights.

Unmatched children enter the foster-care system, where they remain adoptable until the age of 18. Foster care is notoriously detrimental to children's short- and long-term welfare.[14]

The entire process, from posting of a BMO on the website to finding a match with a PAP, is very quick. Most PAP applications are submitted within the first 10 days from when a child's information is first posted, and the average time a BMO spends in this process is less than two months.

2.2.2 Summary Statistics

Birth Mothers' Statistics Table 2 below reports the summary statistics pertaining to children's attributes in our data, while the summary statistics conditional on a match and the time trends of some of the children's attributes appear in Tables A1 and A2, respectively, in the online appendix (the number of observations for each attribute corresponds to data points for which that attribute was specified).

In terms of gender, not conditioning on the achievement of a match, 24.9% of the children in our sample are girls, 34.3% are boys, and the rest are of unknown gender. A child of unknown gender is either a child at an earlier stage of gestation or a child who is less likely to have received medical attention than a child whose gender is known.

We treat race as a continuous variable to account for children of mixed descent (e.g, a child with a Caucasian father and an African-American mother is classified as 0.5 Caucasian and 0.5 African-American). Averaging across percentages of each ethnicity, the unconditional breakdown in our data set is 36.9% Caucasian, 38.3% African-American, and 13.3% Hispanic. The non-African-American category refers to children who are 0% African-American.

Already-born children constitute 19.6% of our data set, while, conditional on being unborn, the average time to birth at which the cases are presented to the facilitator is just below three months. The average age of already-born children is about two months. In terms of PAPs who are acceptable to BMOs, same-sex PAPs are allowed in 24.7% of the cases, and single women in 61.6% of the

[14]Nearly 40% of youth exiting foster care are homeless within 18 months of discharge (U.S. General Accounting Office, 1999). Entry into foster care is also associated with a much higher rate of incarceration. For instance, in California, 70% of all penitentiary inmates have spent time in foster care (Select Committee Hearing of the California Legislature, 2006). See also Doyle (2008).

Variable	Mean	Std. Dev.	Min.	Max.	N
Girl	0.249	0.433	0	1	839
Boy	0.343	0.475	0	1	839
Caucasian	0.369	0.392	0	1	839
African-American	0.383	0.418	0	1	839
Hispanic	0.133	0.271	0	1	839
Asian	0.022	0.111	0	1	839
Non-African-American Boy	0.203	0.372	0	1	839
Non-African-American Girl	0.137	0.321	0	1	839
African-American Girl	0.112	0.291	0	1	839
African-American Boy	0.14	0.312	0	1	839
Finalization Cost	26745	8661	3500	52300	737
Already Born	0.196	0.397	0	1	839
Months to Birth for Unborn	2.691	1.889	0.033	8.6	650
Months to Birth for Born	1.574	6.241	0.033	69.733	370
Days from Presentation to Last Day on Website	54.848	45.481	1	530	829
Days from First Application to Last Application	20.465	32.647	0	217	837
Days on Website if Always Born	42.883	37.917	1	184	163
Days on Website if Always Unborn	46.14	35.055	1	217	407
Days on WebsSite if Switch from Unborn to Born	78.221	56.201	5	530	244
Number of Interested PAPs	2.316	2.295	0	16	839
Applications per Day	0.094	0.245	0	4	829
Bad Health Words	0.002	0.049	0	1	839
Single PAP Allowed	0.616	0.486	0	1	839
Same-Sex PAP Allowed	0.247	0.431	0	1	839

Table 2: Summary Statistics for BMOs

cases.[15] Finally, the costs to finalize an adoption range from $\$3,500$ to $\$52,300$, in addition to the $\$4,800$ fixed fee for working with the facilitator.

In terms of the outcomes of the matching process, the average number of PAPs who apply for a given child is 2.3, varying from 0 to 16. BMOs decide to parent their child in 5% of the cases, are reported as a lost contact in 5% of the cases, and as a closed case in 29% of cases. The average number of days a case remains on the facilitator's website is 55 days, ranging from 1 to 530 days.

[15]There are very few cases in which lesbian PAPs are allowed to apply and gay men are not, or vice-versa. The variable 'Same-Sex Allowed' identifies a baby for which at least one of these PAP categories is considered acceptable. In addition, according to an interview with the facilitator, there are no single men among the PAPs.

Prospective Adoptive Parents' Statistics We now turn to the demand side, represented by the PAPs. The summary statistics on the PAPs' attributes are in Table 3 below, while the time trends of some of the PAPs' attributes are in Table A2 in the online appendix.

Variable	Mean	Std. Dev.	Min.	Max.	N
Gay PAP	0.041	0.199	0	1	729
Lesbian PAP	0.043	0.202	0	1	729
Single PAP	0.067	0.251	0	1	729
Straight Couple	0.573	0.495	0	1	729
PAP with Ambiguous Name	0.276	0.447	0	1	729
Applies for a Baby (on a Specific Day)	0.053	0.057	0	1	729
Applies for a Baby (Allowed Choices only)	0.065	0.093	0	1	729
Applies for a Baby (at Some Point in Time)	0.060	0.067	0	1	729
Days between First and Last Application	109	200	1	1797	729
Days Since Last Application for a PAP	2.431	6.669	0	85.698	722
Applications Per Day on Website	0.098	0.209	0	2	729

Note: PAP with Ambiguous Name refers to a PAP Name such as Robin&Kim, which cannot be classified in a PAP category. Applies for a Baby (Allowed Choices only) restricts the choices of a PAP those BMOs for which they are allowed to apply. Applies for a Baby (at Some Point in Time) looks at the application decision for a PAP on the last day that a BMO is on the website.

Table 3: Summary Statistics for PAPs

Recall that when a PAP applies for a specific child, *only the PAP's first name(s)* appear on the website next to the child requested. We therefore infer PAPs' characteristics based on their names. When the PAP consists of one person, we identify that PAP as a single woman. When the PAPs' names unequivocally indicate that the PAP is a straight couple, or a same-sex couple, we assign the relevant attribute to the PAP. Of these PAPs, 79.1% are straight couples, 5.7% are gay men, 5.9% are lesbians, and 9.3% are single women. We exclude from the estimates regarding different PAPs' categories all PAPs that have names with ambiguous gender classification.

With respect to PAPs' race, interviews with the facilitator confirmed that virtually all of the PAPs in our data set are Caucasian.

We consider a PAP *active* from the time at which the PAP submits the first application until the PAP is reported as "matched" or, if it is never reported as such, until ten days after the last application is submitted. Given these assumptions, active PAPs apply for a child for which they are acceptable

with a 6.5% probability.

