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# Propensity Score Matching of Children in Kinship and Nonkinship Foster Care: Do Permanency Outcomes Still Differ?

*Eun Koh and Mark F. Testa*

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This study compares the permanency outcomes of children in kinship foster care with a matched sample of children in nonkinship foster care in Illinois. It addresses the issue of selection bias by using propensity score matching (PSM) to balance mean differences in the characteristics of children in kinship and nonkinship foster homes. The data come from the March 1998 to September 2007 six-month files submitted by the state of Illinois to the federal Adoption and Foster Care Analysis Reporting Systems (AFCARS). A longitudinal sample of linked records for 21,914 kin children and 10,108 non-kin children was created, and a random subsample of 1,500 children in nonkinship care was matched to the kinship sample by using PSM. The permanency outcomes and placement stability of children in kin and non-kin foster care in the matched sample of 3,000 are compared with both cross-tabular and survival analysis.

Prior to matching, differences in reunification rates, combined adoption and guardianship rates, and placement stability are all significant. After matching, the differences in permanency rates disappear. Children in nonkinship foster homes still show a higher risk for initial placement disruption after matching, but there is no difference in rates of instability within a year compared with children in kinship foster homes. Implications for policy and practice are discussed.

KEY WORDS: *kinship foster care; legal permanence; placement stability; propensity score matching*

According to data submitted to the federal Adoption and Foster Care Analysis Reporting Systems (AFCARS), the number of children reported living in kinship foster care has stabilized at around 24% of the foster care population after rising rapidly in the early 1990s (Administration for Children and Families [ACF], 2006; Beeman, Kim, & Bullerdick, 2000). AFCARS records showed that 124,153 children were placed in kinship foster homes in 2005 (ACF, 2006). The rapid growth of kinship foster care in the 1990s has been attributed to the increased need for out-of-home care, the declining capacity of non-kin foster homes to accommodate that need, and the growing acceptance of kin as a placement resource for abused and neglected children (Beeman et al., 2000; Chipungu, Everett, Verdick, & Jones, 1998). Policies at a state and a federal level give priority to kinship placement when these homes meet relevant

child protection standards (Chipungu et al., 1998; U.S. General Accounting Office [GAO], 1999). The recent leveling off in the prevalence of children in kinship foster care reflects both a drop-off in the need for out-of-home care and the success in transitioning children from kinship foster care to permanent adoptive and guardianship homes with these families (Testa & Miller, 2005).

With the increasing acceptance and use of kinship placement, more attention has begun to be paid to the comparative outcomes for children in kinship and nonkinship foster care, especially in the area of stability and permanence (Testa, Bruhn, & Helton, in press). Different results have been reported for permanency outcomes, and they have provided grounds for either affirming or questioning the value of kin as a placement resource for abused and neglected children (Bartholet, 1999; Link, 1996).

## PERMANENCY OUTCOMES OF CHILDREN IN KIN AND NON-KIN PLACEMENTS

Prior research has demonstrated the advantages of kinship foster homes with respect to placement stability. Studies consistently find that kinship placement is more stable than is nonkinship care (Beeman et al., 2000; Chipungu et al., 1998). Testa's (2001) research suggested that much of this advantage happens at the early stages of out-of-home placement and diminishes as the duration of a child's stay in the same setting lengthens.

On the other hand, concerns have been raised about the use of kinship placement because of the lower rates of legal permanence found for children in kinship foster care compared with those in nonkinship foster care. Many studies show that children in kinship foster care are less likely to achieve legal permanence, especially in the form of reunification and adoption (Barth, Courtney, Berrick, & Albert, 1994; Testa, 1997; Thornton, 1991). Research conducted in the mid-1990s, however, found that kin caregivers were more willing to adopt children in their care than previously thought, even though their reluctance to adopt was still stronger than that of non-kin caregivers (Testa, Shook, Cohen, & Woods, 1996; Testa, 2001). Furthermore, Testa's (2005a) research in Illinois suggested that the disadvantages of kinship foster homes for adoption have declined in recent years and, with the addition of subsidized guardianship as a permanency option, kinship can become an asset for attaining legal permanence.

Previous research on differences in permanency outcomes between children in kinship and nonkinship foster care is limited by the problem of selection bias. Kin are able to exercise greater control over who enters their care than are licensed foster parents who are typically expected to accept the children referred to them. Considering the differences in degree of control, it is very possible that the residual differences in permanency outcomes between children in kinship and nonkinship foster care may be due to limitations in the statistical methods used in adjusting for preexisting group differences and selection biases. Grogan-Kaylor (2001) provided evidence that some of the negative effects of kinship placement on reunification rates are the result of selection biases that may not be adequately handled by standard regression methods.

