
Improving Child Welfare Outcomes via Market Design

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Children in State Custody

- As of September 30, 2014, in the United States:
 - 415,000 children in state custody
 - 108,000 children waiting for adoption
 - Mean of 32.3 months in care
 - Among children exiting foster care:
 - 51% reunified with parent(s)
 - 21% adopted
 - 9% emancipated
- Priority to achieve permanent family-like setting for children codified in *Adoptions and Safe Families Act* of 1997



Pennsylvania Adoption Exchange



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BECOME A FOSTER PARENT

BECOME AN ADOPTIVE PARENT

STATEWIDE ADOPTION AND
PERMANENCY NETWORK

PA ADOPTION EXCHANGE

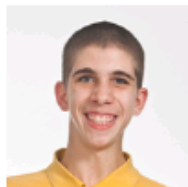
WAITING CHILDREN

FORMS

POST-PERMANENCY SERVICES

FREQUENTLY ASKED
QUESTIONS

Casey



Welcome to the PAE Photo Album (Updated on Sep 26, 2013)

All Children
Album

Newly Added
Children Album

Recently Modified
Children Album

Search
Album



[Photo Gallery Slide Show:](#)



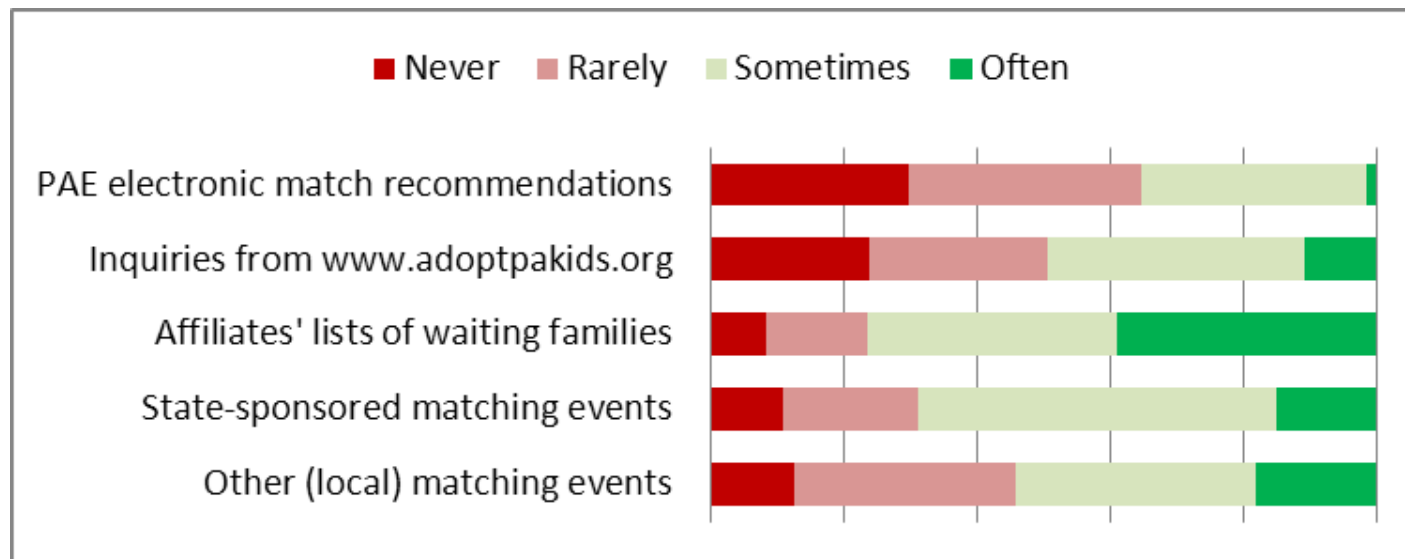
Cornell University
School of Hotel Administration

The SCHOOL

For Hospitality Leadership

Child Case Worker Survey

- 77 responses out of 125 case workers for active children
- PAE match recommendations (i.e., “electronic matches”) have not been helpful
 - *For children successfully placed, how often do you initially find the family from each of the following sources?*



- Only 32% agreed that “PAE does a good job of recommending the most suitable families from the Resource Family Registry for each child.”