The average time elapsed between the PAPs' first and last application is 109 days. The (average) application probability of a PAP for an available child on each day is 5.3%, while the probability of applying for that child at some point is 6%.[16]

3 Strategy for Estimating Adoptive Parents' Preferences

This section presents the strategy behind our estimations regarding PAPs' preferences. We are interested in studying PAPs' preferences over gender, race, and finalization costs. Since many adoption-policy debates revolve around the participation of special categories of PAPs (such as same-sex couples and singles), we analyze how the preferences with respect to children's attributes vary across these categories. An observation in our sample corresponds to a triplet (t, b, p) , where t identifies a date, b a child who is unmatched on the website at date t, and p a PAP that is active on the website at time t *and for whom* b *is an available choice* – that is, b's BMO did not exclude the type of PAP p upon entering the matching process.[17]

3.1 Underlying Assumptions

There are two assumptions at the root of our estimations:

Revealed Preference for PAPs If two children, c_1 and c_2, are available on the website on the same day, and PAP i (who qualifies for both) applies for c_1 and not c_2, then PAP i must prefer c_1 to c_2; and

Revealed Preference for BMOs If two PAPs, θ_1 and θ_2, apply for the same child and the corresponding BMO j selects θ_1 and not θ_2, then BMO j must prefer θ_1 to θ_2.

[16] Consider a PAP who is active for 20 days and a BMO who is available over that entire period. Suppose the PAP applies for the baby on day 11 (so that the PAP has an open application to the BMO from day 11 to day 20) Then, the (average) application probability on each day is 50% while the probability of applying at some point in time is 100%.

[17] In the online appendix, we discuss the robustness of our results to a PAPs' activity window of 90 days (see Table A3). Also, Table A4 illustrates results obtained looking at the decision of a PAP to apply to a BMO without including the time variation t. These alternative definitions of PAP activity do not have a noticeable impact on our results.

These assumptions have two important implications for our estimation strategy. First, they allow us to assess preferences for each side of the matching process separately. Second, they enable us to evaluate marginal rates of substitution over attributes of parents and children when only a slice of the market is being observed. The latter point is particularly important in view of the fact that some PAPs may be utilizing multiple adoption channels and, likewise, some BMOs may pursue several paths when considering relinquishing their child.

In our environment, PAPs search for a BMO to be matched with, while BMOs search for a PAP to relinquish their child to. Therefore, one way to think of our underlying assumptions is through a sequential two-sided matching model. In the online appendix, we present the basic structure of such a model (which is closely related to Burdett and Coles, 1997 and Eeckhout, 1999) and characterize its equilibrium.

3.2 Discussion of the Estimation Strategy

There are several features of the matching process that make the assumptions above plausible. Since most of our analysis focuses on PAPs' preferences, PAPs in our data always have incentives to apply to children that are desirable to them according to the revealed preference assumption above. In what follows, we discuss this assumption and other important features of our matching process.

No-cost Applications. Once PAPs pay the fixed cost to the facilitator, any application is done at no cost to the PAPs. Therefore, there is no monetary reason to forgo an application.[18]

Equal Opportunity Applications. When considering BMOs' selection of PAPs among those who apply, we cannot reject BMOs' selecting one of the applications at random. Indeed, a model in which the chosen PAP depends on all observable characteristics (namely, the volume of applicants and the categories to which they belong, in addition to the relevant child's attributes) generates no significant proxies of choice (see Table A5 in the online appendix). In that respect, PAPs of different types do not exhibit different incentives to apply for particular children.

[18]Furthermore, on any given day, there are on average 23 BMOs on the website, all listed sequentially on the same page. This makes it straightforward for PAPs to browse the entire list of available BMOs.

No Supply Shock Effects in Applications. One may be concerned that despite the lack of application costs, parents respond to competition by applying less frequently to children who are likely to receive more applications. The restrictions BMOs impose over the admissible PAPs offer a natural variation in potential application volume corresponding to children who are otherwise similar. In particular, suppose we search for pairs of children with similar attributes, but with different restrictions of admissible PAPs imposed by the BMOs. For straight couples PAPs, the presence of restrictions against either same-sex couples or single PAPs does not impact the PAPs' preferences over these children, but does shift the extent of competition they face to obtain them.

Given the large number of children in our dataset, it is possible to select several variables (gender, race, and whether the child is born or not) for which the matching is exact, and others, such as presentation dates and adoption finalization costs, for which we use a nearest-neighbor propensity score to match pairs of children (see Abadie et al., 2004). We can then compare two children that the same straight couple PAP can apply for, with different restrictions on admissible PAPs.

First, fewer restrictions do increase the amount of competition among PAPs for a child. If a BMO allows same-sex PAPs (or single PAPs) to apply, we estimate that conditional on the matched traits discussed above, there will be 50% more applications for this child with a standard error of 9%.

Second, allowing for same-sex couple applications, raises the probability of an application from straight couple PAPs by 0.87%, with a standard error of 0.37%. Similarly, allowing single PAPs to apply raises the probability of an application from a straight couple PAP by 0.25%, with a standard error of 0.34%, and therefore not significant with 5% confidence. In both cases, increased competition is not associated with fewer applications on the part of straight couple PAPs.

In addition, we replicated our estimates checking whether the number of pre-existing applications for a child affects the probability of that child receiving an application from a PAP. We found no significant impact of the number of previous applications on the probability of a child getting an additional one (see Table A6 in the online appendix).

Limited Scope of Learning. Participants (both PAPs and BMOs) spend a fairly short time interacting in the process we document. The mean number of days a PAP spends in the process is 109, while the mean number of days a BMO spends in the process is 54. Furthermore, PAPs make and BMOs receive only a handful of applications while they are active. We also note that the facilitator's website is on public domain so that interested PAPs are likely to inspect the website (and learn about its workings) prior to becoming active participants.

To test the scope of learning in our matching process, we examined whether PAPs had different application behavior in the first 30 days that they were present on the website, when there could be potential for learning, versus the period after their first 30 days on the website. We found no statistically significant differences in their application decisions (see Table A7 in the online appendix).

Dynamic Effects in Application Behavior. Overall, our analysis suggests that PAPs do not go out of order in their application behavior (applying earlier to some children who are lower in their preference ranking). Indeed, when we perform our analysis ignoring the time at which applications are submitted, considering the overall pool of children a PAP applied for, we generate virtually identical preference estimations (see Table A4 in the online appendix).

PAPs' Selection. One may also be concerned about the ecological validity and interpretation of our exercise. Namely, there might be selection effects that make the participating population of PAPs not representative of the entire population of adoptive parents.