Differences in the characteristics of kin and nonkin placements, which many studies have demonstrated, make such arguments plausible. Children

in kinship settings are different from children in nonkinship settings in many characteristics such as age, race, and disability (Beeman et al., 2000; Berrick, Barth, & Needell, 1994; Chipungu et al., 1998; Grogan-Kaylor, 2000). The reasons why they enter the foster care system are also dissimilar (Chipungu et al., 1998; Grogan-Kaylor, 2000). Furthermore, kinship caregivers differ from nonkinship caregivers in terms of their age, race, marital status, socioeconomic status, and region of residence (Barth et al., 1994; Berrick et al., 1994; Ehrle & Geen, 2002).

The present study approaches the problem of selection bias by using the method of propensity score matching (PSM) to balance the mean characteristics of children placed in kin and nonkin foster homes. The current study tests the following two null hypotheses with matched samples generated by PSM:

- Children initially placed in kinship foster care during their first removal episode are no less likely to achieve legal permanence through reunification, adoption, and guardianship than are children initially placed in nonkinship foster care during their first removal episode.
- Children initially placed in kinship foster care during their first removal episode are no more likely to experience placement stability than are children initially placed in nonkinship foster care during their first removal episode.

## METHOD

### Data

The study uses AFCARS data submitted by the state of Illinois for the 1997 to 2007 reporting periods. AFCARS is a federally mandated reporting system that collects information on all children who are in foster care or have been adopted from the care and custody of state child welfare agencies. AFCARS consists of two data files, one that holds adoption data and the other foster care data. This study uses the foster care data file.

The foster care data file has demographic information on children, birth parents, and foster parents. It also provides episode-level information such as dates of removal and discharge and case goals. Currently, states are required to submit AFCARS data to the ACF semiannually.

Archived AFCARS data in their current structure have a serious limitation in so far as they do not track children's progress from their date of entry to

their date of exit out of foster care (Testa, Koh & Poertner, 2008). Because AFCARS has been patterned after point-in-time collection procedures, outcome data tend to be truncated, censored, and selected because the data are reported for only those children who exit care or still remain in care at the end of a given reporting period (Testa et al., 2008). These lead to the following two kinds of statistical errors which should be avoided when measuring case processes and outcomes: (1) treating truncated or censored data as if they were uncensored, that is, as if the time to an event of interest were known exactly, and (2) treating selected data as if they were fully representative of the complete sample of cases. These errors can be corrected when data are linked across reporting periods and the analysis is based on entry cohorts using statistical methods known variously as survival, failure-time, or event-history analysis (Hosmer & Lemeshow, 1999).

To prepare AFCARS files for longitudinal data analysis, we created a partially longitudinal AFCARS file from the original six-month Illinois submissions by using special software programs developed at Hornby-Zeller Associates. The file is partially longitudinal because they lack complete records of placement changes within the six-month reporting intervals. This results in *interval censored data* (whereby all that is known about the date of placement change, such as the third placement within a year, is that it occurs between two dates), the handling of which requires special statistical techniques (Lindsey & Ryan, 1998). The inputs into the Hornby-Zeller programs were all 20 Illinois six-month submissions from March 1998 to September 2007. The output was 132,532 removal episodes on 108,633 foster children who were in out-of-home placement at any time between October 1997 and September 2007. The number of removals observed or imputed ranged from one to eight, and the file has separate records for each removal episode a child experienced during the period. Because AFCARS files carry as a fixed field the date of first removal from the home, it is possible to distinguish initial removals that preceded the October 1997 start of the reporting period from subsequent removals during the reporting period.

### Sample

Out of the entire sample of 108,633 children, 32,022 were selected who entered the foster care system for the first time before October 1, 2004, and whose

initial placement during a removal episode is either a kinship or a nonkinship foster home. Limiting the sample in this allows for a minimum three-year follow-up period for all children who entered foster care before October 1, 2004. Among these 32,022 children, 21,914 were initially placed into kinship foster homes and the remaining 10,108 into non-kinship foster homes.

### Analysis

**PSM.** To control for different mean characteristics of kinship and nonkinship placements, the method of PSM was applied. The PSM method matches subjects on their conditional probability of group membership, that is, a *propensity score*. A propensity score is a single scalar variable that is calculated from observed covariates or conditioning variables (Rosenbaum & Rubin, 1983). Matching on a single balancing score, PSM makes it possible to control for many covariates simultaneously (D'Agostino, 1998). Accordingly, PSM is known to minimize selection effects and to allow for a less biased comparison of groups in terms of their outcomes (Guo, Barth, & Gibbons, 2006).

