

Identifying Thin Child Care Markets

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Overview of Today's Presentation

- Study focus
 - Child care and education market
 - Policy context
- Brief review of related research
 - Definition of local markets
 - Predictors of child care supply
 - Effect of demand-based funding on community child care supply
- Current study
 - Research questions, data, and methods
 - Findings and conclusions
- Policy relevance and need for further research

Study Focus: Child Care and Education as a Market

- *Basic definition: A market is the collection of buyers and sellers that, through their potential interactions, determine the price of a product or set of products.*
- *In child care and early education, market describes how some parents and child care providers connect with one another.*
- *Thin child care market is one in which there are a limited number of child care transactions.*

Policy Context: Demand- and Supply-based Funding

● Public funding

- Supply-based funds--grants or contracts with child care facilities
 - Head Start/Early Head Start
 - Universal preKindergarten
- Demand-based funds—parents select arrangement and receive assistance for all or part of cost
 - Child care subsidies
 - Tax credits

● Parent funding—tuition and fees

Policy Context: Predominance of Demand-Based Funding

- **Major supply-based public funding--\$9.4 billion**
 - Head Start/Early Head Start estimated at \$6.9 billion (USDHSS, 2008)
 - Universal pre-kindergarten estimated at \$2.5 billion (Barnett, Hustedt, Robin, & Schulman, 2004)
- **Major demand-based public funding--\$13.4 billion**
 - Subsidy—CCDF, TANF, & State estimated at \$10 billion (USDHHS, 2009; Schulman & Blank, 2008)
 - Child and Dependent Care Tax Credit and DCAP estimated at \$3.4 billion (U.S. DHHS, 2005)
- **Parent fees estimated \$43.9 billion** (Johnson, 2005)

Policy Context: Demand-based Funding in United States

- Early major US public investments predominantly supply-based
 - WPA and Lanham Act
 - Head Start
 - Title XX of SSA and Social Services Block Grant
- Use of demand-based public investments increased in late 20th century
 - Tax credits
 - Family Support Act
 - Child Care and Development Block Grant & Child Care and Development Fund
- Demand-based funding increases reliance on market forces (Noailly & Visser, 2009)

Related Research: Market Forces that Shape Community Child Care Supply

SUPPLY-SIDE PREDICTORS

- Average wages (+)
- Median housing prices (+)
- Regulation (mixed)
- Average quality (+)
- Public spending (+)
- Employment level (+)
- Urbanicity (+)

DEMAND-SIDE PREDICTORS

- Population of children (+)
- Family structure
 - Average number of children per family (-)
 - Single parent (-)
- Income (+ but complex)
 - Household or
 - Female earnings
- Parental Attitudes or beliefs (complex)

Questions Addressed in This Study

1. What is appropriate geographic level for a child care market?
2. Does median income influence the number of slots in a local market?
3. What is role of population in determining the likelihood of having a center?
4. What is a thin child care market?
5. What are the characteristics of thin markets?

Data Sources

- 2000 market rate survey databases from Minnesota and Oregon
 - Includes data on child care type and capacity
 - Excludes facilities with no price information (e.g. Head Start only centers)
 - Includes zip codes
- 2000 U.S. Census files for Minnesota and Oregon
 - Includes economic characteristics such as median household income
 - Includes demographic characteristics such as population
 - Includes data at 3- and 5-digit zip code level (ZCTAs)¹

¹ ZCTAs, created by the U.S. Census Bureau, create geographic clusters of census tracts using the dominant zip code within each census tract.

Methods and Findings

Appropriate Geographic Level for Local Child Care Market

- Geographic unit options with available socio-economic data include:
 - County—may include multiple markets
 - City or town—not all population/facilities captured
 - 3-, 4-, or 5-digit zip code—capture all geographic areas
 - Census tracts—may capture only part of a local market
- Method: Use regression to explore relationship between population and slots at 3-, 4-, and 5-digit level
- Findings:
 - Population in 3- and 4-digit zip code outside a 5-digit zip does not appear to influence availability of child care within 5-digit zip code
 - Population of children < 5 explains over half the variance in supply across 5-digit zip codes ($R^2 = .67$ (MN) and $.57$ (OR))

Regression Results for # Children and # Center Slots at Different Levels of Zip Code Aggregation

MINNESOTA

Children <5 at 5-digit level	142.60**
Rest of 4-digit population	5.92**
Rest of 3-digit population	-0.28
Constant	-13.36**
# Observations	867
R-squared	.67

OREGON

Children <5 at 5-digit level	117.90**
Rest of 4-digit population	4.78**
Rest of 3-digit population	-.04
Constant	-.8.00
# Observations	408
R-squared	.57