Information Available to PAE

- CY 130/131 forms completed upon registration
 - Demographics (age, race, gender, siblings)
 - Special Needs (16 questions)
 - Characteristics (60 questions)
 - Health
 - Education
 - Characteristics and Behaviors
 - Connections and History
 - Contact with Birth Family



Registration Information

CHARACTERISTICS OF CHILD

PLEASE SELECT THE CHOICE THAT BEST DESCRIBES THE CHILD

HEALTH

	YES	NO	UNKNOWN
1. Does child have significant health issues?			
2. Does child have allergies or asthma? (may require treatment)			
3. Is child hyperactive? (may require treatment)			
4. Does child have speech problems? (may require treatment)			
5. Does child have hearing problems? (may require treatment)			

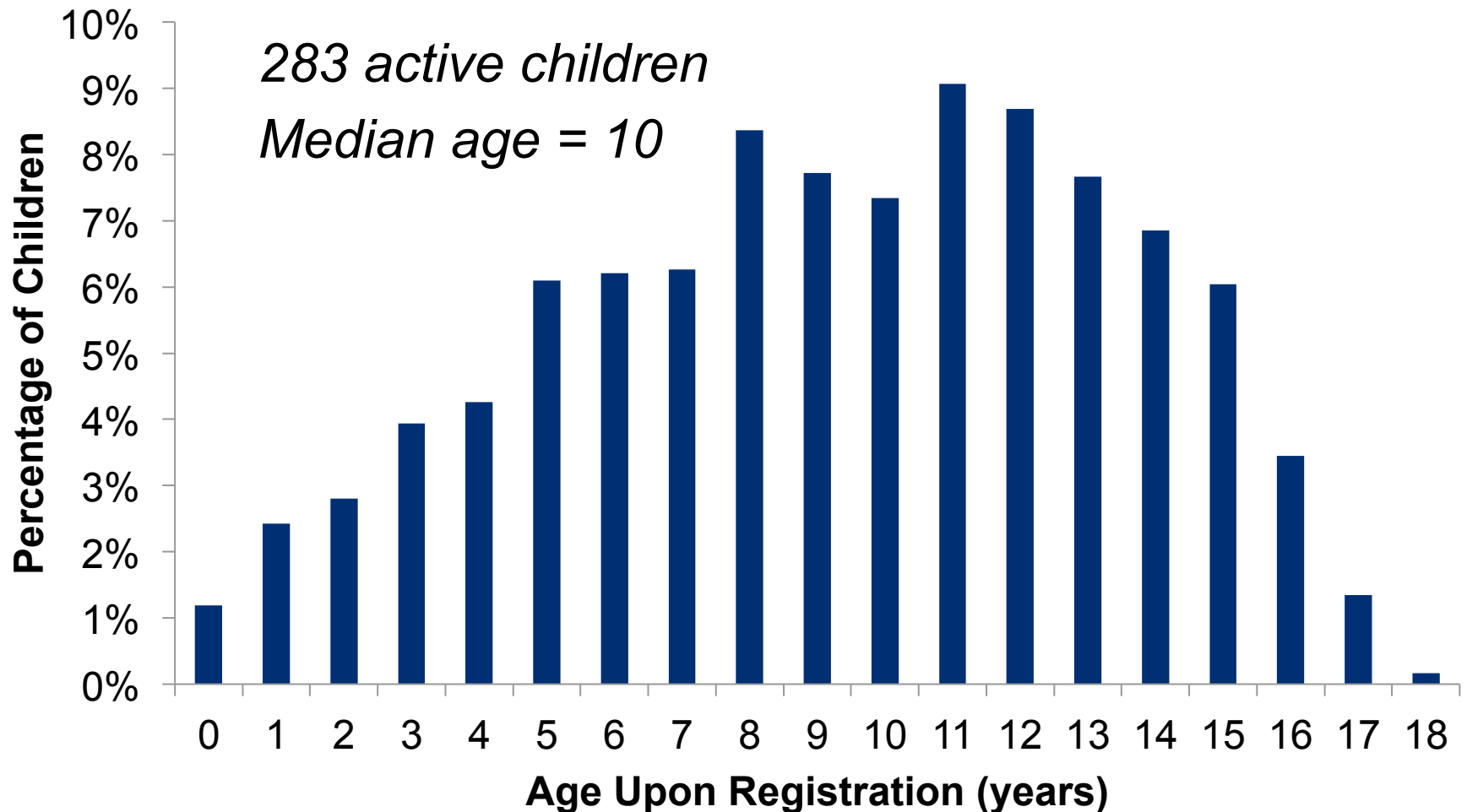
CHARACTERISTICS OF CHILD

For adoptive families only: Please choose from the characteristics listed to tell us the type of child the family wants to adopt. Place an X in the most appropriate box for each characteristic.