There are several advantages to PSM that make it attractive for child welfare research compared with usual multiple regression methods of statistical adjustment. First, matching helps protect against the "data snooping" (Freedman, 2005) that can occur when researchers are searching for an appropriate specification of a multiple regression model for adjusting the intervention and outcome variables. Because outcomes do not figure in the specification of matching models, researchers are free to refit the matching model numerous times until an adequate balance is achieved without compromising statistical conclusion validity that can arise when refitting numerous regression models to predict an outcome.

Second, multiple outcomes can be examined after an adequate balance has been achieved, unlike regression models that may require different specifications to predict values for each of the separate outcomes. Incorrectly specified regression models can lead to misleading results. Furthermore the results of matching methods are more easily communicated to a general audience because the matched samples most closely approximate the classical experimental design. Differences between intervention and comparison groups can be displayed in simple cross-tabular or graphical form.

Third, PSM also helps to overcome the limitations of regression models in adjusting reliably for differences in observed covariates when substantial differences in the distribution of these covariates exist between the intervention and comparison groups (Rubin, 2001). Rubin (2001) identified the following three basic distributional conditions that should be satisfied simultaneously in order for regression adjustment to be trustworthy: (1) The difference in the means of the propensity scores between the two groups must be small; (2) the ratio of the variances of the propensity scores in the two groups must be approximately one; and (3) the ratio of the variances of the residuals of the covariates after adjusting for the propensity scores must be approximately one. Analysis of the unmatched sample in this study showed that none of the above three conditions were met, suggesting that multiple regression analysis may not reliably adjust for observed differences in the characteristics of kin and non-kin children. After matching, all three conditions were met, indicating the advantages of the use of PSM to achieve balance in the observed covariates.

Typically, a logistic regression or probit model is applied to calculate propensity scores. The model can include as many relevant covariates as suggested by previous literature and specified in additive and interactive forms by the researcher (D'Agostino, 1998). This study uses the logistic regression model to predict the likelihood that a child would be placed in a kinship foster home. Predictors or conditioning variables were selected on the basis of previous studies, subject to their availability in AFCARS. The logistic regression model in the study includes the following variables: child's age, gender, race, disability status, reason for removal, primary foster caregiver's race, the locality of services (Cook County versus other counties), and year of entry.

On the basis of the logit of estimated propensity scores, we created a matched subsample: Fifteen hundred randomly selected non-kin children were matched to 1,500 kin children. Nearest neighbor matching within caliper and without replacement was used as a matching algorithm. Children in kin and non-kin placements were compared on the conditioning variables that are included in the logistic regression model for both pre- and post-matched samples.

**Permanency Outcomes.** Through the use of both unmatched and matched samples, the study investigates the permanency outcomes for children

initially placed in kinship foster care in comparison to children initially placed in nonkinship foster care. In this study, the permanency outcomes refer to legal permanence and placement stability. Legal permanence refers both to *reunification* (defined here as children returning to parents, excluding discharge to kin) and the combined alternative permanency outcome of adoption and guardianship. Both adoption and legal guardianship are sought after in Illinois as alternative permanency options that are substitutable to some degree when a child cannot return to his or her original home. Because non-kin are restricted in their ability to take legal guardianship of children under the age of 12, the combined permanency measure provides a fuller assessment of the effects of kinship placements on the achievement of legal permanence rather than focusing on adoption and guardianship separately. Placement stability is also measured in the following two ways: (1) whether the child has moved out of their initial placement, and (2) whether the child experienced three or more placements within one year of entry into care.

The analysis of both permanency outcomes is conducted at the placement level. The analysis of legal permanence takes into account placement changes by censoring cases at the date the children moved out of their initial placement with kin or non-kin foster parents. In other words, children are removed from the risk set for legal permanence if they leave their initial placement setting before exiting foster care.

We used various analytic methods to examine the permanency outcomes for children in kinship placements. First, cross-tabular analyses were conducted with simple chi-square comparison between the two groups of children. For the outcome of legal permanence, the rates of reunification, adoption, and guardianship were calculated at three different milestones: one, two, and three years after children's entry into care, as well as for the entire observation period. The cross-tabular analysis of stability was conducted only for the first measure on initial movement. Complete records of placement changes are not available in the AFCARS dataset to conduct a cross-tabular analysis of the second measure of placement stability.

To observe whether the transition rates to legal permanence are different between the two groups of children, survival analysis was conducted. The time to permanence was calculated in terms of the

number of elapsed months between children's date of entry into care and their exit to reunification, adoption, or guardianship. For censored observations where children did not experience the event of interest or changed placements, the ending date of the observation period (September 30, 2007) or the date they left their initial placement is substituted for the date of discharge.

