



Demographics, policy, and foster care rates; A Predictive Analytics Approach



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ABSTRACT

Individual, family, and community-level factors have been suggested as explanations of foster care entry rates and average lengths of time that children remain in foster care. They do not, however, provide a sufficient explanation of the substantial geographical variation in entry rates and average lengths of stay across the United States. State-level child welfare policies and state-level socioeconomic variables may help explain these trends, but no empirical analysis to date has identified how policies and socioeconomic facts might interact in ways that can help account for the wide geographic differences.

Traditional statistical methods and much prior research have been unable to identify the combinatorial and non-linear interaction effects of the many suggested factors. A data set of 104 state-level variables was constructed to help answer the question of what accounts for geographic differences in foster care entry rates and average lengths of stay in foster care. A predictive analytics approach (classification and regression trees) was used to sort through all the potential explanatory variables, their interactions, and combinations. The results show that state cultural orientations and socioeconomic facts together best explain foster care entry rates. In contrast, child welfare policy and practice differences together best explain average lengths of stay in foster care. Interventions aimed at goals relating to who goes into foster care and how many children go into foster care might be most effective if they focus on culture and socioeconomic facts. Interventions aimed to change lengths of time in care, on the other hand, might be most effective if targeted at state child welfare policies and practices.

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1. Introduction

There is a gap in the research literature regarding how child welfare policy along with individual, family, and community-level risk factors might all work together to help explain geographic variations in foster care entry rates and length of time in care across the United States. This paper provides a better understanding of the differences in foster care experiences across the United States by exploring what factors in combination most efficiently predict foster care entry rates and what factors in combination are the most efficient predictors of the amount of time that children spend in foster care.

The extant literature on foster care experiences might be best understood in terms of competing and accumulating risks: individual, family, community, and cultural. So many variables have some potential bearing that traditional methodologies cannot account for them all. This paper presents results from a nonlinear, nonparametric predictive analytics approach that allows for multiple combinatorial, nonlinear interactions. This type of predictive analytics modeling is the best way to sort through all factors in order to identify those that empirically matter the most.

There is considerable geographic variance in foster care entry rates and in how long children remain in care across states. For example, in 2010, the foster care entry rate in Indiana was 5.7 per 1000 children and in North Carolina it was 2.1. Put another way, children in Indiana were nearly three times as likely as children in North Carolina to be placed into foster care in 2010. The use of foster care as a state intervention was clearly different between those two states.

Foster care entry rates have a tendency to vary. For example, the foster care entry rate increased from 4.7 per 1000 children in 1980 to 7.7 per 1000 children in 2000 (Wertheimer, 2002). The foster care entry rate trend later reversed, falling to 3.6 per 1000 children in 2010 (U.S. Department of Health and Human Services, 2011).

Similarly, there is considerable variation in the average time that children spend in foster care across the United States. In 2010, children remained in care an average of 630 days (20 months) once removed from the home, not counting the length of any previous foster care episodes. This average is consistent with length-of-stay trends since the 1990s (Barbell & Freundlich, 2001); however, how long children stay in foster care varies significantly from state to state. In Connecticut, children who exited foster care in 2010 had been in care an average of 810 days (almost 27 months), while children in New Jersey who exited in 2010 had been in care an average of 614 days (20 months). Children

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in Illinois exiting care in 2010 had been in care an average of 1336 days (44 months; [U.S. Department of Health and Human Services, 2010](#)).

These inconsistencies across states in average lengths of stay in foster care are troubling because there is no clear standard for the level of appropriate state response to child maltreatment. As one analyst has suggested, while more aggressive use of foster care might increase child safety, removal from parents can be traumatic to children as well ([Doyle, 2007](#)). The wide differences across states in average lengths of stay indicate that there is clear way to balance removing a child from an unsafe environment and the trauma experienced by children from lingering in foster care. Not having a complete understanding of state variations in how this balance is made can hinder interventions aimed at improving outcomes related to foster care entry and lengths of stay.

2. Potential explanations and variables

Potential explanations for these variations across states in foster care have been suggested at the individual, the family, and the community levels.

On the individual level, children with special needs that increase caregiver burden and children younger than four years of age face an increased risk of abuse or neglect ([Centers for Disease Control and Prevention, 2012](#)). A child's race may also be correlated with a greater likelihood of foster care placement. In almost every state, African American children are overrepresented in foster care when compared with the general population ([Summers, Wood, & Russell, 2013](#)). A number of parental characteristics, such as age and level of education, also place children at higher risk. Further, parental lack of understanding of children's needs, child development and parenting skills, a parent's own history of maltreatment, and parental substance abuse and mental illness are all risk factors ([Centers for Disease Control and Prevention, 2012](#); [Hines, Lemon, Wyatt, & Merdinger, 2004](#)).