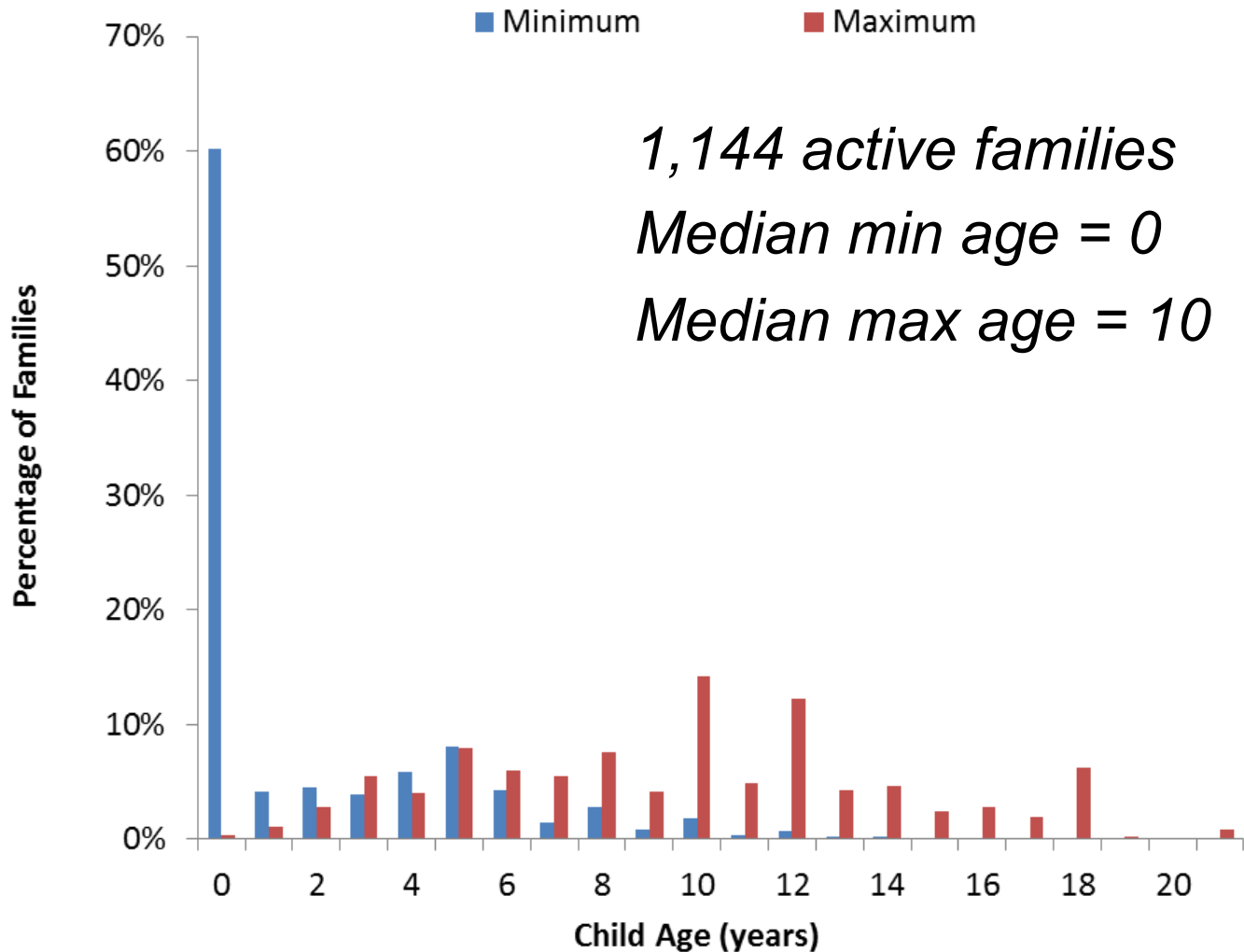
HEALTH

Characteristic	Acceptable	Will Consider	Unacceptable
1. No significant health problems			
2. Allergies or asthma (may require treatment)			
3. Hyperactivity (may require treatment)			
4. Speech problems (may require treatment)			
5. Hearing problems (may require treatment)			

Child Age Upon Registration



Family Age Preferences





pennsylvania

STATEWIDE ADOPTION & PERMANENCY NETWORK

Customized Matching Tool

Version 4.2

Export Current Weights

Child PAE ID: C46AZ50

Run Matches

Matches: 5

Newly Added Row(s) of

Contact Vince Slaugh at vslauch@cmu.edu with any questions or bugs.

Are all weights set to their default values? Yes

Filtering by County (see the "Counties Filter" tab): Off

Note: Families displayed below with highlighted PAE IDs have only partial CY 131 information.

Family PAE ID	Score						
F00AB69	88.5%						
F02ZT32	80.6%						
F79AC67	80.4%						
F67DF19	79.2%						
F58AX26	77.6%						
18							
19							
20							



Child Family	C1234	Relative Weights		Points	
	F5678				
	(Reminder: Family and Child PAE Numbers must be in alphabetical order.)	Demographic	52%	Earned	Possible
Score	57.44%	Special Needs	48%	332	578

Weight		Child Info	Family Pref	Points	Pts Possible
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DEMOGRAPHIC INFORMATION					
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100	Age	13		55	100
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	Low Age		0		
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	High Age		14		
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100	Race/Ethnicity				
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	African American	0	1	0	0
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	Hispanic	0	0	0	0
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	White	1	0	0	100
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	American Indian/Alaskan Native	0	0	0	0
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	Asian	0	0	0	0
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	Native Hawaiian/Other Pacific Islander	0	0	0	0
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100	Child Gender	M	Either	50	100
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SPECIAL NEEDS INFORMATION					
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10	Drug Exposed Infant	0	1	0	0
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10	Emotional Disability	0	1	0	0
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100	HIV	0	1	0	0
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10	MH Diagnosis	X	1	10	10
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100	MR Diagnosis	0	1	0	0
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10	Multiple Placement History	X	1	10	10
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100	Physical Disability	0	1	0	0
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10	Runaway History	0	1	0	0
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100	Sexual Abuse History	X	1	100	100
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100	Siblings	2	1	50	100
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10	Special Education Student	X	1	10	10
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100	Special Medical Care	0	1	0	0
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10	Abuse History	X	1	10	10
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10	Alcohol Exposed (Not available in latest update.)				
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10	Neglect History	X	1	10	10
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CHARS (Note: Question numbers correspond to CY130 form.)					
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	1. Does child have significant health issues?	2	1		
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1	2. Does child have allergies or asthma? (may require treatment)	2	1		
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10	3. Is child hyperactive? (may require treatment)	1	1	10	10
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1	4. Does child have speech problems? (may require treatment)	2	1		
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Inequality of Outcomes for Children