Accelerated failure time (AFT) models are a subclass of failure-time models that provide a flexible and simple way for handling interval-censored data (Lindsey & Ryan, 1998). Considering the presence of incomplete records of placement changes in the AFCARS dataset, the AFT model is very useful for the analyses of stability measures. The model assumes that covariates are multiplicative on the time to an outcome and are said to accelerate (or decelerate) failure time (Hosmer & Lemeshow, 1999). This allows for easy interpretation of regression coefficients as either shortening or prolonging the expected time to an outcome compared with some baseline group. For the outcome of placement stability, we used the Weibull AFT model, which allows for the underlying risk of placement instability to decrease or increase with time. A goodness-of-fit test comparing the Weibull model to an exponential model, which assumes invariant risk over time, suggests that the assumption of a constant risk can be rejected.

## FINDINGS

### Characteristics of Kin and Non-Kin Foster Homes

The results of the cross-tabular analysis with pre- and postmatched samples are presented in Table 1. The findings based on unmatched samples illustrate that the characteristics of kin placements are quite different from those of non-kin placements. Children in kinship foster homes are older than those in nonkinship foster homes. The mean age of children in kinship foster care is 4.56, whereas children in nonkinship foster care are 3.21 years old on average ( $p < .001$ ). Children and caregivers in kinship placements are more likely to be African American, and kin children are less likely to have disabilities. The two groups of children do not differ by gender ( $p = 0.338$ ).

Children in nonkinship placements are more likely to have been removed because of abuse or neglect and to have entered out-of-home care at later years compared with children in kinship foster care.

In addition, a larger percentage of kinship cases are under the custody of Cook County than are nonkinship cases. More than 70% of children in kinship care are served by Cook County compared with 38% of children in nonkinship care ( $p < .001$ ).

When the analysis is conducted with matched samples, most of the differences between kinship and nonkinship placements disappear. The lone exception is child disability. Slightly higher rates of mental retardation and the presence of a disability persist for children in non-kin foster homes than for children in kin foster homes ( $p = .042$  and  $.022$ , respectively). Overall, the two groups appear to have a distribution that is sufficiently overlapping, allowing for further analysis. Therefore, it can be said that most of the preexisting differences between kin and non-kin foster homes are successfully controlled for in the matched sample.

### Cross-Tabular Analysis

Table 2 provides the results of *cross-tabular analysis* (that is, chi-square comparison) of permanency outcomes. The findings based on the unmatched sample replicate differences typically reported in the literature: Children in kinship foster care are less likely to achieve legal permanence in the form of reunification and adoption, but are more likely to be discharged into legal guardianship; 32.7% of children in non-kin placement were reunified with their parents during the entire observational period compared with a reunification rate of 24.7% for children in kin placement ( $p < .001$ ). Similarly, the adoption rate for non-kin children was 52.7% during the entire observational period, whereas for kin children it was 42.5% ( $p < .001$ ). On the other hand, 19.9% of children in kin foster homes exited care into legal guardianship, whereas only 3.3% of children in non-kin foster homes achieved legal guardianship during the observational period ( $p < .001$ ). When the two supplementary permanency options of adoption and legal guardianship are combined, children in non-kin placements are more likely to be discharged from the care than those in kin placements at two and three years after entry into care. However, when the entire observational period is considered, kin children pull ahead of non-kin children in the combined permanency rate of adoption and guardianship ( $p < .001$ ).

Children in kinship and nonkinship foster homes are also significantly different in the domain of placement stability. Kin children are more likely to