** $p \leq .01$, $p \leq .05$

Effect of Median Household Income on Local Market Supply

- Prior research: Nonlinear relationship of income and size of local child care supply
- Policy context: Public funding likely to be targeted to low-income communities (supply-based) and low-income children (demand-based)
- Method: Regression of population and median household income on local supply (5-digit zip code)
- Findings:
 - Population has positive and significant effect on supply
 - Income has complicated relationship with supply
 - Supply slightly greater in higher income communities (significant only in MN)
 - Supply increased slightly more slowly in low-income communities (significant only in MN)
 - Addition of median income does not increase model's ability to explain variance beyond that explained by population

Regression Results for # Children, # Center Slots, and Median Family Income at 5-Digit Zip Code Level

MINNESOTA

Dependent Var	# Center Slots for Children<5
# Children<5	166.09**
Median family income (\$10,000)	5.60*
Low-income zip code area	19.64**
Interaction of low-income area with child population	-62.97**
Constant	-43.01**
# Observations	867
R-squared	.67

OREGON

Dependent Var	# Center Slots for Children<5
# Children<5	124.86**
Median family income (\$10,000)	6.69
Low-income zip code area	11.11
Interaction of low-income area with child population	-0.89
Constant	-29.97
# Observations	408
R-squared	.56

** ** p ≤ .01, p ≤ .05

Role of Median Household Income in Predicting Presence of Center

- Prior analyses: Focus on number of center slots; focus of this analysis is likelihood of having a center
- Method for this analysis: Logit regression model in which presence of center is outcome and population and income are explanatory variables
- Findings:
 - Population in 5-digit zip code strong and significant
 - Income positive and not significant

Logit Model Results for Probability of Having a Center

MINNESOTA

OREGON

Dependent Var	5-digit zip code has a center	Dependent Var	5-digit zip code has a center
#Children<5	6.38**	#Children<5	5.75**
#Children squared	-1.37**	#Children squared	-1.11**
Median family income (\$10,000)	.05	Median family income (\$10,000)	.03
Low-income area	.05	Low-income area	-.45
Interaction of low- income area & child population	2.52	Interaction of low- income area & child population	1.14
Constant	-3.13**	Constant	-2.18
# Observations	867	# Observations	408

** $p \leq .01$, $p \leq .05$

Proposed Definition of Thin Child Care Market

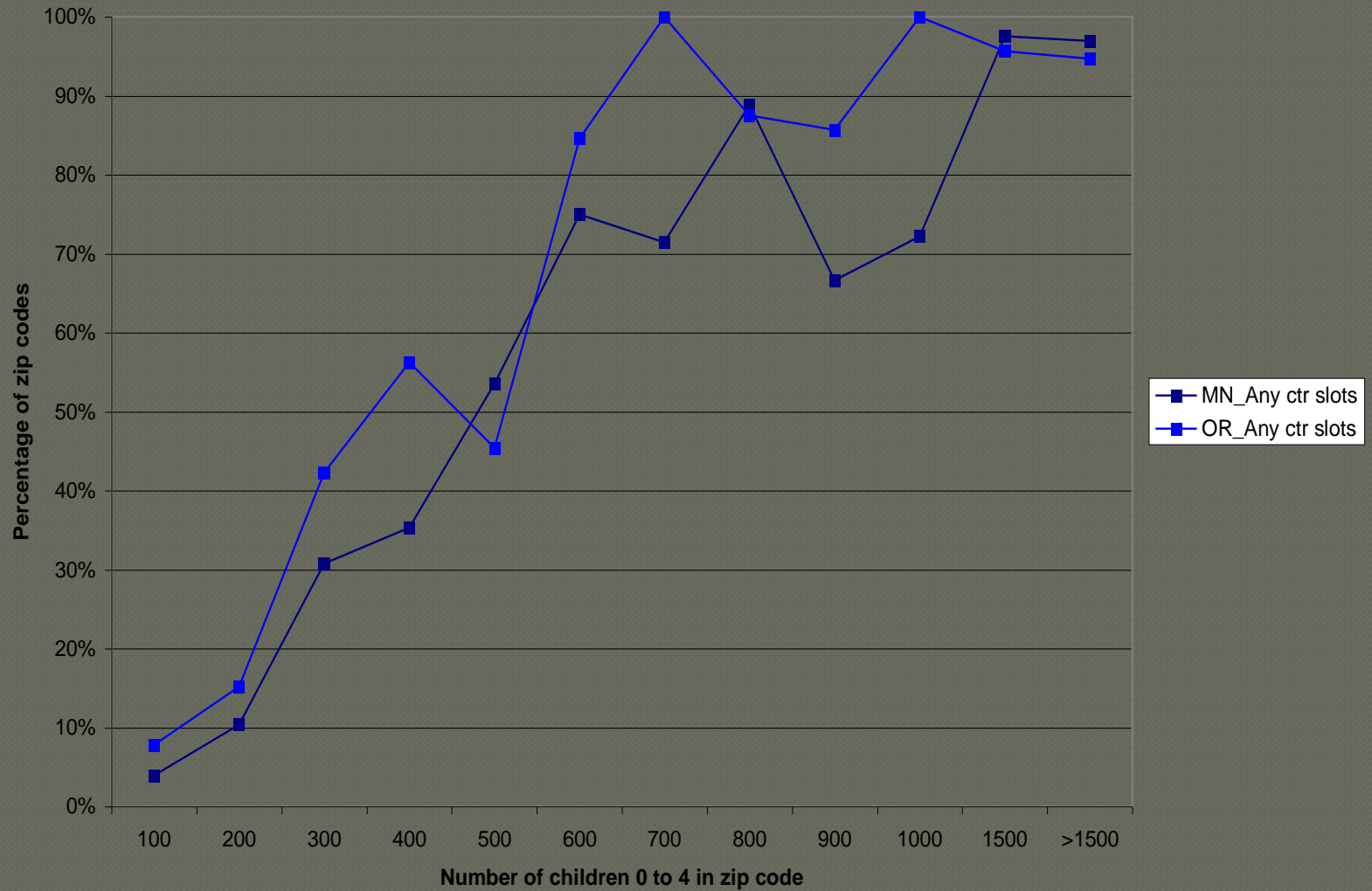
● Prior analyses:

