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The Evolution of Child Adoption in the United States, 1950-2010

—— An Economic Analysis of Historical Trends ——

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Annually over 60,000 children in need of care are finding a permanent home through adoption in the U.S. In this study, I use the framework of family economics to examine the evolution of child adoption in the U.S. from 1950 to the present. Noting substantial heterogeneity within child adoption, I first compile detailed statistics and document historical trends in child adoption by the type of adoption in the U.S. I then investigate demand-side, supply-side, and institutional factors underlying the observed historical patterns. It is shown that, in the U.S., the rate of child adoption per 1,000 births was at its highest around 1970, and that despite a recent resurgence the adoption rate today is still substantially below the historic peak. It is also shown that the composition of child adoption in the U.S. has changed greatly from domestic infant adoption to the adoption of foreign infants and foster care children since the 1970s, resulting in much greater diversity of adopted children and adoptive parents. I argue that these changes were initially brought about by large and exogenous supply shocks in domestic adoption, but were propelled further by endogenous changes in adoption laws, agency practices, and child welfare policies.
JEL Classifications: D10, J13, N32

1. Introduction

Adopting a child, as an alternative to bearing a child, is a widely accepted means of forming a family in modern western societies[1]. In the US, over 130,000 children were adopted annually, making it a leading child adoption country in the world (CWIG 2011a; United Nations 2010). Although this number includes many adopted stepchildren, approximately half of the adopted children are *unrelated* to their adoptive parents by blood or marriage, almost 20,000 children are adopted from overseas, and over 50,000 children are adopted from the state foster care system. In other words, tens of thousands of children in need of homes are matched with families seeking to adopt, finding a permanent home through adoption in the US. Cumulatively, there are 1.8 million adopted children constituting 2.5% of all children under the age of 18 in the US, and half of them were adopted in their infancy (ASPE 2009). As adoption entails a permanent transfer of a child across households typically at a very young age, it potentially has large welfare implications.

Despite its quantitative and qualitative importance, child adoption has received remarkably little attention from economists[2]. As a result, adoption research has been found almost exclusively in the fields of demography, child psychology, and family sociology (Fisher 2003). Fortunately, however, a number of economists began to conduct empirical studies on adoption in the US in the last several years (e.g., Hansen and Hansen 2006; Bernal, Hu, Moriguchi, and Nagypal 2009; Buckles 2009; Moriguchi 2009; Gumus and Lee 2010; Baccara, Collard-Wexler, Felli, and Yariv 2010; Skidmore, Anderson, and Eiswerth 2011)[3].

The objective of this study is to advance our understanding of child adoption in the US using historical data. Its contribution is threefold. First, using the framework of family economics, this study provides an overview of the "adoption markets" in the US and divides them into three categories, noting important heterogeneity within adoption. Second, through a systematic survey of available data and evidence, it quantitatively

documents historical trends in child adoption by type of adoption from 1950 to 2010. To the best of my knowledge, this is the first study to provide detailed and consistent historical statistics distinguishing adoption types. Third, in order to understand the historical trends revealed by the data, it analyzes demand-side, supply-side, and institutional factors by adoption category and proposes coherent explanations. More detailed analysis and complete data are provided in Moriguchi (2012).

The main findings of this study are as follows: (1) the "adoption markets" in the US are far from homogenous, consisting of three categories across which the characteristics of adoptive families differ systematically; (2) child adoption in the US was at its highest in 1970 and, despite a resurgence in the 1990s, the number of adoptions today is still substantially below the historic peak; (3) there have been major compositional changes in child adoption from domestic infant adoption to inter-country adoption and foster care adoption since the 1970s, thereby resulting in much greater diversity of adopted children and adoptive parents; and (4) these profound changes were initially brought about by large and exogenous supply shocks in domestic adoption, but were propelled further by endogenous changes in laws, norms, and policies surrounding adoption practices.

The remainder of the paper is organized as follows: Section 2 provides an overview of the "adoption markets" in contemporary US; Section 3 presents historical statistics by adoption type and documents long-run trends in child adoption; Section 4 investigates the reasons for the observed historical trends and examines demand- and supply-side hypotheses compiling additional data; Section 5 discusses possible implications for the welfare of children and concludes.

2. The Markets for Child Adoption in the US

2.1 Institutional Background

Child adoption is a result of a match between a child in need of a home and a family seeking to adopt. The supply side of child adoption consists of birth parents who choose to relinquish their children for adoption, while the demand side consists of prospective adoptive parents. Because the demand side and the supply side do not coincide, the two sides are matched in "adoption markets," often by intermediaries. Here, the term "market" is not used in the sense of a standard market in which goods are sold and bought freely at competitive prices, but describes a place where demand meets supply and exchanges take place. Like marriage markets, adoption markets are complex institutions that deviate greatly from the standard market and thus merit careful analysis.

Because the object of exchange is effectively a child, to protect the welfare of children, adoption markets are heavily regulated by federal and state governments. In all US states, the adoption of a minor is subject to state adoption laws and requires court approval. In fact, the US was the first country to enact "modern" adoption laws in the nineteenth century that allowed the *permanent* and *absolute* transfer of a child from birth to adoptive parents. To protect the best interests of each child, state adoption laws stipulate who can adopt and who can be adopted, mandate pre-placement investigations of applicants, and regulate adoption agencies and facilitators.

There are several types of child adoption. Because the characteristics of adoptable children and adoptive parents vary across types, it is important to distinguish adoption types in the following analysis. Child adoption can be classified by the relationships between the adoptive parent(s) and the adopted child (related or unrelated adoption), by the nationality of the adopted child (domestic or inter-country adoption), or by the type of intermediation (public agency, private agency, or non-agency adoption). Related adoption refers to adoption by individuals who are related to a child by blood or marriage, including relatives and stepparents. Because

stepchild adoption is closely associated with marriage decisions, in this study, I focus on related and unrelated adoption, *excluding* stepchild adoption. Domestic adoption refers to the adoption of US children by US citizens, while inter-country adoption refers to the adoption of foreign children by US citizens.

In the US, adoptions can be arranged by public child welfare agencies, private adoption agencies, or by private individuals without involving any agencies[4]. The primary functions of the agencies are to represent relinquishing birth parents (or relinquished children), evaluate prospective adoptive parents, conduct home studies, arrange placements by matching child attributes and parental preferences, and process court applications. All private agencies are licensed and subject to state regulations. The majority of children placed by private agencies are healthy newborns, and the majority of adoptive parents who receive a placement from private agencies are married couples with fertility problems (Bernal *et al.* 2009; Baccara *et al.* 2010). Most private agencies are non-profit organizations, while some states permit pro-profit agencies. Adoption agencies, even if non-profit, are allowed to charge adoption fees to cover the costs of making placements including administrative, medical, and legal expenses. Because private agencies have large discretion in setting the amounts of fees, adoption fees vary substantially not only across agencies but also by child attributes within an agency (Baccara *et al.* 2010; Skidmore *et al.* 2011).

Foster care adoption refers to the adoption of children from the state foster care system. Children are removed from their homes and placed in the foster care system when their parents are unable or unwilling to care for them. As a result, children in foster care come disproportionately from disadvantaged families and may suffer from physical, mental, or emotional disabilities or be "at risk" of developing these conditions (Buckles 2009). For the adoption of foster care children with special needs, the federal government introduced an adoption subsidy program in 1980 to provide financial assistance to adoptive families. The definition of special needs children varies across states, but generally refers to children who are no longer infants or a member of a sibling group, have a disability, or belong to a racial minority. All foster care adoptions are arranged through public agencies.

Domestic adoptions other than foster care adoption are arranged through private agencies or individuals (e.g., doctors and attorneys). Adoptions by relatives typically do not involve any agencies. All inter-country adoptions are arranged by private agencies that specialize in placing foreign children. The characteristics of foreign children relinquished for adoption vary greatly, depending on the economic, political, and institutional conditions in a sending country in a given year. In certain cases (e.g., countries under economic crises), children placed in institutions are reported to be at high risks for developing health problems, while in other cases (most notably, South Korea and China) the majority are healthy infants. The majority of inter-country adoptions are inter-racial adoptions in which the race of the adopted child differs from that of the adoptive parents (ASPE 2009).

