

**THE COST-EFFECTIVENESS OF INDEPENDENT HOUSING  
FOR PERSONS WITH CHRONIC MENTAL ILLNESS**

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## **KEY UNANSWERED QUESTIONS ABOUT HOUSING AND MENTAL ILLNESS**

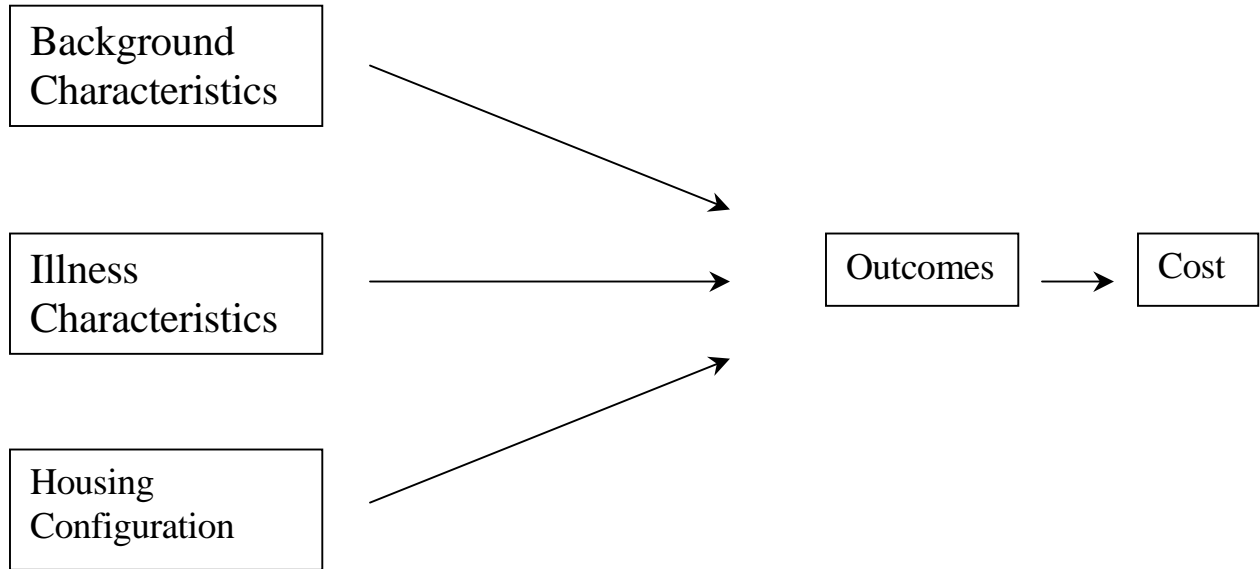
1. What is relationship between "housing configuration"--characteristics of housing, neighborhood, and tenants--and outcomes?
2. What is cost-effectiveness of different housing configurations? What housing configuration is associated with the most positive outcomes for individuals with mental illness, and at what cost?

**WE FOCUS ON QUESTION 1 IN THIS PAPER**

## HYPOTHESES OF THE EFFECTS OF HOUSING ON OUTCOMES

HOUSING DIMENSION	HYPOTHESIS
1. Housing quality	↑ quality → ↑ outcomes
2. Neighborhood characteristics	↑ disorganized/diverse → ↑ outcomes
3. Number of tenants in building	↑ number → ↓ outcomes
4. Number of tenants in building with mental illness	?

# CONCEPTUAL FRAMEWORK



## **DATA AND SAMPLE**

### **DATA**

Robert Wood Johnson Foundation Program on Chronic Mental Illness

- . focus on 4 of 9 sites
- . sources: administrative records, surveys of directors and staffs, on-site observations, Census data at tract, block group and blockface levels.

