Permanency Outcomes of Children in Kinship and Non-Kinship Foster Care: Minimizing the Effects of Selection Bias with Propensity Score Matching

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Statement of the Research Problem

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 23% of the foster care population after its dramatic rise in the early 1990s (Administration for Children and Families [ACF], 2005; Beeman, Kim, & Bullerdick, 2000). It is estimated that 121,030 children were placed in kinship foster homes in 2003 (ACF, 2005). As kinship placements has become more widely accepted, a lot of attention has begun to be paid to the comparative outcomes for children in kinship and non-kinship foster care, especially in the area of family permanence, which is one of the major goals of child welfare services.

Different findings have been reported on the permanency outcomes of kin children in comparison to non-kin children. Studies consistently find that kinship placement is more stable than non-kinship foster care (Beeman et al., 2000; Benedict & Zuravin, 1996; Berrick, Barth, Needell, 1994; Chipungu, Everett, Verdieck, & Jones, 1998; Goerge, 1990; Iglehart, 1994; Testa, 2001). In other words, children in kinship foster homes are much less likely to experience placement disruption than children in non-kinship placements. Other research shows that children who exited from their relative caregivers are less likely to re-enter the system after reunification with birth parents, compared to those who were discharged from non-relative foster homes (Barth, Courtney, Berrick, & Albert, 1994; Courtney, 1995; Courtney, Piliavin, & Entner Wright, 1997; Frame, Berrick, & Brodowski, 2000; Wulczyn, 1991).

In the areas of legal permanence and length of stay in care, negative outcomes have been reported for children in kinship placement. Many studies show that children in kinship foster care are less likely to achieve legal permanence, especially in the forms of reunification and adoption (Barth et al., 1994; Testa, 2001; Thornton, 1991). The lower rates of legal permanence for children in kinship placements appear to be closely related

to their length of stay. Studies demonstrate that children in kinship settings remain in care much longer than children in non-kinship foster care (Benedict & White, 1991; Berrick et al., 1994; Scannapieco, Hegar, & McAlpine, 1997; Wulczyn & George, 1992).

Research Background and Hypotheses

Previous research on differences in permanency outcomes between children in kinship and non-kinship foster care is limited by its heavy reliance on statistical regression models to handle the problem of selection bias. Considering the differential degrees of control that kin and non-related foster parents can exercise over who enters their care, it is very possible that the residual differences in permanency outcomes between children in kinship and non-kinship foster care may be due to limitations in this method of adjusting for pre-existing group differences and selection biases. Grogan-Kaylor (2001) provides some 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.

Considering both ambivalent public attitudes that still exist in regard to the use of kinship placements and different state policy regimes that govern kinship foster care, it is very important to present research findings that are based on rigorous and sound methodologies. In response to such needs, the present study examines comprehensive permanency outcomes of children in kinship foster homes in comparison with those in non-kinship foster care, addressing the issue of selection biases with the use of propensity score matching method. The permanency outcomes in the study include legal permanence, length of stay, placement stability, and foster care re-entry. The study tests the following null hypotheses, balancing the mean characteristics of children placed in relative and non-relative foster homes:

- Are children in relative foster homes no more likely to experience placement stability than children in non- relative foster homes?
- Are children in relative foster homes no less likely to achieve legal permanence through reunification, adoption and guardianship than children in non-relative foster homes?
- Are children in relative foster homes likely to stay in out-of-home care no longer than children in non- relative foster homes?
- Are children in relative foster homes no less likely to re-enter out-of-home care after their discharge than children in non- relative foster homes?
- Are the effects the type of placement has on permanency outcomes of children in care the same across the states?