2. 2 The Three Categories of Child Adoption in the US

In the following analysis, I divide child adoption into three categories: (a) domestic private adoption (i.e., the adoption of domestic children arranged through private agencies or individuals, excluding stepchild adoption), (b) inter-country adoption (i.e., the adoption of foreign children arranged through international agencies), and (c) foster care adoption (i.e., the adoption of foster care children through public agencies). It is important to note that, for families seeking to adopt, the monetary and time costs of adoption vary substantially across these categories (NCFA 1989; CWIG 2011b). The estimated monetary costs of adopting a healthy infant domestically through a private agency range from $5,000 to $40,000 and the

Table 1. Characteristics of Adoptive Families by Adoption Category in the US, 2007
(In %)

	All Children	All Adopted Children	Adoption Category		
			Inter-countory	Foster Care	Domestic Private
% Distribution of Adopted Children		100	25	37	38
A. Chracteristics of Adopted Children					
Gender of child					
Male		49	33	57	51
Age of child at adoption					
Age 0		33	39	14	47
Age 1		17	28	14	13
Ages 2-5		30	25	42	21
Ages 6-17		20	9	30	20
Race of child					
White, non-Hispanic		37	19	37	50
Black, non-Hispanic		23	3	35	25
Asian, non-Hispanic		15	59	n/a	n/a
Health of child					
Moderate or severe health problems	10	26	14	39	21
Relationships to adoptive parent					
Unrelated		76	98	77	59
Related (relative)		24	n/a	23	41
B. Chracteristics of Adoptive Parents					
Race of parent					
White, non-Hispanic	54	73	92	63	71
Black, non-Hispanic	14	17	n/a	27	19
Asian, non-Hispanic	4	1	n/a	n/a	n/a
Marital status of parent					
Married	71	69	82	70	59
Fertility of parent					
No biological child born to parent		49	71	38	46
Educational attainment					
More than high school	68	80	95	70	79
Household income-to-poverty ratio					
Below 100% poverty level	18	12	n/a	16	17
10-300% poverty level	38	36	15	49	38
Above 300% poverty level	44	51	82	34	45

Source) The 2007 National Survey of Adoptive Parents reported in ASPE (2009).
Note) Estimates are based on a nationally representative sample of 2,089 adopted children aged 0-17. Adopted stepchildren were excluded from the sample. "n/a" means no reliable estimates are available.

expected waiting period for applicants is two to four years reflecting long waiting lists. When adopting an infant from abroad, the estimated monetary costs for adoptive parents range from $15,000 to $30,000 and the expected waiting period is ten months to two years, but this varies widely across countries and years of application. When adopting a child from foster care, the monetary costs are notably lower, ranging from $0 to $2,500 net of public subsidies. The expected waiting time for adoptive parents is also relatively short, reflecting a large number of children in foster care seeking to be adopted.

Departing from the standard model of fertility proposed by Becker (1981), it is useful to consider a theoretical framework in which individuals can expand a family not only by giving a birth but also through adoption (see Moriguchi 2010). In this framework, prospective parents will decide whether to bear or adopt a child, given their preferences and their fecundity, time, and monetary constraints. Two primary motivating factors for adoption are *infertility* (i.e., inability to bear a desired number of children) and *altruism* (i.e., desire to save a child in need and provide a permanent home). When adopting, prospective parents will choose to which adoption category to apply, taking into consideration the attributes of adoptable children and adoption costs. As a result, the theory predicts that not only child characteristics but also parental characteristics vary systematically across adoption categories.

To observe this in data, Table 1 presents the characteristics of adoptive families by adoption category using the 2007 National Survey of Adoptive Parents (NSAP), the only survey that contains such information. The NSAP covers 2,089 adopted children aged 0-17, excluding adopted stepchildren. The shares of inter-country, foster care, and domestic adoptions in total adoptions were 25%, 37%, and 38%, respectively. As shown in Panel A of Table 1, the gender, age, and racial distributions of children differed substantially across categories. Most notably, children adopted internationally were disproportionately female (67%), infant (67%), and Asian

(59%), whereas children adopted from foster care were disproportionately male (57%), non-infant (72%), and black (35%). In general, adopted children were more likely to have moderate or severe health problems (26%) than the national average (10%), but the likelihood among children adopted from foster care was far greater (39%). Almost all inter-country adoptions were unrelated adoption, whereas 41% of domestic private adoptions and 23% of foster care adoptions were by relatives.

Panel B of Table 1 presents the race, marital status, fertility, education, and income of adoptive parents. Parents adopting internationally were disproportionately white (92%), married (82%), highly educated (95% having high school diploma), and had much higher household income than the national average. In contrast, parents adopting from foster care were disproportionately black (27%), less educated than the average adoptive parents but as educated as the average parents (70% having high school diploma), and had lower income even compared to the national average. In terms of fertility, 71% of parents adopting internationally had no biological children of their own, while the corresponding figure for parents adopting from foster care was 38%.

According to Table 1, somewhat surprisingly, the characteristics of adopted children and adoptive parents in domestic private adoption lie in between those of inter-country and foster care adoptions. This suggests that domestic private adoption itself is probably a mix of two types of adoption: the adoption of unrelated infants by married couples through private agencies and the adoption of older children by relatives without involving agencies. Ideally, one should distinguish unrelated and related domestic private adoptions. Because of data limitations, however, I focus mainly on unrelated domestic private adoption in the following analysis.

To summarize, the data reveal a great degree of heterogeneity within US adoption markets, consisting of three categories across which the attributes of adoptable children and adoptive parents differ substantially. In the following sections, I explore the historical developments of US adoption markets by adoption category.

3. Historical Trends in Child Adoption in the US, 1950-2010

The purpose of this section is to compile historical statistics and document trends in child adoption distinguishing adoption types (complete data and their descriptions are available in Moriguchi 2012). It is well-known among adoption specialists that there is no homogenous data source to estimate even the total number of child adoptions in the US for an extended period. The National Center for Social Statistics (NCSS) compiled state-level court records in 1944, 1951, and 1955-1975 with varying numbers of reporting states, from which Zarefsky (1946), NCSS (1973), Bonham (1977), and Maza (1984) estimated national totals. For the years 1987-1992, Flango and Flango (1995) provided national totals, combining special studies, court data, and vital records. More recently, the National Council for Adoption (NCFA) conducted surveys in 1982, 1986, 1992, 1996, and 2002 and provided national estimates. Using similar but slightly different methods, NAIC (2004) and CWIG (2011a) also estimated the total number of adoptions in 2000-2001 and 2007-2008, respectively.

Figure 1-(a) presents the number of children adopted annually in the US from 1944 to 2002 based on the estimates by these studies. Note that the data are not necessarily comparable across studies due to differences in their data sources and methods. Most importantly, there is a large discrepancy between the NAIC estimate for 2001 and the NCFA estimate for 2002, thereby making it difficult to establish a recent trend. To resolve this issue, I construct "upper bound" estimates for the NAIC series and "lower bound" estimates for the NCFA series using additional data[5]. The two sets of bounds overlap reasonably well, providing some assurance that the true values lie in between

Figure 1-(a). The Annual Number of Child Adoptions in the US, 1944-2008

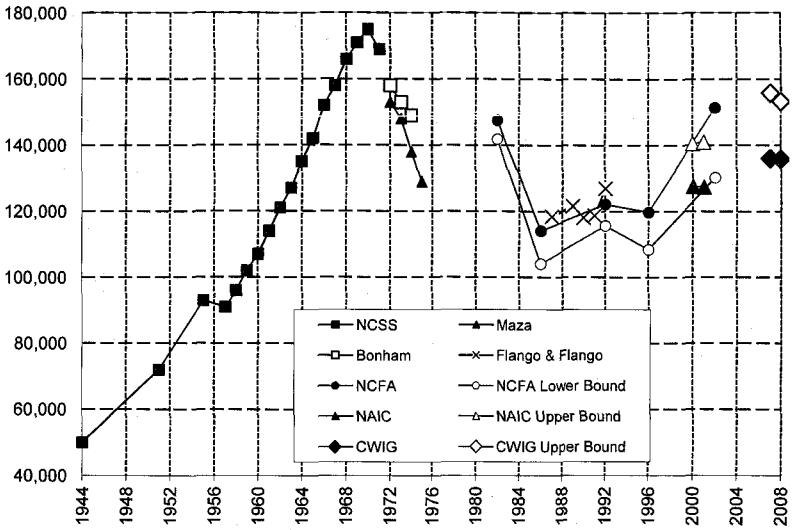
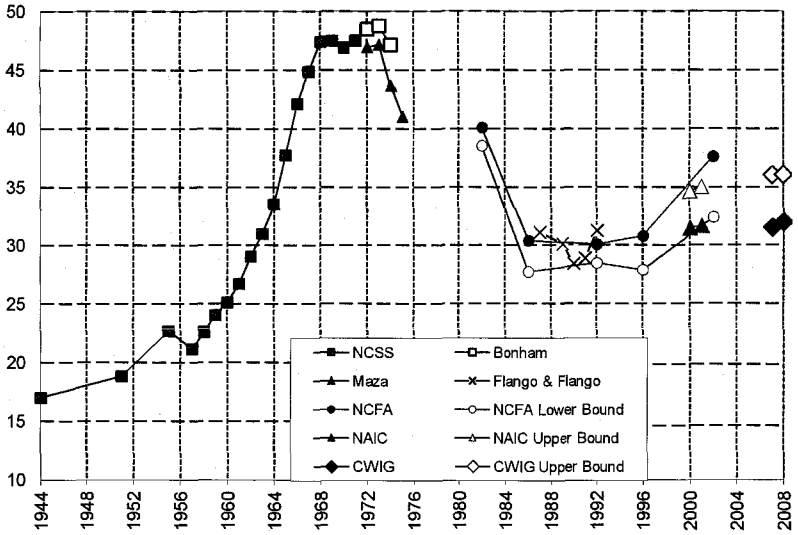