### **SAMPLE**

- . 670 tenants in 150 buildings developed between 1988-1992 (occupancy period 1988-1993)
- . mental illness defined by diagnosis, disability, and duration

## SELECTED SITE CHARACTERISTICS

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	Site			
	1	2	3	4
N	30	167	255	227
# units in building	2.3	4.0	5.6	9.6
% other tenants with mental illness	37	73	51	50
Census tract % families in poverty	32	11	22	10
Census tract % homeowners	35	44	36	53
Census tract % not moved 5+ years	53	59	44	52

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## **MEASURES**

### **MENTAL HEALTH OUTCOMES**

1. hospitalization (private & state) costs ("ever hospitalized")
2. non-hospital, community-based service costs
3. residential stability (days)

### **HOUSING QUALITY**

1. # of amenities (e.g., air conditioning, terrace/patio)
2. age of building
3. whether building needs repair

### **NEIGHBORHOOD QUALITY AND COHESION**

Census measures:

1. % not moved 5+ years
2. % homeowners
3. % 15-24 year olds
4. % households > 5 persons
5. % buildings built < 1940
6. % families in poverty
7. % foreign born

Observation and Census measures:

1. neighborhood deterioration index
2. nonresidential index

### **NUMBER OF TENANTS IN BUILDING**

same

### **% OF TENANTS WITH MENTAL ILLNESS**

1. same
2. GAF score

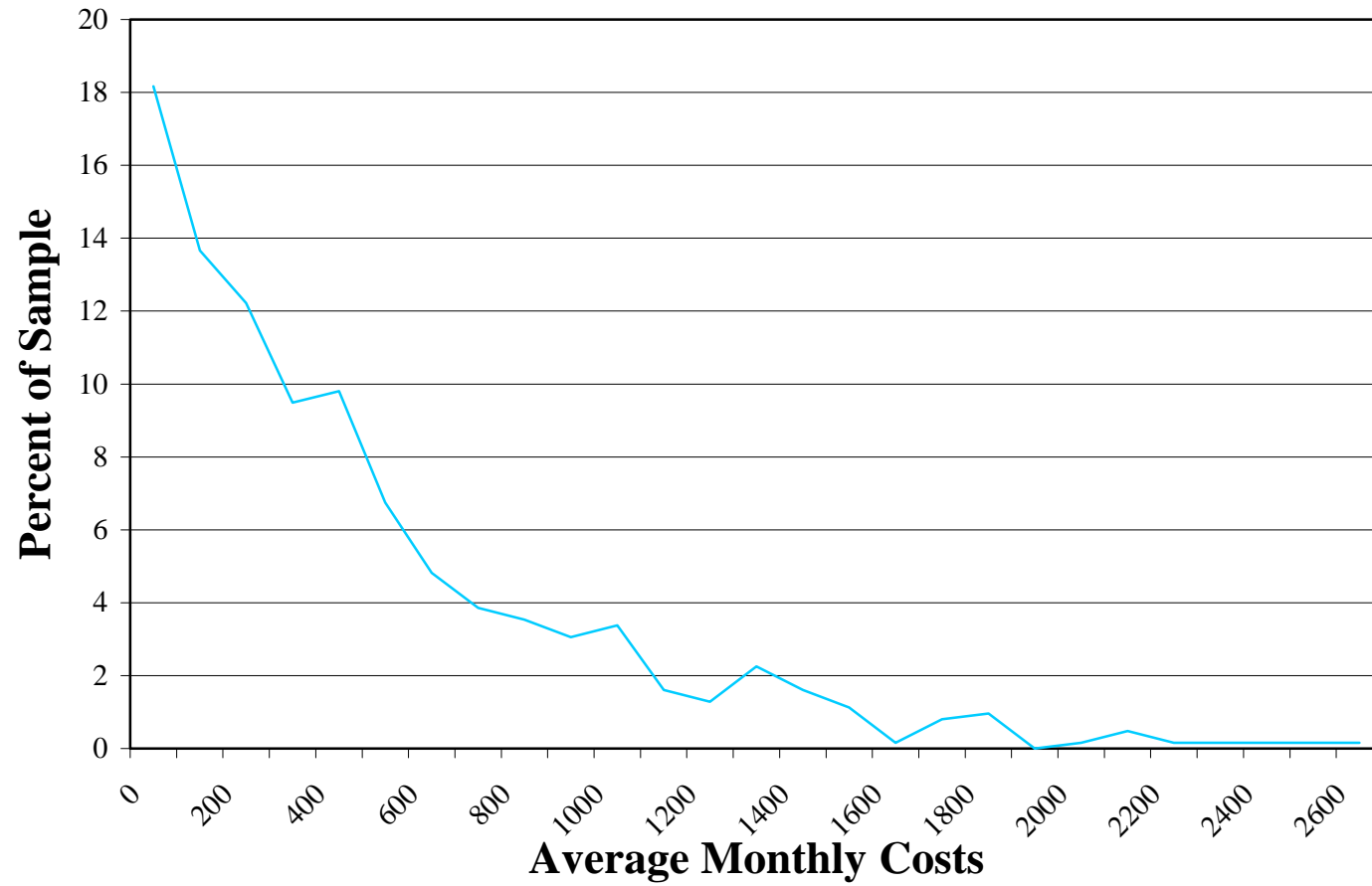
## UNIVARIATE STATISTICS: OUTCOMES

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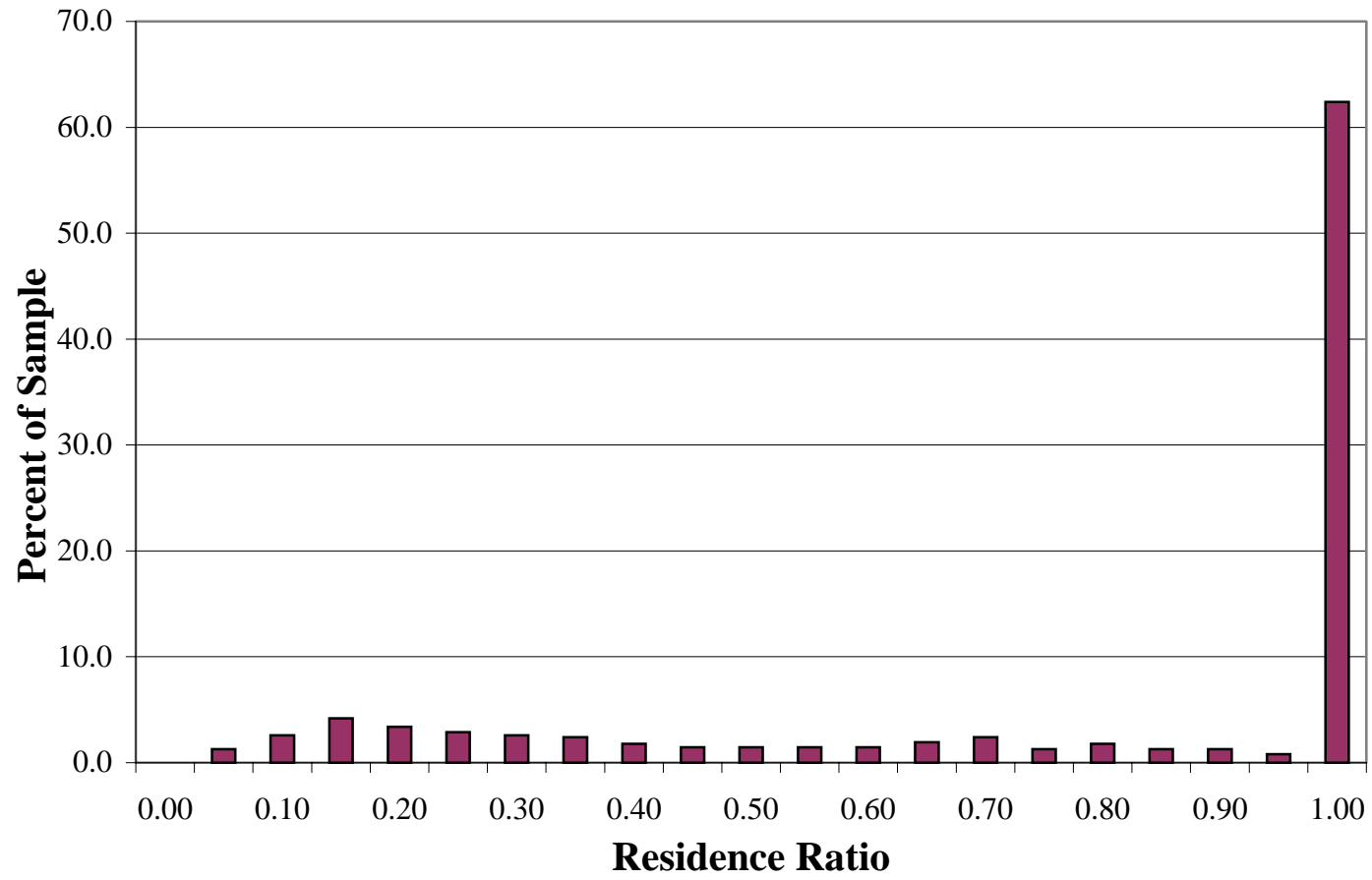
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	Mean	Median	SD
Ave. monthly cost of community-based services	497	358	478
Logged	5.77	5.96	1.19
Ever hospitalized (1=yes)	0.22		
Days in residence - Number	632	505	441
"Residence ratio"	0.79	1	0.31
In residence at end of study (1=yes)	0.61		
In residence one year or more	0.80		
In residence two years or more	0.56		