Methodology

This study uses Adoption and Foster Care Analysis Reporting Systems (AFCARS) data for six states: Arizona, Connecticut, Illinois, Missouri, Ohio, and Tennessee. The Adoption and Foster Care Analysis Reporting Systems (AFCARS) is a

federally mandated reporting system that contains information on all children who are in foster care or have been adopted under the care of state child welfare agencies. It is composed of two data files, one that holds adoption data and the other foster care data. This study uses the foster care data file. Currently, states are required to submit AFCARS data to the Administration for Children and Families (ACF) semi-annually, and the reporting periods are October 1 through March 31 and April 1 through September 30 (ACF, 2003; Courtney, Needell, & Wulczyn, 2004). The study uses states' AFCARS 6-month submissions from March 2000 to September 2005, and, therefore, the observational period of the study is from October 1, 1999 to September 30, 2005.

For the present study, two separate samples were created: One is for the analysis of legal permanence, length of stay and placement stability, and the other is for the analysis of foster care re-entry. For the analysis of legal permanence, length of stay and placement stability, children who had their initial placement at either relative or non-relative foster homes were selected among those who entered the foster care system for the first time between October 1, 1999 and September 30, 2004. For the re-entry analysis, children who have ever experienced discharge into reunification with their parents before the end of the observational period, September 30, 2005, were selected among those who entered the foster care system for the first time between October 1, 1999 and September 30, 2004. As final samples of the re-entry analysis, those who have their last-reported placement setting at either relative or non-relative foster homes were selected.

The present study uses different analytic methods to address the research questions, including propensity score matching (PSM), and analyses of proportions and survival times. The method of PSM creates comparable samples of kin and non-kin children, and their permanency outcomes are investigated using the analyses of proportions and survival times.

In the study, the method of propensity score matching (PSM) was applied in order to control for different characteristics of relative and non-relative foster homes. 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; D'Agostino & Rubin, 2000). Accordingly, PSM is known to minimize selection biases and to allow for more accurate comparison of groups in their outcomes (Guo, Barth, & Gibbons, 2006). Logistic regression or probit model is typically used to calculate propensity scores, and the current study uses the logistic regression model. The model may include as many relevant covariates as suggested by previous literature and specified in additive and interactive forms by a researcher (D'Agostino, 1998; Winkelmayer & Kurth, 2004). Predictors or conditioning variables that are included in the logistic regression model for the analysis of legal permanence, length of stay and stability outcomes are child's age at removal, gender, race and disability, reason for removal, year of entry, county of service provision (largest vs. the others), primary caregiver's (parent's) age and marital status, primary foster caregiver's age and marital status, and match of child and foster caregiver's race. Similarly, the logistic regression for the analysis of foster care re-entry include the following variables: child's age at discharge, gender, race and disability, reason for removal, number of

previous placement settings experienced, length of time in care prior to discharge, year of exit, county of service provision (largest vs. the others), and title IV-E eligibility. Based on the logit of the estimated propensity scores, matched samples were created.

Bivariate analysis, simple Chi-square comparison, was applied, serving two purposes in the study. One is to compare children in relative and non-relative foster homes on the conditioning variables that are included in the logistic regression models. The other use is to investigate the permanency outcomes of children in relative foster homes in comparison with children in non-relative foster homes. Children in relative and non-relative foster homes are compared on legal permanence, placement stability, and foster care re-entry.

The study employed three different methods of survival analysis, including Kaplan-Meir Method, Accelerated Failure Time (AFT) model and Cox Proportional Hazards model, to investigate the outcomes of legal permanence, length of stay, placement stability and foster care re-entry. The AFT model was the main analytic tool of the study, which uses the method of maximum likelihood to estimate parametric regression models with censored survival data (Allison, 1995). One of the strengths of the AFT model is its ability to accommodate left and interval censoring. In addition, the AFT model allows for different distributions for an error term (ε), and the study uses the Weibull model. The scale (σ) calculated by the Weibull model provides information on whether hazards increase or decrease over time (Allison, 1995).

Results

Propensity Score Matching

Using the method of propensity score matching (PSM), matched samples were created for each state. The probability that a child would be placed in a relative foster home, the propensity score, was calculated, applying the logistic regression model.