Using the Census 2000, we can compare aggregate characteristics of adopted children in the U.S. and of matched children in our data set. Specifically, the Census identifies 54% of adopted children as girls. In our data set, 25% of posted cases correspond to girls and 34% to boys. Out of matched cases in which the children's gender is known, 43% correspond to girls, while 57% correspond to boys. The comparison with the Census figures suggests that PAPS who select into our data set are, if anything, more open to adopting a boy relative to the average adopting household in the U.S.

With respect to race, the Census reports 18% of adopted children as African-American, while only 6.4% of adopted children are reported as African-American when the head of the household is classified as Caucasian (the Census' data is based on a coarse classification of race). In our data, of

all cases of matched children (through the facilitator or through other channels), 54% correspond to children who are at least partially African-American and 24% correspond to children who are 100% African-American. Recall that PAPs in our data set are virtually all Caucasian. This suggests that PAPs who select into our data set are, if anything, more open to adopting an African-American child than the average adopting household in the U.S.

BMOs' Selection. In order to address the concern of adverse selection of BMOs, we obtained auxiliary data from the facilitator containing more detailed information about 196 BMOs corresponding to recently posted cases. These data document BMOs' age, medical history, education, criminal record, as well as drug and alcohol abuse. If the observed child characteristics (namely, gender and race) are proxies for any of these, we should observe a nontrivial correlation between observed characteristics and indicators of health and behavioral issues.

Table 4 reports means of the BMOs' health, demographic, and behavioral markers conditional on the children's gender and race.

Regarding gender, the cases corresponding to boys and girls do not appear significantly different from one another (with 10% confidence) in any of the dimensions we consider. Regarding race, we have split the data according to whether the race composition of the child is above or below 50% African-American.[19]

Overall, we find that BMOs of African-American children, who are less desirable according to our preference analysis in Section 4.3, consistently exhibit slightly superior values in each of the markers. The level of pre-natal care, age, and education achievement are all very similar across the two groups of BMOs. However, criminal records, serious health problems, serious drug abuse, and obesity are more frequent (albeit not in a statistically significant way, even with 10% confidence) among the less African-American cases.

[19]Of the 196 cases in our additional data, 62 involve children whose race composition is at least partly African-American. Of these, 6 children are 25% African-American, 29 are 50% African-American, and 24 are fully African-American. The division of the data utilized to create the table therefore corresponds to a median split over these cases.

	African-American				Gender					
	$< 50\%$		$\geq 50\%$		Boy		Girl		Unknown	
	Mean	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**	**N**
Pre-Natal Care*	0.91	74	0.89	39	0.86	35	0.88	43	0.95	38
	(0.03)		(0.05)		(0.06)		(0.05)		(0.04)	
Criminal Record$^{\diamond}$	0.56	43	0.56	25	0.57	23	0.48	23	0.60	20
	(0.08)		(0.10)		(0.11)		(0.11)		(0.11)	
Serious Health Problems†	0.59	63	0.43	35	0.53	34	0.58	33	0.47	34
	(0.06)		(0.08)		(0.09)		(0.09)		(0.09)	
Drug or Alcohol Use‡	0.68	69	0.53	40	0.66	44	0.67	33	0.43	28
	(0.06)		(0.08)		(0.07)		(0.08)		(0.10)	
Obesity (BMI Above 30)	0.28	101	0.30	56	0.25	56	0.29	49	0.26	47
	(0.04)		(0.06)		(0.06)		(0.07)		(0.06)	
Age	28.2	94	28.5	50	29.0	50	28.5	45	28.0	44
	(0.6)		(0.8)		(0.8)		(0.9)		(1.01)	
Education$^{\spadesuit}$	1.95	75	2.18	42	2.09	44	1.88	39	2.19	27
	(0.09)		(0.14)		(0.13)		(0.14)		(0.13)	

Note: Standard Errors in parenthesis. $*$ Pre-Natal Care refers to a binary variable that records whether the BMO received medical attention during the pregnancy. $\diamond$ Criminal Record refers to felony convictions or jail time. † Serious Health Problems include cancer, diabetes, heart condition, coma, epilepsy, severe depression, and chlamydia during pregnancy. ‡ Drug Use includes meth, crack, heroin, cocaine, amphetamines. Alcohol Use refers to heavy alcohol consumption during pregnancy. $\spadesuit$ Education refers to the last grade completed as follows: 1 for some high school, 2 for completed HS/GED, 3 for some college, and 4 for a college degree.

Table 4: BMOs' Selection

3.3 Estimation

The assumptions above are tantamount to PAPs and BMOs operating using a (possibly time-dependent) reservation utility. In particular, a child receives an application from a PAP if and only if the PAP's utility from being matched with that child exceeds the PAP's reservation utility. For the sake of estimation, we consider a stochastic specification and assume that each PAP of type θ assesses the utility from a child of characteristics c as

$$u_{PAP}(\theta; c) = \beta_\theta \cdot c + \beta_{\theta,0} + \varepsilon_{tbp} \geq \bar{u}_{PAP}(\theta), \tag{1}$$

where $\beta_{\theta,0}$ is a constant term that varies with PAPs' type and year, ε_{tbp} is an idiosyncratic unobservable distributed according to the standard normal distribution (corresponding to each triplet (t, b, p)), and $\bar{u}_{PAP}(\theta)$ is the reservation utility of PAPs of type θ.

This specification allows us to estimate discrete choice models in which the probability of applying for a match with a specific child depends on the child's observable attributes. Note that this method enables us to evaluate the weights that different types of PAPs put on different attributes. However, it does not allow us to identify the absolute level of the reservation utility, as it is confounded with the constant term in the utility specification.

In principle, individual PAPs may be using different reservation utilities (due to, say, access to different adoption channels). PAPs could also use a strategy that allows for reservation utilities that vary with the time the PAPs spend on the website. When we estimate the parameters of equation (1) controlling for the PAPs' time on the website, we obtain coefficients β_θ that are essentially identical to those presented below, as presented in Column III of Table A8 in the online appendix.

Furthermore, note that any change in the supply of available children, in terms of either volume or distribution of types, will only change the constant term in our estimation. Therefore, PAP-day fixed effects absorb whatever changes in reservation values occur due to supply-side shifts. We estimated the parameters of equation (1) using a conditional logit with PAP-day fixed effects, and find coefficients β_θ that are virtually identical to those we present below (see Table A9 in the online appendix). Thus, our identification is a consequence of the variation in choice sets PAPs face on any given day, rather than an artifact of differences between PAPs or changes over time. We present our results in terms of probit coefficients since they allow us to compute marginal effects of different child attributes on application rates, as well as identify differences in base-application rates of different classes of PAPs.