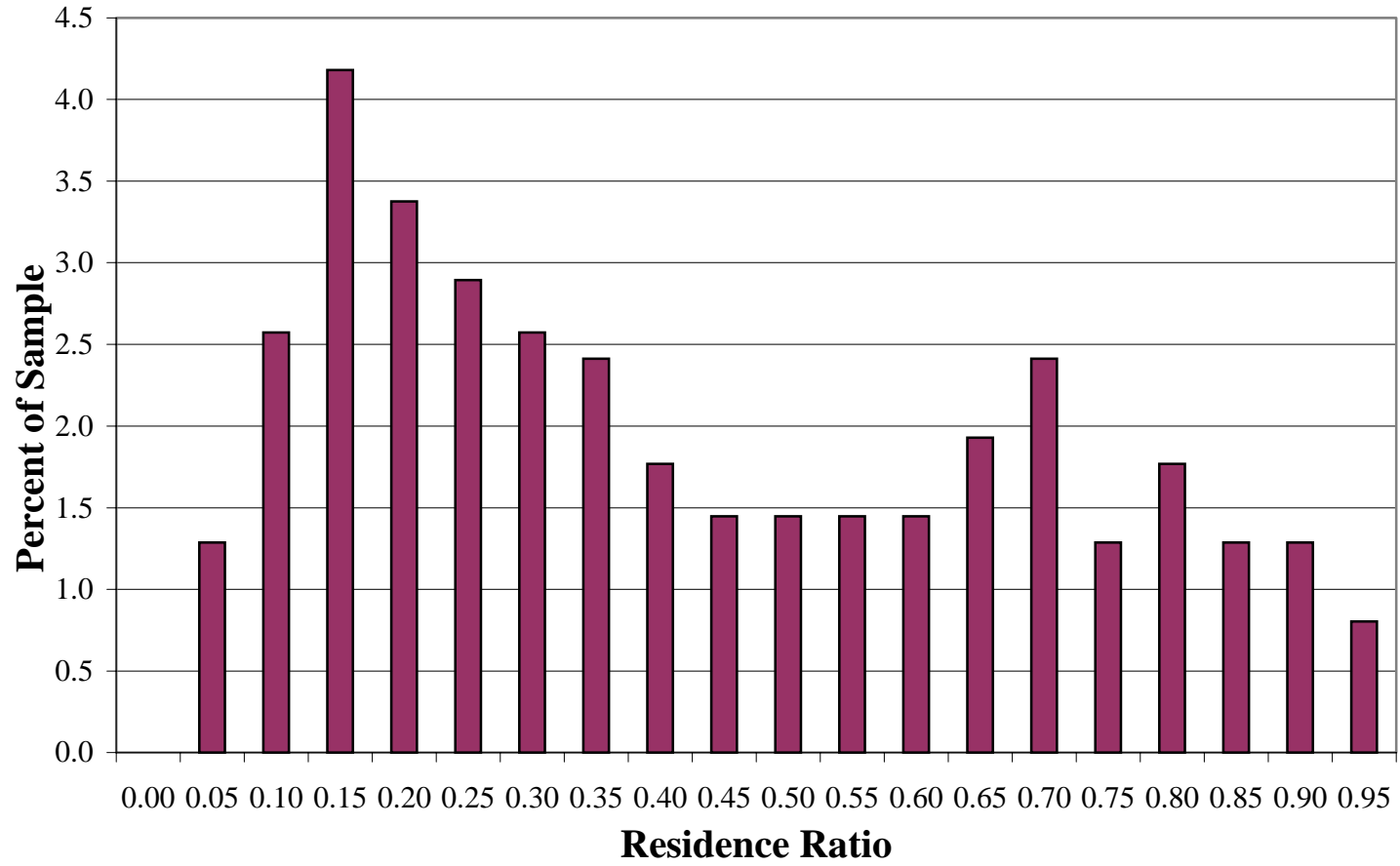
# DISTRIBUTION OF AVERAGE MONTHLY COSTS OF COMMUNITY-BASED SERVICES



## DISTRIBUTION OF "RESIDENCE RATIO"



**DISTRIBUTION OF "RESIDENCE RATIO" -  
"FULL STAYS" EXCLUDED**



## UNIVARIATE STATISTICS: INDEPENDENT VARIABLES

		Mean	Median	SD
<u>Study participants</u>				
	GAF Score	49.56	49	13.91
	Age	36.68	35	9.88
	African-American (1=yes)	0.37		
<u>Buildings</u>				
	Ave. size of units (sq ft)	670	640	180
	Needs repairs (1=yes)	0.14		
	Age of building	42	39	19.8
<u>Neighborhoods</u>				
	Tract % not moved 5+ years	51.0	52.5	14.8
	Tract % homeowners	43.5	43.0	20.3
	Tract % 15-24 year olds	15.0	13.9	8.3
	Tract % households > 5 persons	3.8	2.8	4.0
	Tract % building built pre-1940	35.0	37.0	23.0
	Tract % families in poverty	15.7	9.8	16.3
	Tract % foreign born	2.5	2.2	2.4
	Neighborhood deterioration index (0-4)	0.8	0.0	1.1
	Nonresidential index (0-3)	0.8	1.0	0.8

MODEL RESULTS: BUILDING FEATURES

	Community-based service costs (logged)		Ever hospitalized		Moved out (hazard rate)	
	Coef.	p	Coef.	p	Coef.	p
# Units	-2.5	(0.74)	5.4	(0.07)	59.5	(0.00)
Ave. size of units	-19.6	(0.01)	-0.6	(0.83)	7.2	(0.60)
# Amenity features	-7.1	(0.20)	-1.5	(0.52)	-7.8	(0.29)
Needs repairs	11.6	(0.38)	6.0	(0.25)	53.8	(0.03)
Age of building	9.4	(0.15)	5.0	(0.04)	24.5	(0.02)
Ave. % of units with tenant with mental illness	-7.1	(0.26)	1.9	(0.43)	-15.9	(0.05)