Figure 1-(b). Child Adoption Rate per 1000 Births in the US, 1944-2008



these bounds. Figure 1-(a) reveals that the number of adoptions rose sharply in the 1950s and 1960s, reaching a historic high of 175,000 in 1970, and declined subsequently. Despite a resurgence in the 1990s, the number of child adoptions in 2008, estimated to be between 136,000 and 153,000, was substantially below its historic peak of 1970.

Obviously, the number of children born in the US has also changed greatly over this period. To take fertility changes into consideration, in Figure 1-(b), I present *adoption rates* defined by the number of adoptions per 1,000 live births. It shows that adoption rates in the US increased dramatically from less than 20 per 1,000 births in the early 1950s to over 45 per 1,000 births in the years 1968-1973. Adoption rates then declined sharply in the 1970s and early 1980s. As a result, the adoption rate in 2008 (approximately 36 per 1,000 births) was 25% lower than its historic peak of 1968-1973 (approximately 48 per 1,000 births). Data limitations notwithstanding, Figures 1-(a) and (b) clearly indicate that child adoption in the US was at its highest around 1970.

To investigate trends in inter-country adoption, Figure 2-(a) presents the number of foreign children adopted by US citizens from 1945 to 2010. With the establishment of special visa categories for "immigrant-orphans" in 1962, immigration statistics report the annual number of foreign orphans (which include relinquished children) adopted by US citizens[6]. Before 1962, there were special one-time legislations in 1945, 1948, 1953, and 1957 that granted a special visa to a fixed number of immigrant-orphans (Lovelock 2000; Weil 1984). These numbers are not annualized, but are also shown in the figure[7]. Figure 2-(b) presents the inter-country adoption rate per 1,000 live births in 1962-2009. Both figures indicate that the rise and fall of inter-country adoption came in three waves in the mid-1970s, the mid-1980s, and

Figure 2-(a). The Number of Inter-country Adoptions in the US, 1945-2010

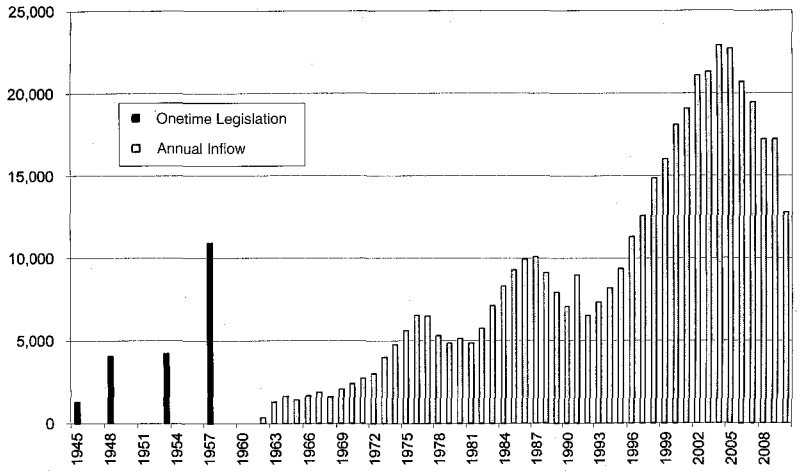
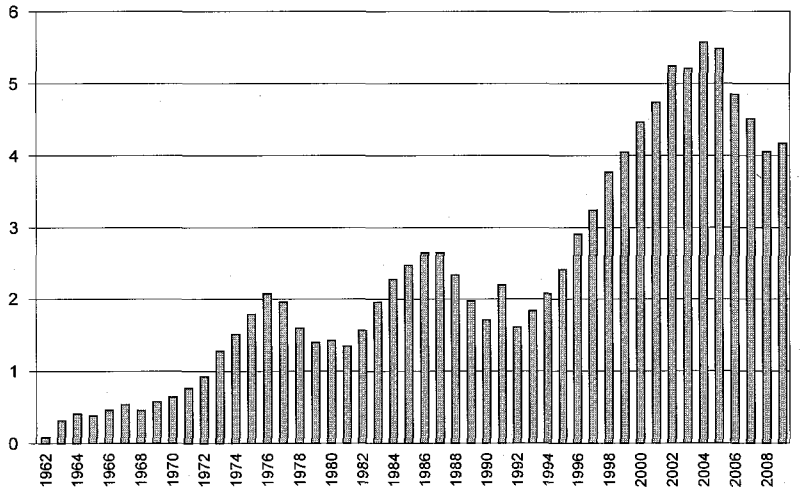


Figure 2-(b). Inter-country Adoption Rate per 1,000 Briths in the US, 1962-2009



the late 1990s, seemingly uncorrelated with the trends in overall adoption in Figure 1-(b). Currently, the US is in the declining phase of the third wave, in which the number of inter-country adoptions soared from 6,000 (or 1.6 per 1,000 births) in 1992 to over 20,000 (or 5.6 per 1,000 births) in 2004 but fell to 13,000 by 2010.

To examine compositional changes, Figure 3 presents the number of adopted children by adoption type from 1951 to 2002. Child adoption is first divided into related and unrelated adoption[8]. Related adoption is divided further into stepchild adoption and adoption by relatives, while unrelated adoption is divided into domestic and inter-country adoption[9]. In addition to NSCC and NCFA data, I also plot the estimates for unrelated adoption in 1976-1985 by Bachrach *et al.* (1990) based on the 1987 National Health Interview Survey (NHIS). Because the NHIS series matches better with the NCFA lower bound series, Figure 3 reports the NCFA lower bound estimates. Based on the same data, Table 2 presents the shares of the respective types of child adoptions in total adoptions for selected years.

Figure 3 reveals that both related and unrelated adoptions increased in the 1960s, but that the decline in adoption in the early 1970s was almost entirely driven by the decline in unrelated domestic adoption. The number of unrelated domestic adoptions remained at around 40,000 from 1975 to 1985 and increased only slightly from 1986 to 2002. The number of related adoptions increased steadily from the mid-1950s to the mid-1970s, due mainly to a rise in stepchild adoption that constituted over 85% of related adoptions by 1975. No data for stepchild adoption are available after 1975. As shown in Table 2, reflecting these changes, the share of unrelated adoptions was relatively stable at around 50% of total adoptions during the period 1955-1970, then dropped sharply to 37% in 1975, and resurged recently from 36% in 1982 to 58% in 2002. Within unrelated adoption, inter-country adoption has become an important component only in recent decades. The share of inter-country adoption increased from just 1.0% of total adoptions in