4 Adoptive Parents' Preferences

Table 5 presents the results of probit estimations targeted at assessing PAPs' preferences over different attributes and their dependence on PAPs' categories. We cluster standard errors by PAP-BMO pairs to account for serial correlation, since a PAP's application is kept on the website until the child is matched. Here and throughout the rest of the regression tables, unless otherwise indicated, the t-statistics appear in parentheses.

Dependent Variable: PAP Applies for BMO	All	Straight PAP	Gay PAP	Lesbian PAP	Single PAP
Activity Window: 10 Days					
Already Born (d)	-0.014*	-0.015	-0.020	-0.060	0.031
	(-2.01)	(-1.91)	(-0.20)	(-0.61)	(0.96)
Months to Birth	-0.001***	-0.001**	-0.001	-0.001	-0.001
	(-3.46)	(-2.59)	(-0.24)	(-0.36)	(-1.07)
Finalization Cost in $10 000	-0.019***	-0.018***	-0.023	-0.109*	-0.019
	(-6.00)	(-4.96)	(-0.65)	(-2.45)	(-1.92)
African-American Girl	-0.052***	-0.051***	-0.213*	-0.232**	-0.055*
	(-6.18)	(-5.11)	(-2.38)	(-2.71)	(-2.31)
African-American Boy	-0.065***	-0.068***	-0.050	-0.094	-0.077**
	(-7.46)	(-6.39)	(-0.65)	(-0.97)	(-2.77)
African-American Unknown Gender	-0.070***	-0.075***	-0.131	-0.114	-0.082***
	(-8.17)	(-7.22)	(-1.28)	(-1.40)	(-3.83)
Non-African-American Girl	0.028***	0.028***	0.120	0.273*	0.032
	(4.23)	(3.73)	(1.16)	(2.53)	(1.37)
Non-African-American Boy	-0.006	-0.010	-0.020	0.128	-0.000
	(-0.99)	(-1.39)	(-0.26)	(1.76)	(-0.00)
Hispanic	0.004	-0.001	0.141	-0.043	-0.028
	(0.53)	(-0.09)	(1.35)	(-0.31)	(-1.09)
Year 2004 (d)	-0.031***	-0.032***	0.008	-0.052	0.022
	(-5.35)	(-4.88)	(0.08)	(-0.62)	(0.82)
Year 2005 (d)	-0.020**	-0.020**	-0.050	-0.048	0.005
	(-3.12)	(-2.67)	(-0.66)	(-0.67)	(0.19)
Year 2006 (d)	0.005	0.015	0.144	-0.069	0.020
	(0.60)	(1.53)	(1.34)	(-0.96)	(0.53)
Year 2007 (d)	0.004	0.008	0.185	-0.195***	0.058
	(0.49)	(0.79)	(1.79)	(-4.88)	(1.01)
Year 2008 (d)	0.030***	0.028**	0.001	0.082	0.030
	(3.71)	(2.72)	(0.01)	(1.58)	(1.16)
Single PAP (d)	0.013				
	(1.72)				
Gay PAP (d)	0.088***				
	(3.79)				
Lesbian PAP (d)	0.155***				
	(5.89)				
Probability for Mean Attributes	0.088	0.073	0.190	0.221	0.077
Probability for Base Case (‡)	0.109	0.114	0.177	0.272	0.089
χ^2	341.08	181.87	29.58	44.48	43.48
Log-Likelihood	-219850.8	-143090.0	-5573.2	-8604.6	-20407.6
Observations	871215	592416	12982	16727	79652
PAP-BMO	30688	21386	428	544	2493

Note: (d) for discrete change of dummy variable from 0 to 1. (d) for discrete change of dummy variable from 0 to 1. $^{*}p < 0.05$,** $p < 0.01$,*** $p < 0.001$. Standard Errors clustered by PAP-BMO pair. (‡) The omitted category is a gender unknown, non-African-American, unborn child, less than one month to birth, with finalization cost of $26,000 in 2009.

Table 5: Determinants of PAPs' Applications: Marginal Effects for Probit

The first column of Table 5 refers to the behavior of the entire PAP population. It corresponds to a model in which the different categories of PAPs in our sample—straight couples, gay men, single women, and lesbian couples—are characterized by the same utility function—namely, the coefficients β_θ in (1) are restricted to be identical across PAPs—but may have different thresholds (captured by the dummy variables corresponding to PAPs' categories) due to the different streams of children for whom they can be considered. The PAPs-category dummy variables in the first column are significantly different from one another. The remaining columns of Table 5 correspond to estimated models in which different categories of PAPs are allowed to have different preferences. In what follows, we first discuss the aggregate preferences over children's attributes and then compare estimated preferences across different categories of PAPs.

The omitted category corresponding to all estimations reported in Table 5 is a 2009 child, a month before birth, whose gender is still unknown, whose race composition is zero percent African-American, and whose adoption finalization costs are $\$26,000$. This omitted category of children has an 10.9% probability of receiving an application, while a child whose attributes correspond to the population means (as reported in Table 2) receives an application with a probability of 8.8%.

According to the third and fourth columns of Table 5, gay and lesbian couples have a significantly higher probability of submitting an application than straight couples. Indeed, the probability of submitting an application for the child whose attributes correspond to the population mean is 7.3% for straight couples, 19% for gay PAPs, 22.1% for lesbian PAPs, and 7.7% for single women. These can be partly explained by the constraints that gay and lesbian couples face when adopting a child: Since many of the children on this website are not available to them, gay and lesbian couples conceivably compensate by applying more frequently when they can.

4.1 Adoption Finalization Costs

Our analysis reveals that PAPs' application behavior is significantly affected by the cost of finalizing the adoption. However, the effects we find are not very large in aggregate terms. Indeed, Table 5 shows that an increase in adoption finalization costs of $\$10,000$ decreases the probability of receiving an application from 8.8% to 6.9%.

We find that alternative PAP categories respond quite differently to changes in adoption finalization costs. Indeed, lesbian couples seem to respond to changes in adoption finalization costs more than straight and gay couples and single women. Thus, a $\$10,000$ increase in adoption finalization costs reduces the desirability of a child by 1.8% for straight couples, 2.3% for gay men, 10.9% for lesbian couples and 1.9% for single women. The sensitivity of these categories is consistent with the Census 2000, which reports that adoptive straight couples and gay men are, on average, wealthier than lesbian couples.

The fact that the probability of receiving an application is significantly influenced by the finalization costs allows us to estimate an analogous model in which coefficients associated with different attributes are expressed in dollar terms. This estimates are reported in Table 6.