- Compiled data for children who registered for match recommendations with PAE, 2005-13
 - Known outcomes for 1,514 out of 1,853 children
- PAE managers classified outcomes
 - 12 outcomes given values between 0 and 100%
 - Expected outcome value = 64%

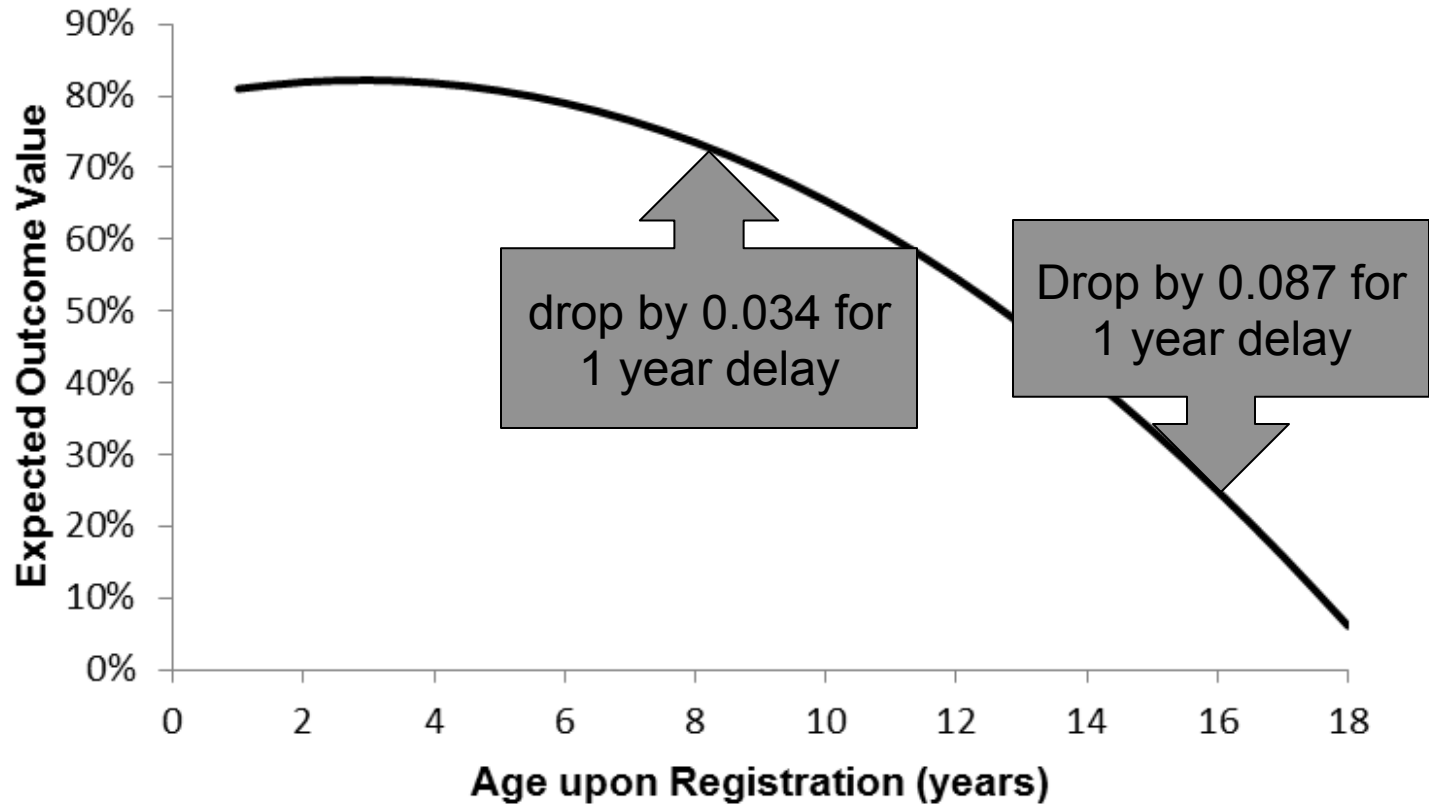
Value	Outcome	% of Total
100%	Successful adoption	41%
70-80%	Other positive outcomes	19%
50%	Neutral outcomes	13%
10-20%	Other negative outcomes	14%
0%	Age out of system	12%