- Strength of population as a predictor of supply leads us to use it to define “thin”
- No conceptual or theoretical basis for threshold level

● Method: Examination of distribution of centers by deciles of number of children

● Proposal: Define a thin market as a 5-digit zip code with fewer than 500 children

Percentage of ZIP Codes with Centers by Number of Children Age 0 to 4 Years



Characteristics of Thin Markets

- Prior analyses: Using proposed definition of thin market as 5-digit zip code with <500 children
- Method: Descriptive analyses
- Findings:
 - Close to three-quarters of 5-digit zip codes are thin
 - Less than a quarter of children under age 5 live in thin markets
 - Less than one in five centers is in a thin market
 - Slightly over a quarter of Minnesota licensed family child care homes are in thin markets; slightly over one in ten in Oregon

Table 6: Thin and Thick Child Care Markets

	Percentage in thin markets	
	<u>Minnesota</u>	<u>Oregon</u>
5-digit zip codes	79.8%	71.3%
Population	26.7%	16.5%
Children	23.7%	13.3%
Centers	16.5%	10.2%
Licensed FCC	28.5%	13.3%

Comparison of Median Thick and Thin Markets

THIN MARKET

Number of children under 5 in MN (OR)	70 (50)
Number of centers in MN (OR)	0 (0)
Number of licensed family child care in MN (OR)	3 (1)

THICK MARKET

No children under age 5 in MN (OR)	1,228 (1,473)
Number of centers in MN (OR)	4 (5)
Number of licensed family child care in MN (OR)	44(32)

Relationship of Population, Income, and Number of Center Slots in Thin and Thick Markets

MINNESOTA

- Population (controlling for income) predicted dramatically more slots in thick than thin markets
 - 70 versus 153 slots per 1,000 children
- Median family income increased predicted number of slots
 - Significant in thin markets
 - Significant @ 10% level in thick markets

OREGON

- Population (controlling for income) did not predict more slots in thick than thin markets
 - 117 slots per 1,000 children in both thick and thin markets
- Median family income did not predict increased number of slots
 - Not significant in thin or thick markets

Conclusions

- Demand-side is predominant type of funding for U.S. child care and education
- Reliance on demand-side funding increases influence of market forces on local community supply
- Market forces are weaker in thin markets
- 5-digit zip code is appropriate geographic unit for defining a local child care market
 - Population is a reliable predictor of number of center slots in a local market
 - Effect of income on supply is complex
- Proposed definition of thin market as a 5-digit zip code with fewer than 500 children may distinguish markets
- Difference in supply between thick and thin markets raises issues of access and equity

Need for Further Research

- ◉ View this study as introduction to an important and largely unexplored topic with high policy relevance
- ◉ Test models using data from additional states
- ◉ Further test definition of thin market
- ◉ Further explore effect of additional predictors of community-level supply
 - Attempt to isolate effect of household income

Authors welcome correspondence related to study of thin child care markets

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