In Table A10 in the online appendix we show that, in fact, there is a strong dependence of adoption finalization costs on children's attributes. We find that African-American children of unknown gender are associated with costs that are $\$7,480$ lower relative to non-African-American children of unknown gender. In addition, non-African-American boys are associated with costs that are $\$2,270$ lower than non-African-American girls. While these differences are significant, notice that they are far smaller than the differences in willingness to pay for children of different attributes that we discuss below. Thus, while differences in costs mitigate the differences in desirability for race and gender, they provide only partial compensation.

4.2 Preferences over Gender

In our data, the gender of each child is "boy," "girl," or "unknown." Since "gender unknown" maybe a consequence of limited medical attention, we measure the PAPs' gender preference by comparing the probabilities of receiving an application by girls and boys.

Non-African-American girls have a probability of receiving an application that is 3.4% higher than non-African-American boys, a large effect given that the child with mean attributes has a probability of 8.8% of receiving an application. In other words, PAPs have a positive and sizable preference in favor of (non-African-American) girls. According to Table 6, the increase in desirability of a non-African-American girl with respect to a non-African-American boy is equivalent to a de-

Dependent Variable:	All	Straight PAP	Gay PAP	Lesbian PAP	Single PAP
PAP Applies for BMO					
Activity Window: 10 Days					
Already Born	-8,194	-9,517	-9,063	-5,978	14,178
	(-1.86)	(-1.74)	(-0.20)	(-0.56)	(1.08)
Months to Birth	-556	-552	-313	-110	-479
	(-3.45)	(-2.58)	(-0.24)	(-0.36)	(-1.06)
Finalization Cost in 10 000's of $	-10,000	-10,000	-10,000	-10,000	-10,000
	(-5.92)	(-4.88)	(-0.66)	(-2.50)	(-1.91)
African-American Girl	-27,708	-28,828	-92,396	-21,350	-28,493
	(-6.22)	(-5.11)	(-2.42)	(-2.74)	(-2.34)
African-American Boy	-35,139	-38,069	-21,563	-8,678	-40,479
	(-7.42)	(-6.31)	(-0.65)	(-0.96)	(-2.76)
African-American Unknown Gender	-37,639	-42,276	-56,875	-10,441	-42,945
	(-8.03)	(-6.99)	(-1.22)	(-1.39)	(-3.80)
Non-African-American Girl	15,069	15,655	52,188	25,152	16,712
	(4.20)	(3.72)	(1.19)	(2.58)	(1.37)
Non-African-American Boy	-3,264	-5,655	-8,646	11,763	0
	(-0.99)	(-1.39)	(-0.26)	(1.76)	(-0.00)
Hispanic	2,153	-414	61,146	-3,939	-14,863
	(0.53)	(-0.09)	(1.36)	(-0.31)	(-1.09)
Year 2004	-18,958	-20,345	3,542	-5,014	11,233
	(-4.71)	(-4.25)	(0.08)	(-0.58)	(0.86)
Year 2005	-11,181	-11,517	-23,438	-4,683	2,397
	(-3.00)	(-2.55)	(-0.61)	(-0.64)	(0.19)
Year 2006	2,431	7,931	52,396	-6,942	9,384
	(0.61)	(1.64)	(1.53)	(-0.88)	(0.57)
Year 2007	2,222	4,276	64,896	-25,730	24,041
	(0.50)	(0.82)	(2.03)	(-3.43)	(1.24)
Year 2008	14,097	13,724	313	7,245	13,836
	(4.20)	(3.07)	(0.01)	(1.69)	(1.31)
Gay PAP	34,028				
	(4.94)				
Single PAP	6,806				
	(1.82)				
Lesbian PAP	51,528				
	(8.24)				
χ^2	341.08	181.87	29.58	44.48	43.48
Log-Likelihood	-219850.8	-143090.0	-5573.2	-8604.6	-20407.6
Observations	871215	592416	12982	16727	79652
PAP-BMO	30688	21386	428	544	2493

Note: Probit on Application Decision. Coefficients converted into dollar equivalents; i.e. the ratio of the coefficient to the coefficient on finalization cost. T-statistic presented in parenthesis, clustered by PAP-BMO pair. The omitted category is a gender unknown, non-African-American, unborn child, less than one month to birth, with finalization cost of $26,000 in 2009.

Table 6: Determinants of PAPs' Applications: Coefficients Expressed in Dollars

crease of $\$18,333$ in finalization costs. This higher desirability of girls is consistent with anecdotal evidence reported by adoption agencies and the popular press covering the adoption process.[20] If we consider adoption *outcomes* in the U.S., the 2000 Census reported that 46% of adopted children were male as compared with 51% of biological children (see Kreider, 2003). Our result suggests that these outcomes are explained, at least partially, by a significant demand effect. A preference for girls has also been documented for biological mothers by Gallup polls, though, interestingly, biological fathers tend to report a preference for boys.

In our data, the preference for girls is apparent, though somewhat different, across all categories of PAPs. Lesbian couples exhibit, by far, the most intense preference for non-African-American girls. Indeed, for non-African-American children, the estimated difference in application probabilities between girls and boys is 3.8% for straight couples, 14% for gay couples, 14.5% for lesbian couples and 3.2% for single women (a chi-squared test indicates these differences are significant at any reasonable confidence level). The strong gender preferences pertaining to gay and straight couples suggest that women's preference for girls is not the sole driving force behind this preference. We note that there is a strand of literature based on hypothetical surveys of different classes of PAPs regarding preferences over children's gender (see Goldberg, 2009, and references therein). Our results are the first to report a stronger preference over children's gender for same-sex than for straight PAPs.

Table 5 also highlights a positive and sizable (although not statistically significant) preference for African-American girls with respect to African-American boys. In particular, the difference between the application probabilities for an African-American boy and an African-American girl is 1.3%.

The gender bias we observe is compatible with the idea that girls are viewed as "safer" in terms of dysfunctional behavior and are, therefore, more appealing candidates for adoption. However, we suspect this does not fully explain the gender preferences we observe since this conjecture would suggest that the gender gap should be stronger for African-American children, for whom the gap in

[20] See, for instance, Slate (1/16/2004).

terms of negative outcomes is greater between the genders.[21]

We note that the substantial preference for girls we document constitutes a reversal, in the adoption environment, of the preference for sons identified by the literature studying the preferences over gender of biological children by looking at indirect indicators such as divorce, likelihood of the mother's remarriage, etc. For instance, Dahl and Moretti (2008) find that first-born daughters are associated with a range of negative predicaments for the survival of couples.[22] Since the Census 2000 suggests that approximately 50% of households containing adopted children do not include any biological child, it is difficult to explain this inconsistency by the mere ordering of children in the family (which would require parents to have dramatically different gender preferences for first and later children).