Before matching, relative and non-relative foster homes were significantly different in various characteristics in all seven states. However, no consistent trend was found among the states in the way that relative and non-relative foster homes were distinguished. Exceptions were reported for the variables of a child's age, a primary foster caregiver's age and marital status, and the match of a child's and a foster caregiver's race in the sample for the analysis of legal permanence, length of stay, and placement stability, and for the variable of a child's gender in the sample for the foster care re-entry analysis.

Most of the differences between relative and non-relative foster homes disappeared after matching. In the sample for the analysis of legal permanence, length of stay, and placement stability, no significant differences were found between relative and non-relative foster homes in the matched samples of Arizona, Connecticut, Missouri, North Dakota, and Tennessee. In the matched samples of Illinois, the two groups were still significantly different in the variable of removal reason, specifically, the category of reasons other than abuse or neglect. However, the significance level dropped from 0.001 to 0.01, and the actual difference between the two groups was 1.44%. In the Ohio matched sample, all of the differences between relative and non-relative foster homes

were insignificant except for the variables of a child's race (category of African American) and the match of a child's and a primary foster caregiver's race (categories of matched and unmatched). Again, the significance level fell from 0.001 to 0.01 or 0.05, and the actual differences between the two groups were less than 2%. In the sample for re-entry analysis, no significant group differences were observed in the matched samples of all the states studied except for Ohio. In the matched samples of Ohio, the only significant differences between relative and non-relative foster homes were reported on the variable of the number of previous placements experienced, specifically the categories of one, two, and three. In the categories of one and two, kin and non-kin children were significantly different at 0.001 level, and the actual differences were larger than 5%. The two groups of children also significantly differed in the category of three of the variable at 0.01 level. However, the actual differences were less than 2%.

Permanency Outcomes

Placement Stability

In both unmatched and matched samples, children in relative foster homes were less likely to experience initial placement disruption than those in non-relative foster homes. The findings were consistent across all the states studied (Figure 1 & 2). The second measure of placement stability examined whether children experienced three or more placements within a year of their entry into care. Consistent with the findings for the first measure of placement stability, children in relative foster homes were less likely to experience three or more placements within a year of entry than those in non-relative foster homes. The findings were consistent across all the states studied (Figure 3 & 4).

Legal Permanence

The analysis of unmatched samples reported that children in relative foster homes were more likely to exit the care into legal guardianship, compared to children in non-relative foster homes, in all the states studied except for Tennessee (Figure 5). However, children in relative and non-relative foster homes had a similar likelihood of achieving legal guardianship in the Tennessee unmatched sample. When the analyses were based on matched samples, children in relative foster homes had a higher probability to be discharged into legal guardianship than those in non-relative foster homes in all six states (Figure 6). However, the findings were not statistically significant in the matched samples of Connecticut and Tennessee.

When the analyses were based on unmatched samples, children in relative foster homes were less likely to be adopted than children in relative foster homes in Connecticut, Illinois, Missouri, and Ohio (Figure 7). On the other hand, kin children had a higher likelihood of adoption than non-kin children in Arizona and Tennessee even though the differences were not significant in the Tennessee unmatched sample (Figure 7). The analyses of matched samples reported consistent findings with those of unmatched samples (Figure 8). Children in relative foster homes had a lower likelihood of adoption than those in non-relative foster homes in Connecticut, Illinois, Missouri, and Ohio. However, it was noted that the differences became insignificant in the Illinois matched sample. In the matched samples of Arizona and Tennessee, children in relative foster

homes were more likely to be adopted than those in non-relative foster homes even though the two groups of children were not significantly different in their likelihood of adoption in the Tennessee matched sample.