**Table 1: Characteristics of Kin and Non-Kin Foster Homes (in Percentages)**

	Unmatched Kin (n = 21,914)	Unmatched Non-Kin (n = 10,108)	Matched Kin (n = 1,500)	Matched Non-Kin (n = 1,500)
Child age (in years) at entry				
0	25.98***	48.10	46.33	44.87
1–2	17.82***	14.10	15.27	16.00
3–5	19.81***	13.42	13.40	14.00
6–8	15.22***	9.49	9.27	9.60
9–12	14.21***	8.50	10.00	9.73
≥13	6.95	6.40	5.73	5.80
Child gender				
Male	49.26	49.83	49.27	50.00
Female	50.74	50.17	50.73	50.00
Child race				
African American	73.76***	54.21	53.73	54.20
White	20.00***	38.57	38.93	38.60
Other	6.24**	7.21	7.33	7.20
Child disability				
Mental retardation	2.36***	6.00	5.87*	7.73
Mental disorder	4.50***	8.84	8.20	9.13
Other disability	2.10***	7.61	6.33	7.00
No disability	91.03***	77.55	79.60*	76.13
Reason for removal				
Abuse	15.77***	22.27	22.20	22.87
Neglect	64.89***	71.41	73.33	71.20
Child-related problem	2.62***	1.71	1.27	1.67
Other	16.80***	4.64	3.20	4.27
Year of entry (fiscal year)				
Pre-1996	31.88***	8.93	8.52	9.81
1996	8.28***	4.21	4.07	4.67
1997	8.95***	7.36	8.07	8.73
1998	9.58	10.08	10.20	10.93
1999	8.34***	13.10	13.87	12.53
2000	6.06***	11.92	10.73	11.13
2001	6.03***	10.94	11.87	11.00
2002	6.45***	10.60	10.00	9.80
2003	5.96***	10.32	10.87	9.07
2004	6.47***	9.54	9.67	9.73
2005	1.99***	3.00	2.13	2.60
Foster caregiver race				
African American	75.03***	44.48	45.96	46.39
White	20.67***	49.37	50.73	50.79
Other	4.30***	6.15	3.31	2.82
Locality of services				
Cook County	70.19***	37.52	38.27	38.13
Other	29.81***	62.48	61.73	61.87

\*p &lt; .05. \*\*p &lt; .01. \*\*\*p &lt; .001.



**Table 2: Permanency Outcomes of Children in Kin and Non-Kin Foster Homes (in Percentages)**

	Unmatched Kin (n = 10,108)	Unmatched Non-Kin (n = 21,914)	Matched Kin (n = 1,500)	Matched Non-Kin (n = 1,500)
Entire observational period				
Reunification	24.7***	32.7	34.0	33.6
Combined permanency options	62.5***	56.0	50.6	54.6
Adoption	42.5***	52.7	43.4**	51.2
Legal guardianship	19.9***	3.3	7.1***	3.4
Within one year of entry				
Reunification	10.2***	19.3	13.7***	20.1
Combined permanency options	2.9	3.1	2.2*	3.7
Adoption	1.9**	2.5	1.5*	3.0
Legal guardianship	1.0*	0.7	0.7	0.7
Within two years of entry				
Reunification	15.9***	27.1	23.7**	29.0
Combined permanency options	6.9***	12.3	10.3	12.4
Adoption	4.9***	11.5	8.8	11.2
Legal guardianship	2.1***	0.8	1.5	1.2
Within three years of entry				
Reunification	19.7***	30.3	29.5	31.6
Combined permanency options	18.9***	27.7	24.6	26.7
Adoption	12.7***	26.3	21.4	24.9
Legal guardianship	6.2***	1.4	3.2	1.8
Children with initial placement disruption	24.8***	38.8	28.8***	37.1

Note: The percentages reported for the outcome of legal permanence are calculated on the basis of those children who did not experience placement changes.  
\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

experience placement stability than are non-kin children: Less than a quarter of children in kinship foster care experienced placement disruption, whereas the comparable rate is approximately 39% for children in nonkinship foster care ( $p < .001$ ).

When the analysis is based on the matched sample, the findings on legal permanence are contrary to what has been reported in previous literature. First, the two groups of children are still significantly different in their rates of reunification at earlier years, but the differences disappear at the time point of three years after entry into care: The overall rates of reunification were 34.0% and 33.6% for children in kin and non-kin placements, respectively, for the entire observational period ( $p = .850$ ). Similarly, children in kinship and nonkinship foster homes are very similar in their combined rates of adoption and legal guardianship. Again, although the difference is significant at one year after entry into care, the difference narrows to statistical nonsignificance thereafter. During the entire observational period, 50.6% of kin

children exited care through either adoption or legal guardianship compared with 54.6% for non-kin children ( $p = .074$ ). However, the differences between the two groups retain statistical significance when the analyses are conducted separately for the outcomes of adoption and legal guardianship. Research shows that although subsidized legal guardianship in Illinois tends to substitute for adoption among kinship placements, there are no differences in the reentry, safety, and well-being of children whose caregivers chose guardianship over adoption (Testa, 2005b). Therefore the remainder of the analysis focuses on the combined permanency rates of adoption and guardianship, providing a fuller assessment of the effects of kinship placements on the achievement of legal permanence rather than focusing on adoption and guardianship separately.

In the outcome area of placement stability, the observed differences between kin and non-kin placements hold even after matching: 71.2% of children in matched kinship foster homes did not



experience a placement disruption, whereas 62.9% of sampled children in nonkinship foster homes stayed with the same caregiver during the entire observational period ( $p < .001$ ).