Figure 3. Related and Unrelated Child Adoptions in the US, 1951-2002

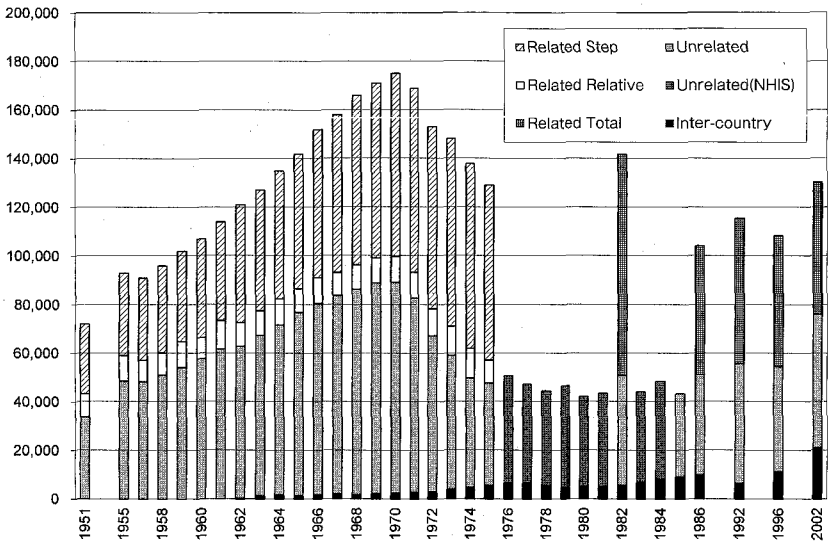
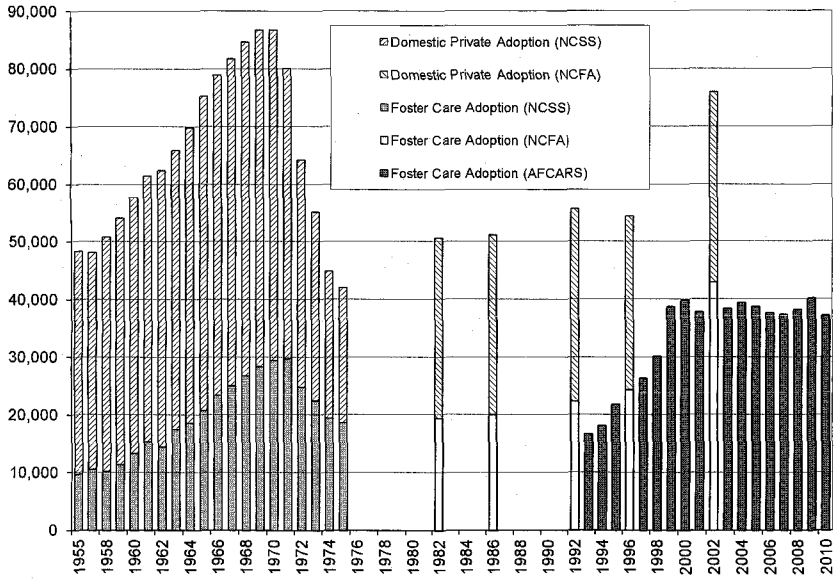


Figure 4. Composition of Unrelated Domestic Adoption in the US, 1955-2010



1965 to 4.4% in 1975, fluctuated between 4% and 10% during 1975-1992, and then rose sharply from 6% in 1992 to 16% in 2002. This increase in inter-country adoption accounts for a significant part of the recent surge in unrelated adoption, but not all of it.

In Figure 4, I decompose *unrelated domestic* adoption into unrelated domestic private adoption and unrelated foster care adoption. In addition to NCSS and NSFA data, I also plot the number of unrelated foster care adoptions from 1993 to 2010 based on VCIS and AFCARS data (USCB 1990-2010)[10]. I use the original NCFA estimates (rather than the lower bound estimates) for the years 1982-2002, as they are more consistent with AFCARS data. Figure 4 shows that, from 1955 to 1975, unrelated domestic private adoption and unrelated foster care adoption moved in parallel, although the former declined much faster than the latter. In contrast, during the 1990s, unrelated foster care adoption alone increased sharply from less than 20,000 to 40,000 and remained at a high level throughout the 2000s, while unrelated domestic private adoption changed little, remaining at around 30,000 from 1982 to 2002. Table 3 reports the shares of unrelated domestic private adoptions, unrelated foster care adoptions, and inter-country adoptions in all unrelated adoptions for selected years using the same data. In 2002, 44% of unrelated adoptions were foster care adoptions and 22% of them were inter-country adoptions. Domestic adoption through private agencies or individuals accounted for the remaining 34% of unrelated adoptions.

In summary, in the US, (1) even after controlling for fertility, unrelated child adop-

Table 2. Composition of Child Adoption in the US, 1955-2002

Yea	Related Adoption			Unrelated Adoption		
	Total	Step	Relative	Total	Domes-tic	Inter-country
1955	48%	36	12	52%	n/a	
1960	46%	38	8	54%	n/a	
1965	46%	39	7	54%	53	1
1970	49%	43	6	51%	50	1
1975	63%	56	8	37%	33	4
1982	64%	n/a		36%	32	4
1986	51%	n/a		49%	40	10
1992	52%	n/a		48%	43	6
1996	50%	n/a		50%	40	10
2002	42%	n/a		58%	42	16

Sources) NCSS (1951-75), Bachrach *et al.* (1990), NCFA (1985, 1989, 1999, 2007), USINS (1972-2001), USDHS (2002-2010).
Notes) Unrelated domestic adoption in 1982-2002 is based on the NCFA lower bound estimates. All inter-country adoption is assumed to be unrelated adoption. See Moriguchi (2012) for details.

Table 3. Composition of Unrelated Adoption in the US, 1955-2002

Year	Unrelated Domestic Private Adoption	Unrelated Foster Care Adoption	Inter-country Adoption
1955	80%	20%	n/a
1960	77%	23%	n/a
1965	71%	27%	2%
1970	64%	33%	3%
1975	49%	39%	12%
1982	56%	34%	10%
1986	51%	33%	16%
1992	54%	36%	11%
1996	46%	37%	17%
2002	34%	44%	22%

Sources) NCSS (1971), Maza (1984), NCFA (1985, 1989, 1999, 2007), USCB (1996-2010), USINS (1972-2010).
Notes) Unrelated domestic adoption in 1982-2002 is based on the original NCFA estimates. All inter-country adoption is assumed to be unrelated adoption. See Moriguchi (2012) for details.

tion in 2008 was still 25% below its historic peak of 1968-1973; (2) the share of unrelated adoptions in total adoptions declined sharply in the early 1970s, but increased in the 1990s; and (3) the recent increase in unrelated adoption was driven by the rise in both inter-country adoption and foster care adoption.

4. Understanding the Historical Trends in Child Adoption in the US, 1950-2010

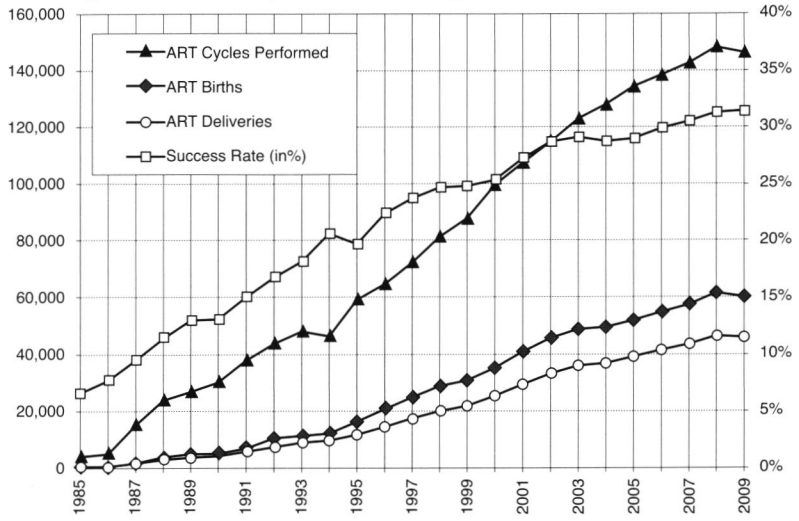
The historical trends revealed by the data pose many questions. What caused the dramatic increase in unrelated adoption in the 1960s and its equally dramatic decline in the 1970s in the US? Why is the adoption rate today substantially below the historic peak despite much greater social acceptance? Why did inter-country adoption become a significant component of total adoption only in the 1990s despite its availability since the early 1960s? What can explain the rise in foster care adoption since the 1990s? To understand the forces driving the historical trends in child adoption, I explore the demand-side, supply-side, and institutional factors in (a) domestic private adoption, (b) inter-country adoption, and (c) foster care adoption, in turn.

4.1 The Market for Domestic Private Adoption in the US, 1950-2010

In the US, the primary source of the supply of unrelated domestic private adoption has been unmarried mothers relinquishing their children for adoption immediately after birth. According to NCSS data, at the historic peak of unrelated adoption in 1970, 87% of adopted unrelated children were born out of wedlock and 67% were less than 3 months old (NCSS 1970). Because of the attributes of these children (i.e., healthy newborns), the demand for unrelated domestic private adoption was (and still is) driven primarily by infertility[11]. According to historical studies, among whites, the number of married childless couples seeking to adopt an unrelated infant began to increase in the 1930s, and by the 1940s the demand for adoptable healthy infants exceeded the supply in many states (Berebitsky 2000; Moriguchi 2010). In other words, the market for domestic private adoption in the US was characterized by "excess demand" probably by the 1950s.