Regression Analysis

- Linear regression with outcome value as dependent variable
- Logistic regression with positive vs. neutral/negative outcomes
- 88 factors from child registration data
 - Age, race, gender + behavioral, emotional, and health special needs
 - Reduced to 28 factors using Akaike information criterion



Effect of Age upon Registration



- Negative impact of age motivates registering children (especially older children) as soon as possible



Significantly Negative Special Needs *(p<0.05)*

Percentage point drop in successful outcome probability

Factor	Coefficient (<i>OLS</i>)	Coefficient (<i>logistic</i>)	Frequency	Presumed Importance
Blind	-0.16	-0.90	1.0%	Medium
Uses Foul or Bad Language	-0.12	-0.61	15.0%	Medium
Mental Retardation Diagnosis	-0.11	-0.56	9.0%	High
History of Running Away	-0.09	-0.44	4.2%	High
Desires Contact with Siblings	-0.08	-0.44	59.4%	Low
In Contact with Former Foster Family	-0.06	-0.35	18.8%	Low
Difficulty Accepting and Obeying Rules	-0.06	-0.34	36.9%	Low
Rejects Father Figures	-0.06	-0.34	8.5%	Low
In Contact with Birth Parents	-0.06	-0.33	26.0%	Low
Hispanic	-0.05	-0.30	14.1%	High
Multiple Placement History	-0.04	-0.19	45.6%	Medium

- “Presumed importance” = manager’s initial guess for weight in match tool
- Insight: child’s social connections should be given more weight in matching

Inequality Among Family Experiences

■ Challenges

- Families have incentives to “overstate” preferences for children
- Case workers struggle with finding the “perfect” family for a child
 - 53% of case workers agreed that they “know of case workers who struggle to make placement decisions for children because of emotional attachments to those children.”

■ Result: Changes to procedures

- Reward in algorithm for giving narrow preferences
- Matching as a batch process
- Communication of scores to promote thinking about trade-offs



Reward for Narrow Preferences

- Formulation
 - Age (Max-Min < 10)
 - Race (Fewer categories selected as acceptable)
 - Gender (Selecting either male or female)
- Analysis using existing data
 - Calculated top 5 (out of 1,023) families for 285 “active” children
 - Without reward: Spread over 79 families
 - With reward: Spread over 111 families
 - Increase of 41% with reward for narrow preferences
- Note that geographical filtering will increase the number of families selected



Related Research – Child Welfare

Landes and Posner (1978)

Families' Preferences

- Baccara et al. (2014)

Child Outcomes

- Kemp and Bodonyi (2002)
- Barth (1997)

Related Research – Other Markets

Overcoming geographical disparities for organ allocation

- Arikan et al. (2012)
- Ata et al. (2016)

Signaling and platform design in matching markets: online dating and labor markets

- Lee and Niederle (2014)
- Coles et al. (2010)
- Coles et al. (2013)
- Kushnir (2013)
- Casadesus-Masanell and Halaburda (2014)

Implementations and Field Studies

Privatization of Adoption Services

- Blackstone et al. (2004)
- Unruh and Hodges (2004)

Placement Decision Making

- Hanna and McRoy (2011)

Pennsylvania Adoption Exchange



Key Areas of Research

1. Designing markets with recommendation systems
 - Information collected
 - Market visibility to participants
 - Ranking algorithm
2. Measuring preferences and outcomes
 - Predicting match acceptance
 - Placement quality
3. Providing incentives for signaling preferences