4.3 Preferences over Race

To our knowledge, racial preferences over offspring have not yet been documented. Anecdotal evidence from adoption agencies and facilitators suggest that there are greater difficulties in matching African-American children with respect to other ethnicities. However, to this date, the only evidence to support this claim had been the gap between the proportion of African-American children awaiting adoption in the U.S. foster-care system (32% in 2006, according to the U.S. Department of Health and Human Services Report). On the other hand, according to the Census, 18% of adopted children are African-American, while African-Americans represent only 15% of all children. The limitation of these statistics is that they cannot be directly related to PAPs' preferences. In that respect, our data set provides a direct channel to estimate parents' racial preferences in the adoption

[21] There are some data backing the perception that girls are "safer" behaviorally. For instance, the U.S. Department of Justice reports that lifetime chances of a person going to prison are significantly higher for men (11.3%) than for women (1.8%). Also, girls are less likely to develop behavioral problems such as autism spectrum disorders (four times more prevalent in boys than in girls, according to the Autism Society of America), or ADHD (diagnosed two to four times as frequently in boys as in girls, see Dulcan, 1997). This conjecture has been mentioned repeatedly in the popular press, see, e.g., Slate (10/14/2003 and 1/16/2004). When considering differences between races through incarceration, the U.S. Department of Justice reports that the imprisonment rates in 2001 were: 16.6% for African-American males, 7.7% for Hispanic males, 2.6% for Caucasian males, 1.7% for African-American females, 0.7% for Hispanic females, and 0.3% for Caucasian females.

[22] Specifically, Dahl and Moretti (2008) report that (i) women are less likely to remarry if they have a first-born daughter than if they have a first-born son; (ii) couples tend to divorce less often if they have first-born sons rather first-born daughters; and (iii) the number of children is significantly higher in families with first-born girls.

environment.[23]

Our results show that children's probability of receiving an application is considerably affected by their race. In particular, this probability dramatically decreases if the child is, at least partially, African-American.

Projecting the marginal effect linearly, the probability that a 100% African-American child (of unknown gender) receives an application is 1.8% in contrast to a probability of 13.1% for a 0% African-American child (a chi-squared test indicates these differences are significant at any reasonable confidence level).[24] Similarly, application probabilities decrease dramatically for both African-American girls and boys. In other words, PAPs in our sample exhibit a large and negative preference against African-American children. This suggests that the over-representation of African-Americans in the population of adopted children is due to a *sizable supply effect*.

From Table 6, the decrease in desirability of an African-American child of unknown gender with respect to a non-African-American child is equivalent to a $\$36,842$ increase in adoption finalization costs.

Physical similarity may be underlying these preferences. In fact, preference for similarity, or *homophily*, is a well-known and documented phenomenon in the sociology literature (see McPherson, Smith-Lovin, and Cook, 2001 and references therein).[25] In the context of adoption, homophily may manifest itself in the desire of PAPs to adopt children who are similar to them and could, therefore, appear as their biological offspring. Since virtually all of the PAPs in our data set are Caucasian, homophily would be consistent with a negative attitude toward African-American children.

Hispanic children account for 13.3% of children on the website. However, we do not find a racial preference for or against Hispanics. The estimated desirability of Caucasian and Hispanic children is roughly identical, with a non-significant increase of the application probability of 0.4%

[23] Estimating preferences over physical characteristics of biological children is inherently difficult due to the limited choice parents have over offsprings' appearance. Furthermore, according to the Census 2000, only 4% of marriages in the U.S. are interracial, so variation in the race of biological children may be challenging to assess.

[24] The 13.1% probability is derived through a linear interpolation of the 1.8% probability of application for a 100% African-American child (of unknown gender) and the 8.8% probability of application for the child with mean attributes (according to Table 2, 38.3% of children are African-American).

[25] This desire for similarity would be in line with racial preferences over romantic partners documented by Fisman, Iyengar, Kamenica, and Simonson (2006, 2008).

if the child is Hispanic. To the extent that Hispanic children may look different than Caucasian children, this suggests that a preference for physical similarity alone cannot account for the racial preferences we observe. Statistically, the 95% confidence interval for the Hispanic coefficient is given by $(-1\%, 1.9\%)$, so we cannot reject the hypothesis that PAPs have the same preferences for Caucasian and Hispanic children.

In terms of different PAP categories, our estimates suggest that the racial preference against African-American children is somewhat stronger (although in some cases not significantly so) for gay men, lesbian couples, and single women than for straight couples.

5 Impact of Institutional Changes

When considering an institutional change in the adoption process, the first effect to consider is the impact on the number of adopted children. Reducing the number of adopted children comes at significant costs. For example, Barth, Lee, Wildfire, and Guo (2006), as well as Hansen and Hansen (2006), show that state and federal governments save between $\$65,422$ and $\$126,825$ on the average child who enters foster care at age three if he or she is adopted rather than remains there throughout childhood. Furthermore, Hansen (2006) calculated that the human service costs of adoption are about one-half the costs of long-term foster care.[26] Moreover, an institutional change may affect the distribution of attributes (gender, race, etc.) of adopted children, as well as adopting PAPs. In this section, we first quantify the effect of bans on certain categories of PAPs (same-sex couples and single women) from the adoption process, and then evaluate a centralized matching mechanism.

5.1 Adoption by Same-Sex Couples and Single Women

We start by noting that studies tracking adopted children identify some positive effects and no negative effects of adoption by gay or lesbian parents as opposed to heterosexual parents.[27] Therefore,

[26] She also found that when examining other social costs, such as reduced incarceration or increased education attainment, each dollar spent on the adoption of children from foster care results in $\$2.45$ to $\$3.26$ in tangible benefits to society.