Furthermore, from the early 1960s to the late 1980s in the US, women's educational attainment and labor force participation rose dramatically, resulting in delayed marriage and childbearing (Caucatt *et al.* 2002; Olivetti 2006). The rise in women's occupational attainment implies a higher opportunity cost of interrupting work for childbearing. In fact, empirical studies have found a substantial wage premium on delayed childbearing, particularly for college educated women and women in highly skilled professions (Buckles 2008; Wilder *et al.* 2010; Miller 2011)[12]. The

Figure 5. Assisted Reproduction Technology (ART) in the US, 1985-2009

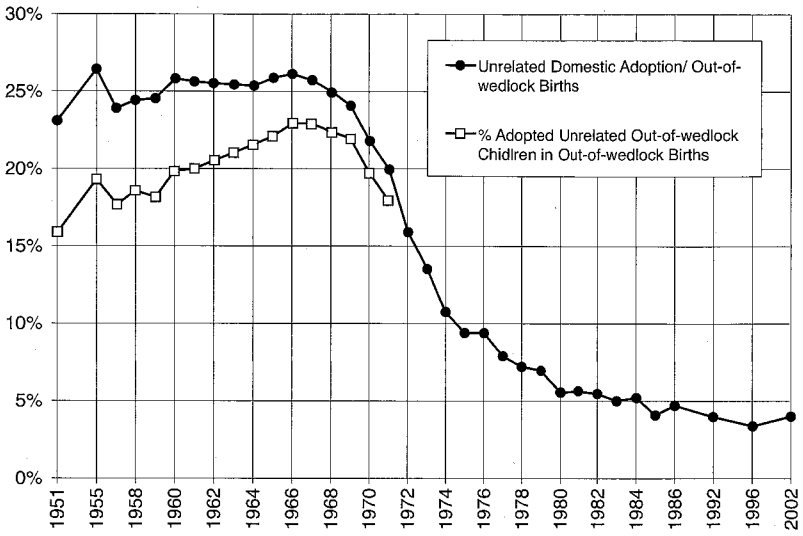


median age of women at the time of their first marriage increased from 21 in the early 1970s to 26 in the mid 2000s, and the median age of women at the time of their first birth rose from 22 to 25 during the same period. Delayed motherhood, however, is associated with higher risk of infertility before achieving a desired number of children[13]. In recent decades, as more women have begun to seek both a career and a family (Goldin 2006), one would expect a potentially large increase in the demand for child adoption as a substitute for childbearing.

At the same time, the progress in infertility treatment has greatly improved the probability of women with fertility problems bearing a child. Two major advancements in this regard are the 1967 FDA approval of fertility drugs for inducing ovulation and the 1981 introduction of in vitro fertilization (IVF), the most common form of assisted reproductive technology (ART) today[14]. As the usage of fertility drugs correlates with incidents of multiple births, a diffusion of fertility drugs can be inferred, albeit imperfectly, from the changes in multiple birth rates. In the US, the rate of triplet and higher-order multiple births hardly increased in the 1970s despite the introduction of fertility drugs, but has increased sharply since the early 1980s, coinciding with the introduction of ART (Martin *et al.* 1997). Figure 5 presents the number of ART cycles performed and the number of resulting live births and deliveries in the US from 1985 to 2009 (note that one delivery may produce multiple births; SART 1985-1999; CDC 2003-2009). I also plot the success rate, measured by the percentage of ART cycles resulting in live deliveries. The number of ART deliveries increased by ten-fold from 4,000 in 1990 to 40,000 in 2005, and the success rate rose from 13% to 29% during the same period. Improvements in ART led to both a reduction in the monetary cost per delivery and a decline in the risk of multiple births over the last decade. Nevertheless, the estimated costs of IVF per delivery are higher than the costs of adoption, ranging from $30,000 to $60,000 in recent years.

To what extent, are advanced infertility treatment and adoption substitutes? The ratio of the number of women who delivered their biological children with ART to the number of women who adopted unrelated children domestically increased from 15% in 1992 to 34% in 1996, and to 60% in 2002 (based on the NSFA lower bound estimates). This suggests that ART likely had an impact on the demand for adoptable domestic infants in recent years. Consistent with this observation, Chandra *et al.* (1999) and Bernal *et al.* (2009) found that the positive relationship between women's infertility and the likelihood of adoption has weakened over time. To summarize, the continuing trend in delayed childbearing has likely increased the demand for domestic private adoption since the early 1960s. Starting in the 1980s, however, advancement in ART likely reduced adoption demand, particularly among those individuals with high income or strong preference for

Figure 6. Ratio of Unrelated Domestic Adoptions to Out-of-wedlock Births in the US 1951-2002



biological children.

If the adoption market for domestic infants has been characterized by "excess demand" since the 1950s, then the actual number of unrelated adoption is determined solely by the *supply* of adoptable children. As stated above, the primary source of the supply has been unmarried mothers who relinquish their children for adoption. From 1951 to 1975, consistently, over 70% of unrelated adoptions were adoptions of out-of-wedlock children. The number of children born to unmarried women has increased dramatically in the US, from less than 200,000 in 1950 to 1.7 million in 2008, suggesting a potentially large increase in the domestic supply of adoptable infants. In particular, for women aged 15-19, the age group most likely to relinquish children for adoption, the likelihood of becoming unmarried mothers increased steadily from 1950 to 1990.

Clearly, not all unmarried mothers relinquish their children for adoption. To provide a rough proxy for the relinquishment rate, in Figure 6, I present the ratio of the number of unrelated domestic adoptions to the number of out-of-wedlock births from 1951 to 2002. This ratio provides an upper bound estimate for the relinquishment rate, because not all unrelated domestic adoptions are adoptions of out-of-wedlock newborns. According to the figure, the ratio was constant at around 25% in the 1950s and 1960s and fell precipitously in the 1970s to 5%[15]. Fortunately, NCSS data for the years 1951-1971 include the number of adopted unrelated children who were born out of wedlock[16]. Using these data, I also plot the percentage of adopted unrelated out-of-wedlock children in all out-of-wedlock births, which is a more precise measure of the relinquishment rate. It shows that the rate increased from 16% in 1951 to 23% in 1966 and declined sharply after 1969, closely following the upper bound estimates in the same figure.

What determines unmarried mothers' likelihood of relinquishing their children? Out-of-wedlock births can be a result of unintended (i.e., unwanted or mistimed) or intended pregnancies[17]. One would expect much higher relinquishment rates for unwanted births than for mistimed or intended births. Therefore, if the diffusion of contraceptive pills among never-married women in the 1970s and the spread of abortion legalization from 1969 to 1973 disproportionately reduced the number of *unwanted* pregnancies, then one would expect relinquishment rates to fall accordingly[18]. In the US, the abortion rate (per 1,000 births) increased sharply from 1973 to 1979, but has been on steady decline since the early 1980s. In 1987, estimated 75% of unintended pregnancies of never-married women ended in abortion (Brown and Eizenberg 1995). Using NCSS state panel data from 1961 to 1975, Bitler and Zabodny (2002) found that, relative to other states, states that repealed abortion restrictions experienced a 34% decline in adoption rates for unrelated white children, thereby

concluding that the estimated effect of abortion legalization on unrelated adoption rates can account for much of the decline in adoptions in the early 1970s. In other words, the primary cause of the dramatic fall in unrelated adoption in the 1970s was the decline in the domestic *supply* of adoptable infants in the US[19].

In summary, the data suggest that the market for domestic private adoption has been constrained by the supply of healthy infants relinquished for adoption throughout the period 1950-2010. As a result, historical trends can be explained almost entirely by supply-side factors. The rise in domestic unrelated adoption in the 1960s was likely driven by both the increase in nonmarital births and the rise in relinquishment rates among unmarried mothers. The dramatic decline in adoption rates in the 1970s can be attributed to the fall in relinquishment rates due to the availability of abortion and contraceptive pills both of which reduced the number of unwanted births. The number of unrelated domestic private adoptions has remained roughly constant from 1982 to 2002 presumably due to combined effects of rising nonmarital birth rates and falling relinquishment rates.