### Survival Analysis

Figures 1 through 4 illustrate the results of survival analyses. In the unmatched sample, children in kinship and nonkinship foster homes are significantly different with respect to reunification and the combined permanency options of adoption and guardianship. Non-kin children have significantly higher rates of reunification and combined permanency options than do kin children. From the survival curve, it is estimated that 17.5% of children in kin placements and 25.2% of children in non-kin placements are likely to be reunified with their parents within three years of entry into care (Gehan's  $\chi^2 = 217.588$ ,  $p < .001$ ; see Figure 1). Similarly, only 19.7% of kin children are likely to be adopted or taken into guardianship, whereas the combined rate for non-kin children is estimated at 32.7% at the three-year milestone after entry (Gehan's  $\chi^2 = 311.759$ ,  $p < .001$ ; see Figure 3).

Kin placements show greater stability when they are compared with non-kin placements on both measures of stability in the unmatched samples. Children in kinship foster homes are less likely to experience initial placement disruption ( $\chi^2 = 1181.29$ ,  $p < .001$ ) and to have three or more placement changes within one year of entry into care ( $\chi^2 = 140.84$ ,  $p < .001$ ).

As the results from the cross-tabular analyses of the matched sample show, the group differences in the outcome of reunification narrow to statistical nonsignificance when survival analysis is applied to the matched sample. At the end of a three-year postremoval window, the estimated rates of reunification from the survival curve are similar for children in kinship and nonkinship foster homes (28.2% versus 26.8%; see Figure 2). The overall survival curves are also statistically similar for the two groups of children in transitions to reunification (Gehan's  $\chi^2 = 1.451$ ,  $p = 0.228$ ; see Figure 2). The same holds true when the combined rate of adoption and legal guardianship is examined: The two groups of children do not differ in the overall survival time to permanence. At the end of a three-year postremoval window, 30.8% of children in kinship foster homes and 32.4% of children in nonkinship foster homes are discharged into the supplementary permanency

options of adoption and guardianship (Gehan's  $\chi^2 = 2.163$ ,  $p = .141$ ). Inspection of the survival curves shows that the kinship and nonkinship transition rate for reunification is not proportional with crossovers occurring at 27 months. Therefore, the kinship effects on reunification average out to statistical insignificance when the entire observational period is considered.

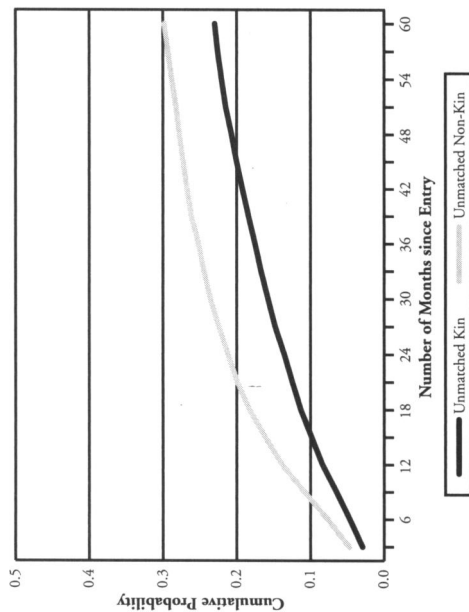
The difference between children in kin and non-kin foster care continues to hold up in the matched sample when they are compared on the first measure of placement stability. Children in kinship foster homes are less likely to move out of their initial placement than are children in nonkinship foster homes ( $\chi^2 = 24.65$ ,  $p < .001$ ). However, the two groups of children are no longer significantly different in the second measure of placement stability, when the analysis is based on the matched sample. The likelihood of experiencing three or more placement changes within a year of entry is not significantly different between kin and non-kin children ( $\chi^2 = .06$ ,  $p = .8025$ ).

### DISCUSSION

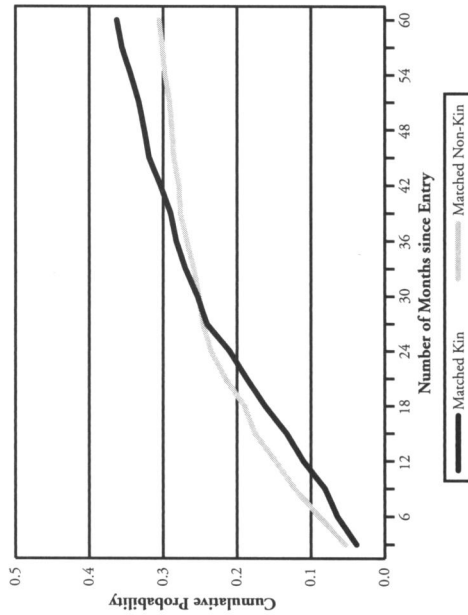
The findings based on the unmatched sample are quite consistent with previous literature. As reported in many studies, the demographic and social conditions of children in kin placements differ from the conditions of children in non-kin placements. The permanency outcomes of kin children are also significantly different from those of non-kin children in the unmatched sample.