Additional analysis was conducted, combining the outcomes of legal guardianship and adoption. This is based on the assumption that these two outcomes arise from a similar set of commitments, which is best modeled as a single permanency process (Testa & Shook, 2002). When the analyses of the combined permanency outcomes were based on unmatched samples, children in relative foster homes were more likely to be discharged into either adoption or guardianship than those in non-relative foster homes in Arizona and Ohio (Figure 9). On the other hand, the two groups of children had a similar likelihood of adoption or guardianship in Connecticut, Illinois, Missouri, and Tennessee even though statistically significant differences were reported for the Illinois unmatched sample (Figure 9). The analyses of matched samples reported that children in relative foster homes were more likely to achieve legal permanence in the forms of adoption or guardianship than children in non-relative foster homes in Arizona, Ohio, and Tennessee even though no statistically significant differences were reported for the Tennessee matched sample (Figure 10). On the other hand, children in relative foster homes were less likely to be discharged into either adoption or legal guardianship in Connecticut, while the two groups of children had a similar likelihood of adoption or legal guardianship in Illinois and Missouri (Figure 10).

In the outcome area of reunification, the analyses of unmatched and matched samples reported that children in relative foster homes were less likely to be reunified with their parents, compared to those in non-relative foster homes, in the states of Arizona, Connecticut, and Illinois (Figure 11 & 12). On the other hand, children in relative foster homes were more likely to be reunified with their parents than those in non-relative foster homes in Missouri, Ohio, and Tennessee (Figure 11 & 12).

Length of Stay

The analyses of unmatched and matched samples reported that children in relative foster homes were less likely to be discharged from out-of-home care, compared to those in non-relative foster homes, in Arizona, Connecticut, and Illinois even though no statistically significant differences were reported for the Arizona unmatched sample (Figure 13 & 14). On the other hand, children in relative foster homes were more likely to exit the system than those in non-relative foster homes in Ohio and Tennessee (Figure 13 & 14).

Foster Care Re-Entry

The analyses of unmatched samples reported that children in relative foster homes were less likely to re-enter out-of-home care than children in non-relative foster homes, and the findings were consistent across all six states (Figure 15). When the analyses were based on matched samples, children in relative foster homes were at lower risks of foster care re-entry than children in non-relative foster homes in all the states studied except for Illinois (Figure 16). However, the differences were not statistically significant for the matched samples of Connecticut and Missouri. On the other hand, children in relative foster homes were more likely to re-enter out-of-home care after their discharge into

reunification in the Illinois matched sample, even though the differences were not statistically significant at 0.05 level.

Utility for Social Work Practice

The findings of the study disconfirm many previous perceptions regarding the effects of kinship placements on the permanency outcomes of children in substitute care. Prior research consistently reports unfavorable outcomes for kin children in the areas of legal permanence and length of stay (Barth et al., 1994; Testa, 2001). However, the findings of the study illustrate that the effects of kinship placements on the outcomes of legal permanence and length of stay vary among the states. For example, children in relative foster homes are less likely to be adopted than those in non-relative foster homes in Connecticut, Missouri, and Ohio. On the other hand, kin children have a higher likelihood of adoption than non-kin children in Arizona. The variations observed among the states imply that no uniform generalization cannot be made with respect to the effects of kinship placements on the outcomes of legal permanence and length of stay.

Regarding the outcome domain of foster care re-entry, the study reports that kinship placements are more advantageous than non-kinship placements in many states. Children in relative foster homes are less likely to re-enter out-of-home care after their discharge than those in non-relative foster homes in all states except for Illinois. While the differences between kin and non-kin children are not statistically significant in the matched samples of Connecticut and Missouri, the ratio of expected time to re-entry between the two groups of children is larger than 3 in both states. This may be considered to be substantive differences in terms of practical significance. In the Illinois matched sample, children in relative foster homes are more likely to experience foster care re-entry than those in non-relative foster homes even though no statistically significant differences are reported. Until further clarification is made with respect to the findings of the Illinois matched sample, no generalization cannot be made regarding the effects of kinship placements on the outcome of foster care re-entry.