Coefficients in all models standardized to show effect of a one standard deviation change.

Coefficients in "ever hospitalized" model show percentage point change in probability.

Coefficients in "moved out" model show percent change in baseline hazard function.

N=587 for community service cost model, and N=622 for other two models.

## MODEL RESULTS: NEIGHBORHOOD FEATURES

		Community-based service costs (logged)		Ever hospitalized		Moved out (hazard rate)	
		Coef.	p	Coef.	p	Coef.	p
<b>A</b>	Tract % not moved 5+ years	8.2	(0.28)	-0.9	(0.76)	35.7	(0.01)
	Tract % homeowners	9.2	(0.20)	4.6	(0.09)	-5.5	(0.65)
<b>B</b>	Tract % 15-24 year olds	0.5	(0.93)	-5.2	(0.05)	-7.9	(0.32)
	Tract % households > 5 persons	2.0	(0.72)	-1.1	(0.61)	-17.7	(0.01)
<b>C</b>	Neighborhood deterioration index	7.6	(0.27)	-1.4	(0.60)	-6.0	(0.54)
	Nonresidential index	-6.2	(0.25)	-1.3	(0.51)	-1.5	(0.86)

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MODEL RESULTS: NEIGHBORHOOD FEATURES (CONT.)

	Community-based service costs (logged)		Ever hospitalized		Moved out (hazard rate)	
	Coef.	p	Coef.	p	Coef.	p
Tract % building built pre-1940	15.0	(0.02)	2.5	(0.33)	37.1	(0.04)
<b>D</b> Tract % families in poverty	-1.5	(0.82)	4.1	(0.12)	40.2	(0.00)
Tract % foreign born	8.6	(0.09)	1.1	(0.57)	16.0	(0.13)

Coefficients standardized to show effect of a one standard deviation change.

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