When the analysis is based on the matched sample, most of the permanency differences found in previous studies diminish to statistical nonsignificance except in the area of placement stability. Combined rates of adoption and guardianship are also very similar between the two groups, even though kin placements are more likely to terminate in legal guardianship and are less likely to terminate in adoption than are non-kin placements. Early research has suggested that kin placement stood as a barrier to legal permanence when only reunification and adoption were considered, either because kinship foster care was viewed as a safer alternative to reunification or because kin were culturally opposed to termination of birth parents' rights and adoption (Berrick et al., 1994; Thornton, 1991). On the basis of these early findings, concerns have been raised about kinship care as a permanency resource (Bartholet, 1999). The current study raises doubts about the assumption

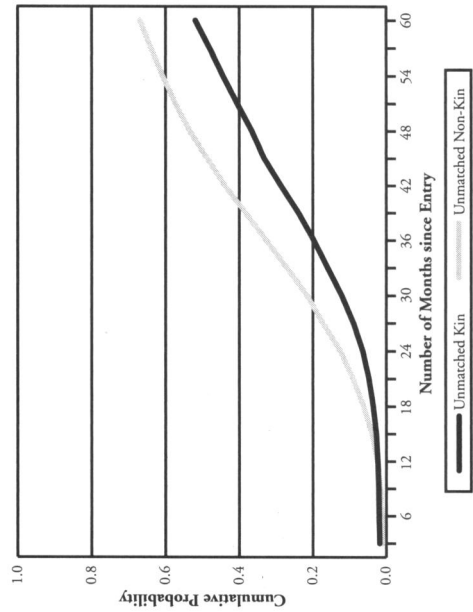
**Figure 1: Cumulative Proportion of Children Who Exited through Reunification: Unmatched Sample**



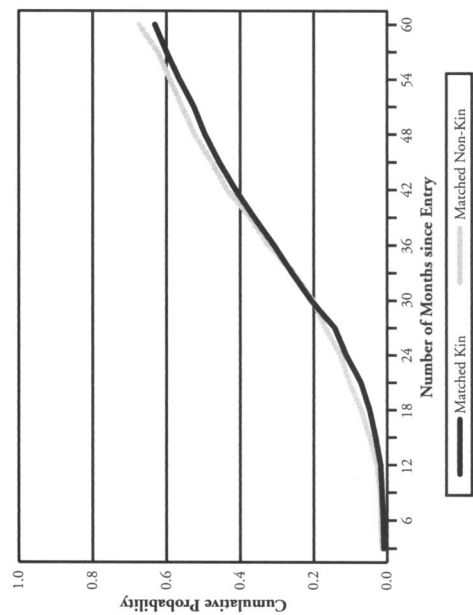
**Figure 2: Cumulative Proportion of Children Who Exited through Reunification: Matched Sample**



**Figure 3: Cumulative Proportion of Children Who Exited through Adoption or Guardianship: Unmatched Sample**



**Figure 4: Cumulative Proportion of Children Who Exited through Adoption or Guardianship: Matched Sample**



that permanency differences are attributable to the type of placement itself. Rather, it appears that the different characteristics of children and caregivers in kin and non-kin placements, mainly a child's age and disability status, account for much of the observed differences in reunification. When both supplementary permanency options of adoption and guardianship are considered, kin placements are statistically as likely to result in legal permanence in the long run as are non-kin placements.

On the other hand, this study reports that kin placement is more stable than is non-kin placement, even after controlling for a range of characteristics. This implies that the higher rates of stability observed for initial placements with kin appear to be associated with factors that may be inherent to the type of placement, such as kinship altruism or sense of family duty (Testa, 2005b). Therefore, the hypothesis that kin placement is more beneficial to children than is non-kin placement, with respect to placement stability, cannot be disconfirmed at this time. The findings of previous research that kin foster caregivers might perceive and respond differently to children's problematic behaviors than might non-kin foster parents, who tend to rate these problems as more severe than do kin caregivers, should also be examined (Shore, Sim, Le Prohn, & Keller, 2002).