To summarize, the study reports that the effects of kinship placements on the outcomes of legal permanence, length of stay, and foster care re-entry vary among the states studied. In other words, no generalizations can be drawn regarding the effects of kinship placements on children's likelihood of achieving legal permanence, remaining in care, and re-entering the system. It implies that different policy and practice regimes of each state have a greater impact on the permanency outcomes of children in out-of-home care rather than the type of placement itself.

Therefore, child welfare professionals in each state should closely examine the way they establish permanency goals with children in relative versus non-relative foster homes and the way they support different types of placements. In addition, they should not assume that certain permanency options should work better with children and caregivers in specific types of placement settings. Rather, they should establish and work toward a permanency goal that is based on the risk and protective factors of each child.

Even though the effects of kinship placements vary among the states in the majority of permanency outcomes, the study reports consistent findings across the states in the

outcome areas of placement stability and legal guardianship. In every state, relative foster homes provide more stability for children than non-relative foster homes, which is consistent with the findings of previous research (Beeman et al., 2000; Chipungu et al., 1998; Testa, 2001). In other words, the hypothesis that kinship placements are more advantageous than non-kinship placements in the outcome area of placement stability cannot be rejected.

Similarly, the findings of the study illustrate that children in relative foster homes are more likely to achieve legal guardianship than those in non-relative foster homes. Even though the differences between the two groups of children are not statistically significant in Connecticut and Tennessee, they appear to be substantively as significant as in the other states. The advantages of kinship placements in the outcome area of legal guardianship suggest that the option of legal guardianship may work better with relative foster homes than non-relative foster homes, which does not require the termination of parental rights. Therefore, child welfare practitioners should explore kin and non-kin caregivers' attitudes and feelings toward each permanency option and assist them to make a decision that serves the best interest of both children and caregivers themselves.

The study finds that children's likelihood of experiencing initial placement disruption and re-entering out-of-home care decrease with time. This implies that early interventions can prevent children's placement changes or re-removal from their original homes to a great degree. Therefore, more intensive and comprehensive services should be made available to children and families especially during their transition times when children are placed in their initial placement with kin or non-kin caregivers, or they return to their biological parents.

The findings of the study illustrate that relative foster homes are distinguished from non-relative foster homes in various characteristics. However, the study finds no consistent pattern that relative foster homes differ from non-relative foster homes. This implies that no conclusions should be inferred regarding the likelihood that certain characteristics of children would affect the decision on their placement with relative versus non-relative caregivers. Rather, policy and practice regimes of each state may have a significant impact on the way children entering out-of-home care are placed in certain types of placement settings. Child welfare professionals in each state should closely examine their policies and practices regarding how they determine and locate a placement for a child who come into the foster care system. In addition, they should look into whether such policies and practices are designed and implemented to ensure that a child should be placed in an environment that fits his/her developmental needs.

Even though the study reports wide variations among the states in the way that relative and non-relative foster homes are differentiated, it is consistently observed that kin caregivers are more likely to be older and single in all the seven states investigated. This is of concern because the age and marital status of foster caregivers may affect their ability to care for a child. Older caregivers are more likely to have health problems, which can seriously impair their functioning and, thus, their ability to provide good care for children (Scarcelle, Ehrle, & Geen, 2003). In addition, children in single-headed households are more likely to have behavioral and educational problems than those in two-parent households (Dornbusch et al., 1985; Krein & Beller, 1988). Considering that kinship caregivers receive less governmental support (Berrick et al., 1994; Geen, 2003),

more efforts should be made to assess the needs of children and caregivers in relative foster homes, and provide them with appropriate supporting services and programs.