[27] See Brewaeys, Ponjaert, Van Hall, and Golombok (1997), Golombok, Perry, Burston, Murray, Mooney-Sommer, Stevens, and Golding (2003), Golombok, Spencer, and Rutter (1983), and Wainwright, Russell, and Patterson (2004).

given the costs generated by children that remain unmatched, the number of successful adoptions is a reasonable proxy for the effectiveness of the matching process. Thus, we estimate the impact of the participation of same-sex couples in the adoption process by assessing the number of matches that would be lost should gay and lesbian PAPs be restricted from participating. In our data, same-sex couples are chosen by the BMOs in 18% of all cases of matched children for whom we know the identity of the chosen PAP. This serves as an upper bound on the percentage of matches that would have been lost had same-sex couples been prohibited from participating in the adoption process. In order to generate a more conservative estimate, *we count all the matched children that received only applications from unambiguously same-sex PAPs*. In that case, banning same-sex applicants would reduce the number of applications received by these BMOs to zero, effectively making a match impossible.[28] This amounts to 9% of matched cases in our data. This is clearly a large effect given that, according to Table A1, only 19.6% of matched cases allow gay and lesbian PAPs to apply. It is important to note that this method ignores two important elements of our environment. First, it ignores the fact that certain heterosexual parents may not appear acceptable to some birth mothers. Second, it ignores the endogenous effects on PAPs' application behavior. Indeed, reducing the pool of potential parents would reduce the competition on the PAPs' side and could lead to less applications being submitted.

In terms of the attributes associated with children whose match would have been lost under our exercise, we find that 80% of severed matches correspond to boys (to be contrasted with boys representing 36% of the overall observed matches). In terms of race, 48% of lost matches correspond to African-American children (as compared with 39% of matched children being African-American). This suggests that, while same-sex couples have strong preferences against boys and African-American children, they still play an important role in their placement due to their higher application rates, as we discussed in Section 4.

As for single PAPs, an analogous exercise generates similar results. In our data, 14% of matched

[28]The significant variance observed in the number of applications BMOs receive by the time of a match suggests that they are not determining their stay on the website based on the number of applications received. However, our counterfactual estimates do not take into account that, had certain PAP categories been excluded, BMOs could stay on the website longer, possibly receiving additional applications that we do not observe.

children are ultimately matched with a single PAP. 9% of matched children received applications only from single PAPs, which serves as an estimate of the percentage of matches that would be lost had single PAPs been banned from the process. This is a substantial effect given that only 57% of matched cases allow single PAPs to apply.

Of the matches that would have been lost, 68% are African-American children, significantly higher than the percentage of African-Americans in the entire population of matched children. Finally, 36% of the severed matches due to the exclusion of single PAPs correspond to boys, which is similar to the fraction of matched boys in the sample.

5.2 Centralized Adoption Matching

The process we describe in this paper is fairly decentralized, in that it is the individual participants who execute the mapping between their preferences and those they ultimately match with (children for PAPs and PAPs for BMOs). One natural alternative involves some level of centralization. Indeed, centralization has proven beneficial in an array of matching markets, ranging from those pertaining to matching medical residents and hospitals (the annual National Resident Medical Program, know as NRMP, see Roth, 1984) to matching children with schools (see Abdulkadiroglu and Sonmez, 2003).

In order to assess the potential value of centralization in our environment, we consider a variant of the Deferred Acceptance algorithm (see Gale and Shapley, 1962). This algorithm is designed to generate a one-to-one matching between two finite sets of participants, say P and B (in our case, PAPs and BMOs). The algorithm involves a number of 'rounds'. In the first round, each 'unengaged' member in P 'proposes' to the member in B he prefers most, and then each member in B tentatively holds her most-preferred proposal and rejects all others, thereby being 'engaged' to that member of P. In each subsequent round, first each unengaged member of P 'proposes' to the most-preferred member of B to whom he has not yet proposed (regardless of whether she is engaged), and then each member in B tentatively holds her most-preferred proposal (her existing engagement, or a new one) and rejects the rest (again, perhaps including her current tentative partner). The process ends when no new offers are made.

This algorithm guarantees two things. First, the process ends in finite time. Second, the algorithm generates a stable matching corresponding to the preferences reported.[29] Which set of individuals is proposing affects the stable matching that is selected, if there are multiple stable matchings. In particular, in the P-proposing algorithm, it is the stable matching that *all* members of P agree is the superior stable matching. Nonetheless, the Rural Hospital Theorem (see Roth and Sotomayor, 1992) guarantees that the set of unmatched individuals does not depend on which stable matching is implemented. Variations of the algorithm have been used in numerous applications, notably in the NRMP in the U.S.

Since our data encompasses several years and participants tend to stay active only for a short period of time (namely, 109 days for PAPs and 55 days for BMOs), we consider variations of the algorithm in which the centralized algorithm operates at a certain annual rate. Specifically, we consider three variations, where centralized matching occurs every one, three, or six months. At the end of each window, we consider all the BMOs and PAPs that were active in that window and implement the matching induced by the PAP-proposing Deferred Acceptance algorithm (the BMO-proposing Deferred Acceptance algorithm produces virtually identical results). Unmatched individuals carry over to the next period under several conditions. PAPs carry over to the next window if they had spent less than 109 days in the process prior to the centralized matching. BMOs carry over if they had spent less than 55 days in the process prior to the centralized matching, as well as if their child is no more than six months old.[30] We use our estimations to determine preferences for different categories of PAPs and for BMOs (much in the spirit of Hitch, Hortacsu, and Ariely, 2010) at the end-date of each window, the date at which the centralized matching takes place. In each iteration, error terms are randomly determined (realized error terms are fixed for participants throughout their stay in the process, i.e., they are determined in the first window in which they take part) and our specification then induces a preference ranking for each participant (generically strict, ties are broken randomly). In order to determine whether a child would carry over to the successive window, we focus only on children in our data whose age (or time to birth) is specified,

[29] A stable matching is a matching in which: (i) no individual prefers to be unmatched over their allocated match partner; and (ii) no pair of individuals prefer one another over their allocated partners.

[30] The second restriction is due to the scarcity of children who are in that age group in our data.

corresponding to 640 children. Since we are particularly interested in the matching of different classes of PAPs, we consider only PAPs with unambiguous names in this process. The results we report, in Table 7 below, correspond to a 1000 simulations of each variant of the centralized procedure.