On the family level, many factors have been found to be potentially associated with child maltreatment risk. The factors, of course, vary by family, but may include parental incarceration; low socioeconomic status; having more than four children; social isolation; family disorganization, dissolution, and violence; parenting stress; poor parent–child relationships; and negative interpersonal interactions ([Centers for Disease Control and Prevention, 2012](#); [Sedlak et al., 2010](#); [World Health Organization, 2002](#)). Parents who were themselves maltreated as children are also at greater risk of maltreating their own children ([Dixon, Browne, & Hamilton-Giachritsis, 2005](#)).

On the community level, there are a number of factors that relate to increased child maltreatment risk ([Garbarino & Crouter, 1978](#)). [Lery \(2009\)](#) found that elements of neighborhood social structure—in particular, residential instability, impoverishment, and child care burden—were related to the risk of entry into foster care. Community violence, acute neighborhood disadvantage (e.g., high poverty and high unemployment rates), poor social capital, and high population density are also related to child maltreatment risk ([World Health Organization, 2002](#)).

Beyond community structure, culture or common community values might relate to child maltreatment risk. For example, the prevalence of collectivist values (interdependence, social support, and a “we” mindset) in a community versus prevalence of individualist values (independence, self-reliance, and an “I” mindset) could shape responses to maltreatment incidents ([Vandello & Cohen, 1999](#)). A critical aspect of individualism and collectivism for the purposes of this study is the different emphasis on relationships in each construct. Individualists view relationships and groups as impermanent and non-intensive and through a cost–benefit lens. Collectivists, on the other hand, see relationships and group memberships as permanent, stable, relatively impermeable, and important ([Oyserman, Coon, & Kimmelmeier, 2002](#)). The role of culture has been examined within the child maltreatment context, yet further understanding of its role is necessary (see, for example, [Elliott & Urquiza, 2006](#); [Stoltenborgh, Bakermans-Kranenburg, van Ijzendoorn, & Alink, 2013](#)).

The individualism–collectivism index used here from [Vandello and Cohen \(1999\)](#) is based on an extensive research history of cultural social-psychology constructs. These construct have been found to help explain patterns in behaviors, cognition, attitudes, goals, values and family structures (see [Triandis, 1996](#)). Vandello and Cohen summarize the construct as “collectivism can be defined as a social pattern of closely linked individuals who define themselves interdependent members of a collective (e.g., family and coworkers), whereas individualism as a cultural pattern stresses individual autonomy and individualism of the self” (p. 279). The index used is based on eight items: (1) percentage of people living alone (reverse scored); (2) percentage of elderly people (aged 65 and over) living alone (reverse scored); (3) percentage of households with grandchildren living in them; (4) divorce to marriage ratio (reverse scored); (5) percentage of people with no religious affiliation (reverse scored); (6) average percentage number of people voting Libertarian over the last four presidential elections (reverse scored); (7) ratio of people carpooling to work to people driving alone; and (8) percentage of self-employed workers (reverse scored).

An alternative explanation for the differences in foster care experiences may be variations in child welfare policy across states, which can have an important effect on children's risk of maltreatment. Child welfare policies vary from state to state, though all are built on the structure provided through federal law. States differ primarily in how they have implemented laws and sometimes in laws themselves (in definitions of abuse and neglect, for example).

Federal laws (e.g., the Child Abuse Prevention and Treatment Act, the Adoption Assistance and Child Welfare Act, the Adoption and Safe Families Act, the Fostering Connections to Success and Increasing Adoptions Act, the Indian Child Welfare Act, and the Multiethnic Placement Act) provide an important statutory framework regarding how states ensure children's safety, permanency, and well-being. However, states differ in the nature of implementation of these laws. For example, states vary in terms of mandatory reporter laws and statutory definitions of child abuse and neglect, and not all have extended foster care to youth who are past the age of 18.

3. Current study

The current study addresses the gap in literature regarding how child welfare policy and risk factors work together to explain variations from state to state in foster care entry rates and length of time in care. This study seeks to better understand the differences in children's child welfare system experiences across the United States by exploring the following research questions.

Research Question 1: What factors most efficiently predict foster care entry rates across states?

Research Question 2: What factors most efficiently predict the amount of time children spend in foster care across states?

The extant literature on foster care experiences might be best understood in terms of competing and accumulating risks: individual, family, community, and cultural. So many variables have some potential bearing that traditional methodologies cannot account for them all. A non-linear, nonparametric model that allows for multiple combinatorial, nonlinear interactions is the best way at this stage of the research program to sort through all factors in order to assess those that matter the most.

4. Method

4.1. Participant characteristics

The individual states in the United States were selected as the unit of analysis. The most recent data up to 2010 were used when possible. The District of Columbia was excluded from the data set because it was an

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