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Figure 1 *Ratio of Expected Time to the Second Placement (Kin vs. Non-Kin) for Unmatched Sample*[1]

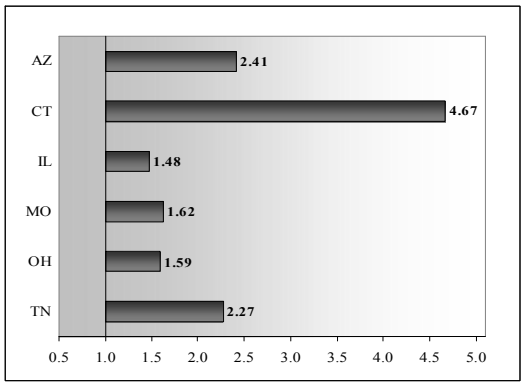


Figure 2 *Ratio of Expected Time to the Second Placement (Kin vs. Non-Kin) for Matched Sample*

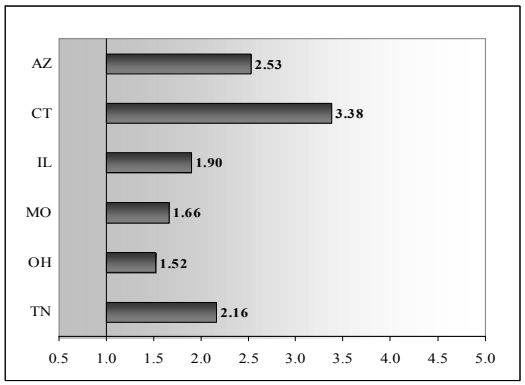
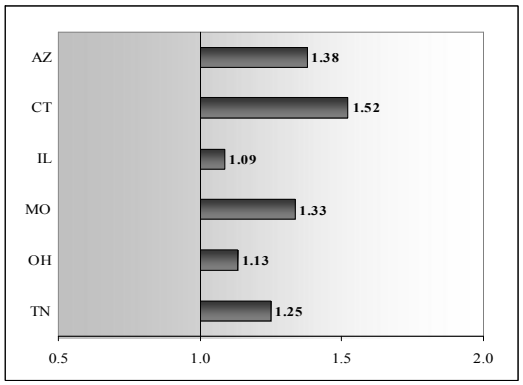


Figure 3 *Ratio of Expected Time to the Third Placement (Kin vs. Non-Kin) for Unmatched Sample*



[1] The number greater than 1 indicates that it takes longer for children in relative foster homes to experience the event of interest, compared to children in non-relative foster homes.

Figure 4 *Ratio of Expected Time to the Third Placement (Kin vs. Non-Kin) for Matched Sample*

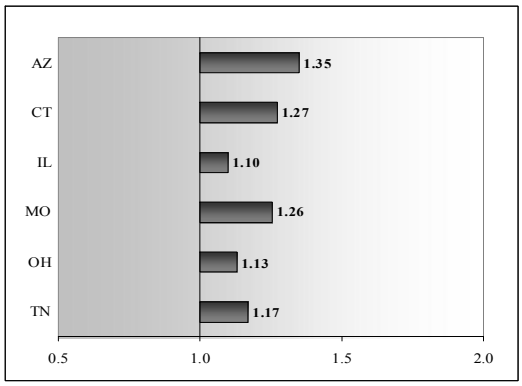


Figure 5 *Ratio of Expected Time to Legal Guardianship (Kin vs. Non-Kin) for Unmatched Sample*

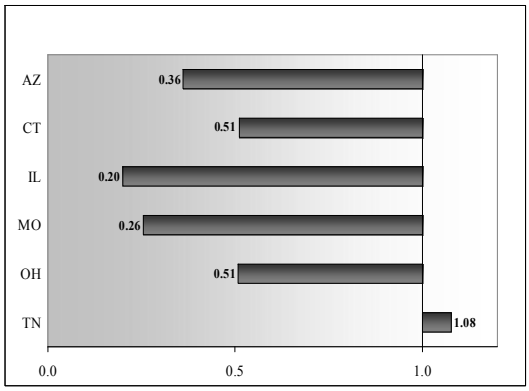


Figure 6 *Ratio of Expected Time to Legal Guardianship (Kin vs. Non-Kin) for Matched Sample*