4.2 The Market for Inter-country Adoption in the US, 1950-2010

According to historical literature, the demand for inter-country adoption was driven initially by altruistic motives to save orphaned or abandoned foreign children (Lovelock 2000; Weil 1984). After WWII, in addition to a large number of war orphans in European countries, US occupational forces in Asian countries produced a significant number of out-of-wedlock mixed-race children most of whom were placed in orphanages. Increasing public interest in inter-country adoptions resulting from these factors led the US Congress to pass temporary laws to permit the immigration of foreign orphans, such as the 1948 Displaced Persons Act and the 1953 Refugee Act. After the passage of permanent legislation in 1963, prospective adoptive parents who did not meet strict qualifications often set by private adoption agencies increasingly turned to inter-country adoption. Inter-country adoption also became increasingly inter-racial, when it was not a common practice in domestic adoption because of racial tension between blacks and whites. In particular, South Korea became a major source for inter-country adoption after the Korean War, constituting the majority of immigrant-orphans entering the US in the 1960s and 1970s.

With increasing acceptance of multiculturalism in the 1970s and 1980s, one would expect inter-country adoption to become a closer substitute for domestic private adoption for prospective parents motivated by infertility. According to the 2007 NSAP survey, while 90% of parents adopting internationally indicated the desire to provide a permanent home for a child as a reason for adoption, 71% gave infertility as a reason (multiple answers allowed; ASPE 2009). Figure 7-(a) shows that over 70% of inter-country adoptions from 1972 to 2010 were children aged 0-4. In particular, the share of infants aged 0-1 rose from 50% in the 1970s to 70% in the 1980s, which may indicate shifting parental preference for younger children. As in the case of domestic private adoption, one may expect the demand for inter-country adoption to decrease with the diffusion of infertility treatment. Figure 7-(b) compares the number of ART births and deliveries to the number of inter-country adoption from 1985 to 2009. The number of children born with the help of ART has in fact exceeded the number of children adopted from abroad since 1992. In other words, the recent increase in inter-country adoption is concurrent with the even faster increase in ART births. This suggests that either advanced infertility treatment and inter-country adoption are not substitutes or, because the market for inter-country adoption is characterized by "excess demand," the reduction in demand caused by ART only had a small impact on the actual number of inter-country adoptions. Using state panel data, Gumus and

Figure 7-(a). Inter-country Adoption by the Age of Adopted Child, 1972-2010

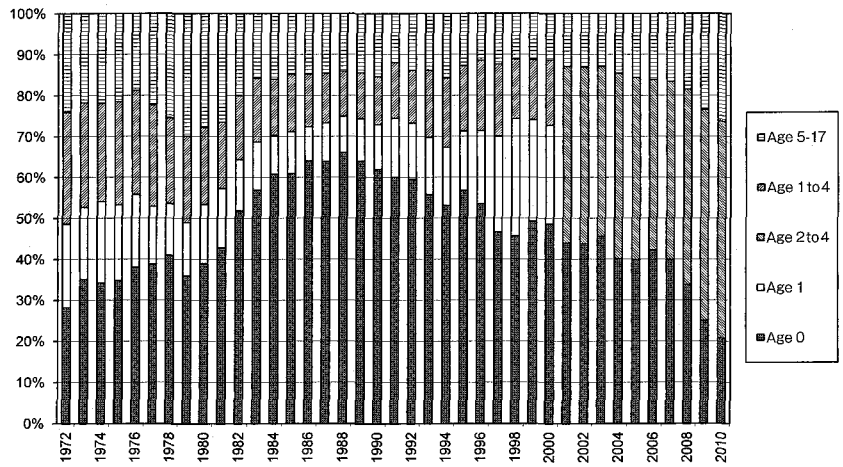
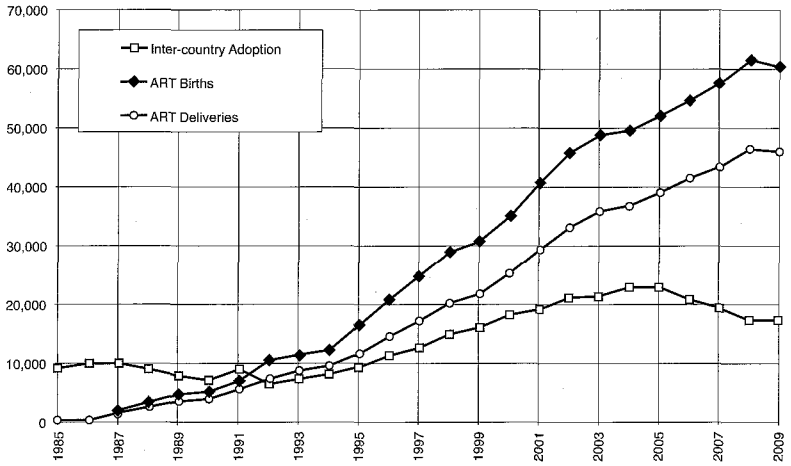


Figure 7-(b). Inter-country Adoption and ART Births in the US, 1985-2009

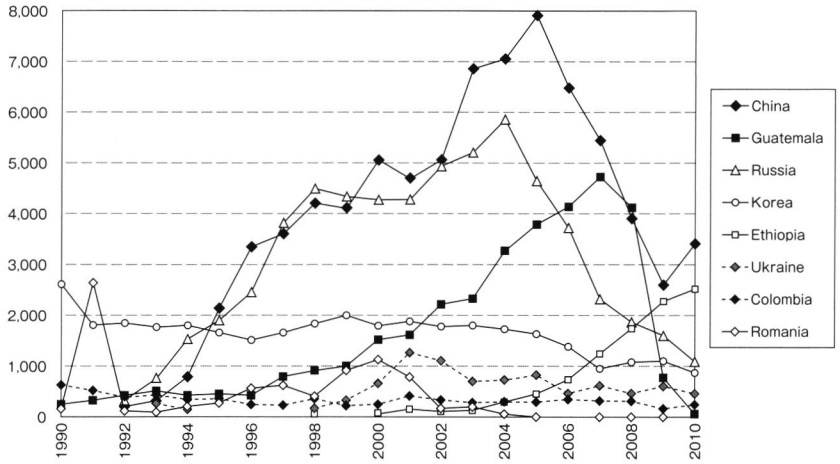


Lee (2010) found that ART and inter-country adoption are in fact substitutes, supporting the latter hypothesis.

As shown in Figure 2, inter-country adoption has grown unevenly over the last forty years. What caused the rise and fall in inter-country adoption in three waves? Historically, political and economic crises in sending countries, such as war, famine, and regime change, have been major factors in determining the number of children relinquished for foreign adoption. It has been suggested that legal reforms or policy changes in sending countries has also become an important factor in recent years (Selman 2002). In order to examine these hypotheses, Figure 7-(c) presents the number of inter-country adoptions by source country from 1990 to 2010 (USDS 2012)[20]. It reveals that a sudden jump in inter-country adoption in 1991 was caused by an inflow of over 2,600 children from Romania after the 1989 collapse of the communist regime. Similarly, the surge in the 1990s was almost entirely driven by policy changes in Russia, China, and Guatemala. Most notably, the introduction of the one child policy in China in 1979 resulted in a large and steady inflow of unwanted healthy female infants to state orphanages. Since China began allowing adoption by foreigners in 1992, it has become a major source of inter-country adoption for American parents. Russia, which began permitting foreign adoption in 1990, became a major sending country as it experienced prolonged economic crisis after the 1991 dissolution of the Soviet Union. The decline in inter-country adoption from 2004 to 2010 can be also explained by policy changes in Russia, China, and Guatemala.

To summarize, parental demand for inter-country adoption in the US has been motivated strongly by altruism, but the data indicate that infertility has also become a major motivating factor in recent decades. The rise in the demand for inter-country adoption motivated by infertility probably resulted from (1) increasing difficulty in adopting unrelated domestic infants after 1970, (2) an increase in the supply of healthy infants from source countries such as South

Figure 7-(c). Inter-country Adoption by Source Countries in the US, 1990-2010



Korea and China, and (3) growing social acceptance of inter-racial and inter-cultural adoption in forming a family since the 1970s. As the demand for inter-country adoption in the US has exceeded the supply of healthy infants relinquished for adoption in most source countries, the recent changes in inter-country adoption can be accounted for mostly by supply-side factors.

4. 3 The Market for Foster Care Adoption in the US, 1950-2010

Finally, I turn to the market for foster care adoption. According to Figure 4, for unrelated adoption, both foster care adoption and domestic private adoption rose in the 1960s and fell in the 1970s. However, in the 1990s, unrelated foster care adoption alone increased sharply, while unrelated domestic private adoption remained largely unchanged. What are the explanations for these puzzling trends?