There are several messages this exercise suggests. First, matching in this centralized manner produces much higher rates of adoption matches, ranging from 7.6% when the window is set at six months, to 10.7% when the window is set at three months, to 15.7% when the window is set at one month. Since we are not considering PAPs with ambiguous names in our simulations, these volumes potentially provide an underestimate of the volumes that would have been generated with the full set of PAPs (though, admittedly, some children have been dropped from the simulations as well when the data regarding their attributes was incomplete). As a comparison, in our data, only 7.5% of the children we consider in the simulations were matched (0.3% of whom are matched with PAPs with ambiguous classification, which do not participate in our simulated centralized processes). Second, the impact of the size of the window is significant. Shorter windows correspond to a smaller pool of PAPs accessible to any child, but also potentially less competition between children for PAPs' applications. As it turns out, the latter dominates and smaller windows generate substantially higher rates of adoption, across types of PAPs.[31] In fact, when the window is one month, the volume of adoptions is nearly doubled relative to a six-months window, or the observed outcomes in our data. Third, the centralized process generates rates of adoptions across gender (fixing race) and race (fixing gender) that are not significantly different, regardless of the length of the window. Last, while in the centralized procedure straight and single PAPs are matched at the highest rates, the wedge between their adoption rates and same-sex couples' adoption rates diminishes as the size of the window is shortened. These distributions are similar to those observed in our data, though, while statistically insignificant, straight couples do adopt at greater volumes under the centralized

[31] We note that, if anything, the way these simulations were run would give some advantage to longer windows between the clearinghouse's operation, due to the time participants are allowed in the process. For example, when the window is six-months long, say between January and June, a BMO appearing in January, would have 'access' to all the PAPs appearing in this six-months window. However, when the window is three-months long (say, encompassing January-March, April-June, etc.), that BMO would have access to PAPs in the first window only.

Window Size		Straight PAP	Gay PAP	Lesbian PAP	Single PAP	Total
6 Months						
	African-American Girl	4.40	0.08	0.54	0.37	5.39
		(1.56)	(0.22)	(0.61)	(0.54)	(1.70)
	African-American Boy	5.86	0.20	1.22	0.50	7.78
		(1.94)	(0.43)	(0.94)	(0.64)	(2.15)
	Non-African-American Girl	6.83	0.14	1.39	0.54	8.91
		(1.90)	(0.31)	(1.09)	(0.64)	(1.96)
	Non-African-American Boy	10.17	0.18	2.17	0.80	13.33
		(2.41)	(0.38)	(1.29)	(0.85)	(2.49)
	Hispanic	8.40	0.13	1.12	0.36	10.01
		(1.88)	(0.26)	(0.86)	(0.48)	(1.99)
	Total Adopted by PAP Type	56.74	1.23	9.49	3.56	71.03
		(5.75)	(1.04)	(2.23)	(1.80)	(6.02)
3 Months						
	African-American Girl	6.10	0.13	0.63	0.60	7.47
		(1.91)	(0.29)	(0.65)	(0.70)	(2.06)
	African-American Boy	6.84	0.26	1.45	0.62	9.18
		(2.05)	(0.48)	(1.00)	(0.70)	(2.31)
	Non-African-American Girl	11.21	0.24	2.32	0.75	14.51
		(2.60)	(0.41)	(1.33)	(0.78)	(2.80)
	Non-African-American Boy	12.77	0.38	2.79	0.95	16.88
		(2.69)	(0.55)	(1.43)	(0.92)	(2.98)
	Hispanic	12.56	0.24	1.98	0.51	15.30
		(2.35)	(0.38)	(1.05)	(0.55)	(2.51)
	Total Adopted by PAP Type	73.66	1.85	12.60	4.81	92.92
		(6.37)	(1.32)	(2.42)	(2.08)	(7.00)
1 Month						
	African-American Girl	7.31	0.16	0.78	0.69	8.94
		(2.18)	(0.34)	(0.71)	(0.72)	(2.40)
	African-American Boy	7.20	0.27	1.60	0.64	9.72
		(2.16)	(0.46)	(1.04)	(0.72)	(2.42)
	Non-African-American Girl	12.60	0.32	2.60	0.67	16.20
		(2.75)	(0.50)	(1.35)	(0.73)	(2.96)
	Non-African-American Boy	14.46	0.38	3.40	1.13	19.36
		(3.10)	(0.54)	(1.53)	(1.02)	(3.45)
	Hispanic	13.67	0.31	2.12	0.56	16.66
		(2.49)	(0.41)	(1.10)	(0.59)	(2.68)
	Total Adopted by PAP Type	79.13	2.03	13.84	5.07	100.72
		(6.78)	(1.35)	(2.45)	(2.16)	(7.79)
Observed Matches		33	1	6	6	48

Note: Means from 1,000 simulations presented, with standard deviation in parenthesis.

Table 7: Centralized Matching Simulation Outcomes

system. For instance, comparing our data to the simulations run with a six-months window, in both approximately 48 of the considered 640 children were matched. In our data, 33 of the children were matched with straight PAPs (as compared with 42 in the simulated process), 7 were matched with same-sex PAPs (compared with 2 in our simulations), 6 with single PAPs (compared with 4 in our simulations), and two with PAPs with ambiguous classification.

6 Conclusion

We collected a novel data set to track the matching of potential adoptive parents to birth mothers looking to relinquish their child for adoption. The detailed data on over 800 children allow us to estimate parents' preferences over child attributes, most notably over gender, race, and adoption finalization costs.

We find clear patterns in parents' preferences. First, adoption finalization costs impact demand significantly. An increase in adoption finalization costs of $\$10,000$ decreases the aggregate probability of receiving an application from 8.8% to 6.9%. Second, girls are consistently preferred to boys, and Caucasians and Hispanics are consistently preferred to African-Americans. In monetary terms, the increase in desirability of a girl relative to a boy can be compensated by a decrease of approximately $\$18,300$ in adoption finalization costs. Similarly, the increase in desirability of a non-African-American child with respect to an African-American child (both of unknown gender) is equivalent to a decrease of at least $\$37,600$ in adoption finalization cost.

Different categories of adoptive parents—straight, gay, lesbian, or single—have different behaviors in the matching process. We find that gay men and lesbian couples submit applications to 19% and 22% of children, respectively, while straight couples submit applications to only 7.3% of children. However, we do not find evidence that same-sex couples or single women's preferences are less sensitive to children's attributes than straight couples'. If anything, they seem to have stronger preferences in favor of girls and against African-American children.

These observations feed into important policy debates regarding the inclusion of specific categories of parents in the adoption process. More specifically, the recent political shifts allowing for

more households comprised of gay and lesbian partners has triggered discussion over the impacts of gay and lesbian participation on the domestic adoption process. Our data suggest that banning same-sex parents from our sample lowers the number of adopted children by about 9%. A similar exercise entailing the exclusion of single women from our sample lowers the number of adopted children by also approximately 9%. Therefore, such bans could increase the fraction of children in foster care, which has well-documented detrimental effects. In addition, we simulated a centralized matching process using the results of our estimation and found that the volume of adoptions increases substantially using this more centralized system, particularly with short windows that generate over double the number of adoptions observed in our data.

While adoption is far-reaching in the U.S. (2.5% of all children are adopted in an industry that generates $2-3$ billion dollars annually), it is still an unexplored territory for economists. In our context, the domestic adoption process is unique in that it allows us to answer fundamental questions regarding preferences over race and gender.

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