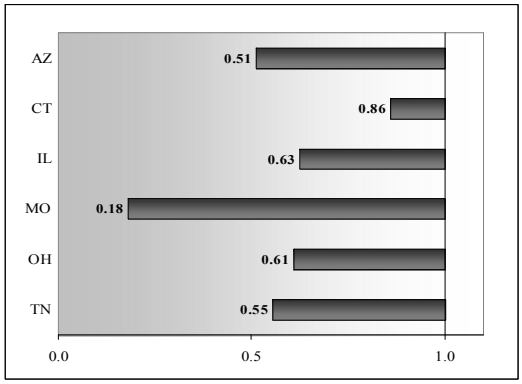


Figure 7 *Ratio of Expected Time to Adoption (Kin vs. Non-Kin) for Unmatched Sample*

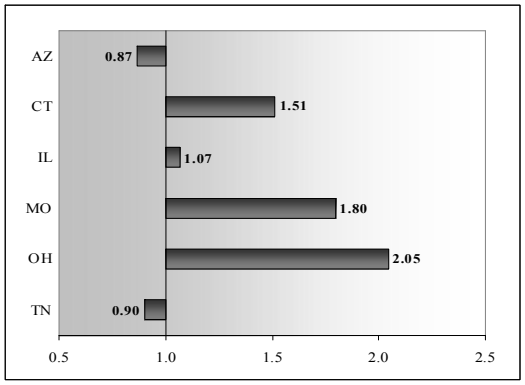


Figure 8 *Ratio of Expected Time to Adoption (Kin vs. Non-Kin) for Matched Sample*

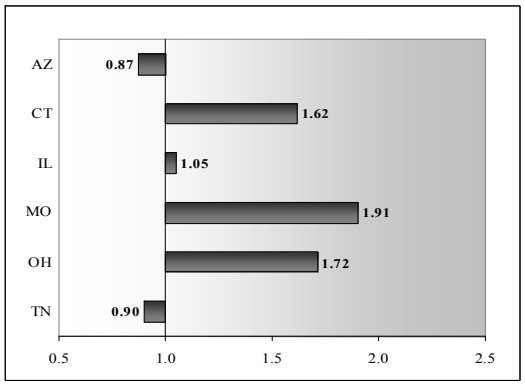


Figure 9 *Ratio of Expected Time to Adoption or Legal Guardianship (Kin vs. Non-Kin) for Unmatched Sample*

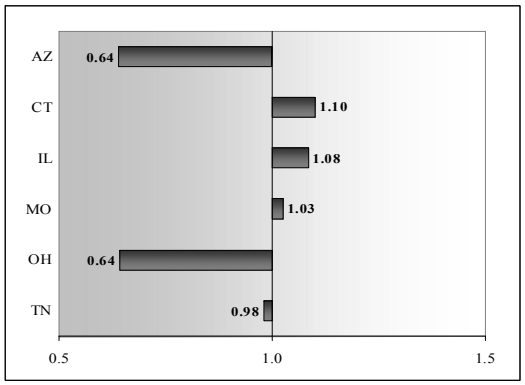


Figure 10 *Ratio of Expected Time to Adoption or Legal Guardianship (Kin vs. Non-Kin) for Matched Sample*

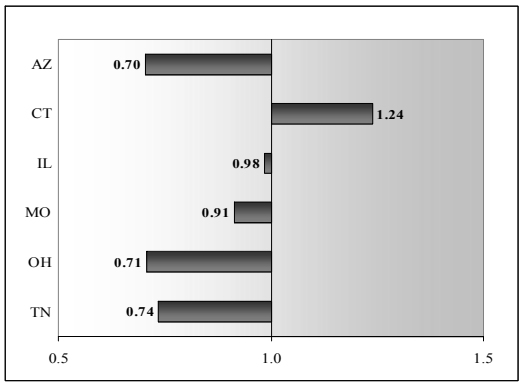


Figure 11 *Ratio of Expected Time to Reunification (Kin vs. Non-Kin) for Unmatched Sample*