Children are placed in the public foster care system, temporarily or permanently, when their parents are unable to care for them because of medical, emotional, or financial reasons or by court order in the case of parental abuse or neglect. Consequently, the majority of foster care children come from disadvantaged backgrounds and are at high risk for having or developing physical, mental, or emotional problems. The number of children in foster care in the US has grown from 193,000 in 1950 to 234,000 in 1960, 326,000 in 1970, 303,000 in 1980, 406,000 in 1990, to 552,000 in 2000, and to 408,000 in 2010 (Bar 1992; USCB 1990, 2000, 2010), which may suggest that the number of foster care children in need of adoptive homes has also increased.

Historically, however, most agencies, including public agencies, placed only healthy infants for adoption, and older children and children with disabilities were considered "unadoptable" well into the 1960s (Hansen 2006a). These norms began to change in the 1970s, as adoption advocates challenged such practices and pressed for placing greater emphasis on the welfare of the child rather than the adoptive parents. A federal law passed in 1978 was the first legislation to encourage state welfare agencies to place children with special needs for adoption when it is in the child's best interest. As mentioned above, the landmark federal law of 1980 created a permanent adoption assistance program to provide monthly subsidies to parents adopting special needs children until the child reaches the age of 18. Among other things, the 1980 law removed the disincentives for foster parents who receive foster care maintenance payments to become adoptive parents by extending subsidies after adoption (Hansen 2006b). Furthermore, a federal law passed in 1997 established an adoption incentive program in which the federal government provides states with incentive payments for each child, with or without special needs, adopted over the baseline number. The 1997 law also encouraged prompt adoptive placements when children cannot be reunited with their parents within a limited timeframe (ASPE 2011).

These developments suggest that, be-

Table 4. Children Waiting for Adoption and Children Adopted in Foster Care, 1998-2010

Year	A. Children in Foster Care Waiting to be Adopted	B. Children Adopted from Foster Care	% Adopted (B/A)	% Adopted by Foster Parents in B	% Adopted by Related Foster Parents in B
1998	125,000	36,000	29%	79%	16%
1999	130,000	46,000	35%	80%	17%
2000	131,000	51,000	39%	82%	21%
2001	129,000	50,000	39%	83%	24%
2002	134,000	52,000	39%	85%	24%
2003	131,000	50,000	38%	86%	23%
2004	130,000	52,000	40%	85%	24%
2005	131,000	51,000	39%	85%	25%
2006	135,000	51,000	38%	85%	26%
2007	134,000	52,000	39%	85%	28%
2008	127,000	55,000	43%	84%	30%
2009	115,000	57,000	50%	86%	30%
2010	107,000	53,000	50%	85%	30%

Source) US CB (1998-2010).

Notes) Due to data restrictions, the number of "children adopted with public agency involvement" is reported which differs slightly from the number of "children adopted from foster care." See Moriguchi (2012) for details.

fore the 1970s, public agencies primarily placed healthy infants for adoption, while keeping older or at-risk children in foster homes or institutions. If this was the case, then the attributes of adoptable children at public and private agencies were largely undifferentiated in the earlier decades, which could explain the concurrent rise and fall in private domestic adoption and foster care adoption from 1951 to 1975. In fact, according to NCSS data, at the peak of unrelated adoption in 1970, 78% of unrelated children placed by public agencies (and 92% of unrelated children placed by private agencies) were less than 12 months old. As late as 1975, of all unrelated adoptions, only 5% of adopted children had disabilities and merely 4% of adoptive families received state subsidies (NCSS 1975). These data confirm that it was only in the 1970s that public agencies began to specialize in placing special needs children.

Once their case goal is established as adoption, children in foster care are classified as "waiting to be adopted." With an expansion of the definition of adoptable children, we expect the number of such children to increase. Table 4 presents the number of foster care children waiting to be adopted and the number of children adopted from foster care from 1998 to 2010 (no data are available before 1998). Importantly, the proportion of adopted children to children waiting for adoption has increased substantially, from 29% in 1998 to 50% in 2010. However, even then, the number of children waiting for adoption was far greater than the number of children adopted, indicating "excess supply" in the market for foster care adoption. As also shown in Table 4, among children adopted from foster care, the share of the children adopted by foster parents increased from 79% to 85% in 1998-2002. Most notably, the share of adoption by related foster parents (i.e., foster parents who are a relative of the child) almost doubled from 16% to 30% during the same period.

According to AFCARS microdata from 1998 to 2005, over 80% of the children adopted from foster care were special needs children as defined by each state (i.e., children above a certain age, of a minority race or a sibling group, or with medical conditions or disabilities) each year and were eligible for adoption assistance payments[21]. The share of children with disabilities increased from 18% in 1998 to 22% in 2005, and the share of infants aged 0-1 increased from 8% to 12% during the same period. Reflecting the faster adoptive placements promoted by the 1997 law, the average time that adopted children spent in foster care declined substantially from 48 months in 1998 to 38 months in 2005.

What caused the increase in unrelated foster care adoption in the 1990s (as shown in Figure 4) and the further increase in related foster care adoption in the 2000s (as shown in Table 4)? Because there has been "excess supply" in the market for foster care adoption in recent decades, I look into demand-side factors.

What motivates people to adopt from foster care? Given the child attributes, one

would expect altruism to play a central role in foster care adoption. In 2005, 25% of foster care adoptions were by related foster parents, 60% were by unrelated foster parents, and 15% were by unrelated individuals who did not know the child prior to adoption (USCB 2005). According to the 2007 NSAP survey, among the parents adopting from foster care, 86% were motivated by altruism (i.e., to provide a permanent home for a child) and 39% were motivated by infertility (multiple answers allowed; ASPE 2011). Although the share of parents motivated by infertility is much lower compared to that of parents adopting internationally (71%), it suggests that a sizable share of foster care adoptions (39%) are motivated by infertility.

When asked about the reasons for choosing foster care adoption rather than domestic privately or inter-country adoption in the same survey, 60% of the parents gave lower cost and 28% gave faster speed as a reason, whereas 24% answered that they chose foster care adoption because they wanted to adopt special needs children (multiple answers allowed; ASPE 2011). This indicates that, for the majority of the parents, the lower monetary and time costs of adoption were of significance in choosing foster care adoption. This is consistent with the fact that the parents adopting from foster care, on average, had substantially lower income than the average adoptive parents (see Table 1). If prospective parents were financially constrained, government subsidies might have played an important role in stimulating the demand for foster care adoption.

Did adoption subsidies increase the number of foster care adoptions? The number of recipients of adoption assistance payments increased dramatically from 16,000 families in 1985 to 230,000 families in 2000, while the average monthly payments per recipient rose by 17% in real terms during the same period (USHR 2004). Using OLS estimates, Hansen and Hansen (2006) and Hansen (2007) found positive effects of the adoption assistance payments on the demand for foster care adoption, while Dalberth *et al.* (2005) found no correlations between the two. However, these results do not correct for the endogeneity of subsidy payments and may suffer from estimation bias, because the amounts of the subsidies are determined on a case-by-case basis taking family-specific characteristics into account. Using AFCARS microdata for the period 2000–2006 and employing instrumental variables to address the endogeneity problem, Buckles (2009) showed that, controlling for child characteristics, the children eligible for subsidies were more likely to be adopted, and that, conditional on adoption, higher subsidies increased the probability of a child being adopted by a relative (e.g., grandmother). Her analysis indicates that the adoption assistance program was effective in stimulating the demand for foster care adoption in general and was particularly important in promoting adoptions by relatives who were altruistically motivated but financially constrained.

To what extent, is foster care adoption a substitute for domestic private adoption for individuals motivated by infertility? Given the differences in the attributes of children relinquished for adoption in foster care adoption (i.e., special needs children) and private agency adoption (i.e., healthy newborns), even though the adoption costs of the former were lower, one may expect a low degree of substitution between the two. Preferences of prospective adoptive parents can be more flexible than one might expect, however. According to the 1995 NSFG survey, among the women who sought to adopt a child, even though only 25% expressed a preference for adopting a child with mild disabilities, 83% were wiling to accept such a child. Similarly, while 58% of women expressed a preference for adopting an infant aged 0–1 and less than 7% expressed a preference for a child aged 6–12, 56% said they would accept a child aged 6–12 (Chandra *et al.* 1999). Using state-level data, Hansen and Hansen (2006) found that foster care adoption is negatively correlated with both domestic private agency adoption and

inter-country adoption. The correlations are stronger with inter-country adoption than with domestic private agency adoption, which suggests that foster care adoption and inter-country adoption are closer substitutes for parents seeking to adopt.