At the same time, the contribution of initial placement in kinship care to placement stability should not be overestimated. Even though this study found that children in kinship foster homes are less likely to experience an initial placement disruption than are children in nonkinship foster homes, the two groups of children are not significantly different in their eventual risks of failing the federal standard of no more than two placements within a year of entry into care. In other words, children in nonkinship foster care are more likely to move out of their initial placement, but this does not lead to higher risk of experiencing a third move within a year. It is possible that state practices with respect to emergency foster care and diagnostic homes may create some discontinuity initially, but this does not elevate the risks of multiple placements down the road. Such possible explanations should be explored and identified in future studies.

As it is illustrated in the current study, future studies should consider supplementing traditional regression methods for modeling the counterfactual with other approaches, such as propensity score matching and difference-in-differences matching

(Heckman, Ichimura, & Todd, 1997), to control for confounding differences between various placement settings. The inconsistent findings resulting from the analyses of unmatched and matched samples clearly demonstrate the limitations of standard regression analysis and the needs for the use of additional analytic methods. Even though many studies have identified risk and protective factors for positive outcomes in the area of legal permanence (Harris & Courtney, 2003; Wells & Guo, 1999), further work needs to be done on identifying those causal factors in the placement and service process that account for child welfare outcomes independent from the preexisting differences between children entering various types of placements. Now that the federal government has stopped awarding federal waivers to conduct experimental evaluations of child welfare demonstrations, child welfare researchers will need to return again to quasi-experimental methods for handling issues of selection bias when they draw causal inferences about the effects of service and policy innovations. Nonetheless, state child welfare systems should be encouraged to continue to invest in randomized experiments to examine how different policies, such as monetary support of kinship caregivers, methods of foster family recruitment, or the use of diagnostic homes, affect the stability of foster care despite discontinuation of the federal waiver.

The current study also makes a major advance in demonstrating how existing AFCARS data can be converted into a form necessary for conducting longitudinal data analysis. These software programs and statistical techniques can easily be replicated on the vast storehouse of AFCARS data that states have been supplying the federal government since 1998. The Children and Family Research Center at the University of Illinois at Urbana-Champaign in collaboration with the Barton Law Clinic at Emory University has been collecting six-month AFCARS files from states to replicate in child welfare and juvenile court jurisdictions the sorts of analyses conducted in the current study (Fostering Court Improvement, 2007).

## **LIMITATIONS**

The study has several limitations. One is its external validity. The sample is limited to the state of Illinois. Even though Illinois is one of the states that have the largest kinship care populations in the nation, it is not clear whether the present findings can be

generalized to other states. This has also been the limitation of previous literature, most of which is based on large administrative databases from California and Illinois (Cuddeback, 2004). Currently, the authors are using longitudinally reconstructed AFCARS files to replicate these results in other states, applying the same sample selection strategies and analytic tools.

In addition, even though the use of propensity scores reduces selection biases, it is very possible that unmeasured differences still exist in the matched sample of the study. Because propensity scores only control for observed covariates, the matched samples may still be significantly different in unobserved variables (D'Agostino, 1998). Furthermore, the study was not able to incorporate all the predictors in the logistic regression model, which have been identified as characteristics that distinguish kin foster care from non-kin foster care. Because the specification of conditioning variables has a significant effect on the results of the analysis that makes use of propensity scores, it is possible that different findings will be reported when more variables are included in the calculation of propensity scores (Guo et al., 2006).

## CONCLUSION

Ambivalent feelings and attitudes are still present in regard to the use of kinship foster homes (U.S. Department of Health and Human Services, 2000; U.S. GAO, 1999). Especially in the area of legal permanence, kinship foster care has been called into question by many stakeholders, including policymakers and practitioners, because it has been reported that children in kin placements have lower rates of reunification and adoption. This study raises doubts about the validity of these objections by reporting that the two types of placements are not significantly different in achieving legal permanence of children in care when other confounding factors are controlled. Children with certain characteristics are at lesser or greater risk of languishing in out-of-home care irrespective of whether they are in kinship or nonkinship placements. Future efforts at the policy and practice levels should be directed toward assisting such high risk foster care children in attaining legal permanence.

The present study confirms that kinship foster homes provide more initial stability for children in care. In this regard, the current policies that give a preference to kinship foster care when placing

children in out-of-home care do not appear to harm their future prospects of permanence and may even contribute to children's well-being in other ways. Children in kinship foster care have more positive outcomes in the domain of feelings of belongingness (Crumbley & Little, 1997) and other indicators of bonding social capital (Testa, 2005b), which may contribute to their emotional and social well-being. Child welfare professionals should continue to explore the conditions under which placement with kin advances the safety, permanence, and well-being of children in foster care. **SWR**

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