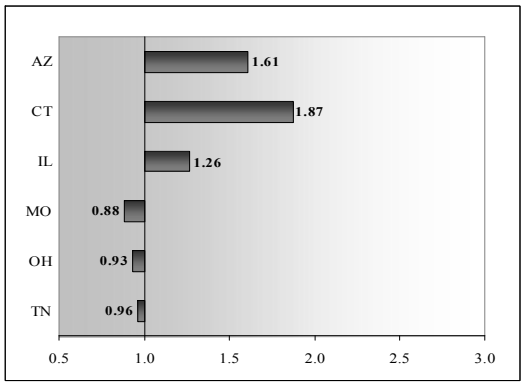


Figure 12 *Ratio of Expected Time to Reunification (Kin vs. Non-Kin) for Matched Sample*

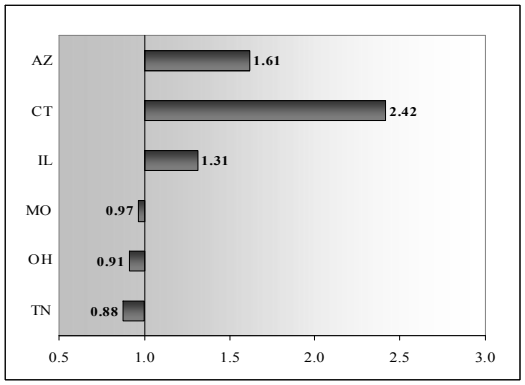


Figure 13 *Ratio of Expected Time to Discharge (Kin vs. Non-Kin) for Unmatched Sample*

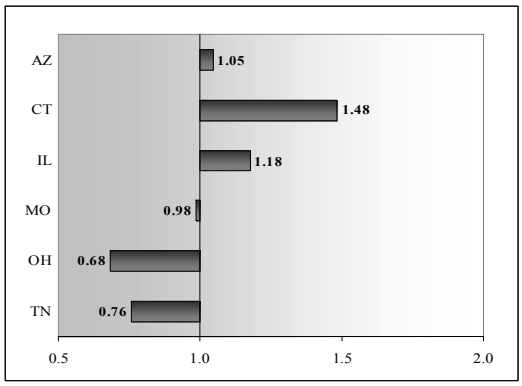


Figure 14 *Ratio of Expected Time to Discharge (Kin vs. Non-Kin) for Matched Sample*

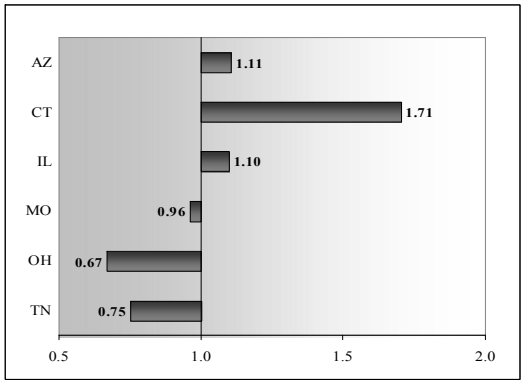


Figure 15 *Ratio of Expected Time to Re-Entry (Kin vs. Non-Kin) for Unmatched Sample*

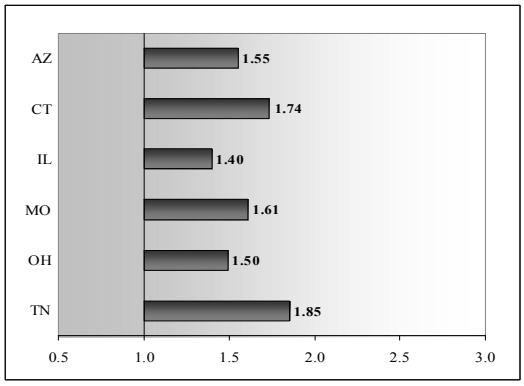


Figure 16 *Ratio of Expected Time to Re-Entry (Kin vs. Non-Kin) for Matched Sample*