Finally, using state panel data for the period 1999-2006 and rigorous empirical methods, Gumus and Lee (2010) investigated the relationships between child adoption and the use of infertility treatments. They found strong evidence that an increase in unrelated foster care adoption reduced the utilization of ART, particularly among women aged 35 and above. Their results empirically confirm that, in addition to altruism, infertility is an important motivating factor in foster care adoption.

To summarize, before the 1970s, because special needs children in foster care were not placed for adoption and kept in the system, the number of foster care adoptions was constrained by the supply of healthy infants relinquished for adoption. After the 1970s, however, with the expanded definition of adoptable children, the number of children waiting for adoption increased sharply. As a result, the recent trends in foster care adoption can be explained primarily by demand-side factors. Two major drivers of the rise in foster care adoption in the 1990s and 2000s are: (1) a greater number of prospective adoptive parents motivated by infertility choosing foster care adoption because of the high monetary and time costs for adopting unrelated infants domestically or internationally, and (2) a greater number of foster parents and relatives adopting special needs children in response to the introduction of federal adoption subsidies and the better placement services provided by state welfare agencies.

5. Concluding Remarks

In this study, compiling detailed historical statistics, I examined the evolution of the markets for child adoption in the US from 1950 to the present and explored the reasons for the historical changes. It is shown that, in the 1960s, the vast majority of adoptions consisted of healthy domestic infants, who were born out of wedlock and relinquished at birth, adopted by married couples motivated mainly by infertility. By 2000, however, adoption practices have evolved dramatically to include adoptions of foreign orphans and special needs children by related and unrelated individuals who were motivated to adopt not only by infertility but also by altruism. These profound changes were initially triggered by a large and exogenous decline in the supply of domestic infants relinquished for adoption in the early 1970s, which pressed prospective parents to search for alternative sources, first in inter-country adoption and later in foster care adoption. The initial changes were further propelled by endogenous changes in adoption laws, agency practices, and child welfare policies, resulting in a greater number of inter-racial adoptions and special needs adoptions. Consequently, the US has become a leading adoption nation in the world not, merely in the number of children adopted, but also in the great diversity of adopted children and adoptive parents.

Since the 1950s, cumulatively millions of children in need of care have found a permanent home through adoption in the US. Did adoption improve the welfare of adopted children? Numerous studies have shown that, compared to biological children, adopted children fare worse in a variety of outcome measures (see Brodzinsky *et al.* 1998 for a comprehensive survey). To evaluate the effects of adoption on the adopted, however, one must compare the results of adoption to the counterfactual results of the children remaining in their pre-adoption settings. Difficulties in conducting counterfactual analyses notwithstanding, empirical studies indicate that adopted children have better outcomes than their counterparts who remain in birth families, foster homes, or institutions. In particular, comparing the outcomes of adoption and long-term foster care, research strongly suggests that children adopted from foster care have substan-

tially better educational, health, and economic outcomes compared to their unadopted siblings or institutional peers (Van Ijzendoorn *et al.* 2005; Barth *et al.* 2006; Hansen 2008). Because adoption is found beneficial particularly for children cared in institutions, the recent increase in foster care and inter-country adoptions in the US likely had a major impact on the welfare of children.

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Notes

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1) Child adoption is less common among Asian countries and is not permitted in countries that follow Islamic law (United Nations 2010, 23-27). For an economic and historical analysis of child adoption in Japan from 1950 to 2000, see Moriguchi (2010).

2) Important exceptions are Landes and Posner (1978) and Medoff (1993).

3) Other studies, such as Case *et al.* (2000), Sacerdote (2002), Plug and Vijverberg (2003), and Bjorklund *et al.* (2006), used adopted children as a control group for biological children to investigate the importance of nature versus nurture in determining children's outcomes, but did not study adoption itself.

4) For legal and institutional details of child adoption in the US, see CWIG (2011a,b) and O'Halloran (2009).

5) The difference between the 2001 NAIC estimate and the 2002 NCFA estimate stems largely from the fact that, while the former assumes that all inter-country adoptions are included in court data and vital records, the latter assumes that none are included (NCFA 2007, p. 79, editor's note). Foreign-born children adopted by US citizens are included in these records only if they are adopted under US state law. Children who entered the US under an IR4 visa are required by federal law to finalize their adoptions in a US state court, while children who entered under an IR3 visa (whose adoption had been finalized in their birth countries) are not. Even so, government officials recommend that IR3 children be readopted in the US in order to receive additional legal protection. Adoptive parents may incur nontrivial legal costs in doing so (CWIG 2004). The number of IR3 and IR4 visa entrants are reported in USINS (1982-2001) and USDHS (2002-2010). No data are available with regard to how many IR3 children are readopted. I obtain the lower bounds for the NCFA estimates by subtracting inter-country adoption from the estimated total. The upper bounds for the NAIC estimates are obtained by adding IR3 adoption to the estimated total. CWIG (2011a) provides its own upper bound estimates by adding the number of inter-country adoptions in the estimated total.

6) Carter *et al.* (2006), series Ad976; USINS (1998-2001); USDHS (2002-2010).

7) There was also special legislation in 1975 that admitted almost 3,000 children from Vietnam under a special refugee program, which is not shown in Figure 2-(a).

8) No breakdown by relationship is available in 2001-2002 and 2007-2008 data (NAIC 2004; CWIG 2011a).

9) Because Table 1 indicates that the number of related inter-country adoptions is very small, I assume that all inter-country adoptions are unrelated adoptions in Figure 3 and Table 2.

10) Because only the total number of foster care adoptions was reported in the years 1993-1997, I use the share of unrelated foster care adoption in the years 1998-2010 to estimate the number of unrelated foster care adoption in the years 1993-1997. See Moriguchi (2012) for details.

11) Preceding studies have consistently found strong and positive relations between women's inability or difficulty in bearing a child and their likelihood of adopting a child (e.g., Bonham 1977; Bachrach 1986; Bachrach *et al.* 1990; Chandra *et al.* 1999; Bernal *et al.* 2009).

12) Miller (2011) found that an additional year of fertility delay is associated with a 3% increase in hourly wage rates and a 10% increase in lifetime earnings for women.

13) For example, the probability of conceiving and delivering a healthy baby for women not using contraception declines by half from age 25 to age 35 (Van Noord-Zaadstra *et al.* 1991).

14) ART refers to procedures that involve retrieving eggs from ovaries, combining them with sperm in the laboratory, and transferring them into a woman's uterus or fallopian tube. Artificial insemination, which is not part of ART, has been used to treat infertility since the pre-WWII period with relatively minor technological improvements since.

15) Using NSFG data, Chandra *et al.* (1999) found that the percentage of children born to never-married women relinquished for adoption declined

from 8.7% in the late 1960s to 4.1% in the mid-1970s, to 2.0% in the mid-1980s, and to 0.9% in the mid-1990s. Due to small sample sizes, however, these rates are not precisely estimated.

16) From 1951 to 1971, on average, 80% of unrelated adoptions and 30% of related adoptions were adoptions of out-of-wedlock children. Because related adoption includes stepchild adoption, the data on related adoption are not used in Figure 6.

17) For example, Brien (1990) found that 78% of white single mothers (and 26% of black single mothers) born in 1954 married the biological father of the child within three years of the birth, indicating the prevalence of mistimed, rather than unwanted, births in nonmarital births among whites.

18) Upon FDA approval in 1960, oral contraceptives diffused rapidly among married women in the 1960s, but most young unmarried women did not have access until the early 1970s (Goldin and Katz 2002; Bailey 2006). Abortion bans were repealed in seven states in the years 1969-1972 and were struck down by a Supreme Court ruling in 1973 (Bitler and Zabodny 2002).

19) In contrast, Medoff (1993), using 1982 NCFA data, found no statistically significant effect of the availability of abortion on adoption rates, while Gennetian (1999) found that restrictive abortion laws reduced (as opposed to increased) relinquishment rates in the 1980s.

20) It is worth noting that South Korea remains a major source country despite high standards of living and low fertility rates. This is attributed to historical path-dependence (e.g., high-quality orphanages and well-established procedures), persistent social stigma attached to single motherhood, and strong cultural preferences for adopting biologically related children in South Korea (Selman 2002; Lee 2007).

21) AFCARS microdata are available online at the National Data Archive on Child Abuse and Neglect (NDACAN), Cornell University.

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