Identifying Individuals At-Risk of Eviction from Public Housing using Linked Population-Based Administrative Data

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Outline

• Background, Context, & Rationale
• Objective & Hypotheses
• Methods
• Results
• Summary
• Policy Importance
• Future Directions
What is Public Housing?

• Form of low income housing
• Owned and managed by a government housing authority or corporation
• Income-based rent (usually 30%)
Figure 1: Web of Issues Impacting Public Housing Residents

- Fragile Families
- Isolation
- Disability
- Blight
- Racism
- Disability Reform
- Poverty
- Drugs
- Unemployment
- Chronic Diseases
- Crime
- Hazardous Buildings
- Over Crowded Units
- Welfare Reauthorization

(US Department of Health and Human Services, 2005)
Public Housing & Health

• Compared to the general population, public housing residents
  – Tend to be in poorer health
    • Lower self-rated health
    • Higher prevalence of chronic diseases (e.g., diabetes, hypertension, asthma), injuries, & mental disorders
  – More likely to engage in risky health behaviors (e.g., smoking, alcohol & drug use, sexual) & have low levels of physical activity
Manitoba

- Population: 1.28 million
- Winnipeg
  - Capital city
  - Population: 663,615

<table>
<thead>
<tr>
<th>Housing Measures</th>
<th>2007</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacancy Rate</td>
<td>1.5%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Average Rent for a 2 Bedroom Apartment</td>
<td>$740</td>
<td>$1033</td>
</tr>
</tbody>
</table>

Manitoba Housing

• Department of Families
• Provides subsidies to ~34,900 households under various programs
  – Owns 17,600 units
    • Manages ~13,100 units
    • ~4,500 units are operated by non-profit/cooperative sponsor groups or property management agencies
  – Provides subsidies to 17,300 households who reside in market housing
Figure 3.2: Map of the Number of Social Housing Units per Building in Winnipeg, 2009

(Winnipeg)

(Brandon)

Average Units per Building
- Green: 1.0 - 5.0
- Light Green: 5.1 - 10.0
- Yellow: 10.1 - 15.0
- Orange: 15.1 - 30.0
- Dark Red: 30.1 - 45.0

Total Units per Area
- Black: 1 - 50
- Purple: 51 - 150
- Red: 151 - 500
- Blue: 501 - 1000
- Grey: 1001 - 3000

*Housing managed by Manitoba Housing and Community Development

Note: The first values that appear near the spheres represent the number of units in the area, while the second value represents the number of buildings.

(Finlayson et al, 2013)
Summary of the Literature

• Public housing may be a
  – “stepping stone to economic independence”
  – “legitimate long-term” housing option (Whelan, 2009)

• Reported duration of tenure in public housing varies from 2 to 18 years

• Duration varies across subpopulations
Research Motivation

- Socio-demographic characteristics of residents, including their age and income, are known to influence duration of tenure/moving.
- Health characteristics of residents might also influence duration of tenancy/moving and the reason for moving out, but there has been no previous research on this topic.
# Research Objectives & Hypotheses

<table>
<thead>
<tr>
<th>Objective</th>
<th>Hypotheses</th>
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</thead>
</table>
| To identify predictors of moving out of public housing | • Individuals who are older, less healthy, and receive income assistance would be least likely to move  
• Individuals who are residentially mobile would be more likely to move  
• Being evicted would be associated with prior residential mobility and poor mental health |

Test for differences by move-out reason (i.e., voluntary versus forced)
Population Research Data Repository

Housed at the Manitoba Centre for Health Policy

Population Registry

- Social Housing
- Education
- CancerCare
- Healthy Child MB
- Immunization
- Medical Services
- Lab
- Nursing Home
- Clinical
- Provider
- Vital Statistics
- ER
- Health Links
- Home Care
- Pharmaceuticals
- Hospital
- Family Services
- Income Assistance
- Census Data

Defining the Outcome variable

Cohort

Explanatory variables
Inclusion Criteria:
- Primary applicants to MB Housing who moved in during 2007 or 2008
- Resided at least one month
- Registered with the MB Health Insurance Plan in the year prior to moving in
- 18+ years of age

Exclusion Criteria
- Reside in MB Housing within 2 years prior to the 2007/2008 move-in date
- A public housing resident in the northern MB town of Churchill
Manitoba Housing Records

**Move-in Date**

**Days in Manitoba Housing**

**Move-out Date**

**Application Date**

**Approval Date**

**Move-out Reason Variable**

- Inadequate maintenance of premise
- Notice to vacate for rent arrears or damages
- Notice to vacate due to nuisance/disturbance/management decision
- Sheriff eviction
- Safer communities eviction
## Explanatory Variables

<table>
<thead>
<tr>
<th>Categories</th>
<th>Variables</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Sex &amp; Age Group</td>
<td>Population Registry</td>
</tr>
<tr>
<td>Geographic</td>
<td>Region of Residence</td>
<td>Population Registry</td>
</tr>
<tr>
<td>Economic</td>
<td>Income Quintile &amp; Receipt of Income Assistance</td>
<td>Statistics Canada Census Social Assistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management Information Network</td>
</tr>
<tr>
<td>Residential Mobility</td>
<td>Change of Postal Code</td>
<td>Population Registry</td>
</tr>
<tr>
<td>Health Status</td>
<td>Chronic Physical Illness, Injury, Mental Disorder, &amp;</td>
<td>Physician Billing Claims &amp; Hospital Discharge</td>
</tr>
<tr>
<td></td>
<td>Substance Use Disorder</td>
<td>Abstracts</td>
</tr>
<tr>
<td>Healthcare Use</td>
<td>Hospitalizations, Continuity of Care, Physician Visits</td>
<td>Physician Billing Claims &amp; Hospital Discharge Abstracts</td>
</tr>
</tbody>
</table>
Analysis

- Descriptives to characterize the cohort
- Multivariable Cox Proportional Hazards regression model
- Residents were censored at death or end of the study period
- Modeled voluntarily moving out and eviction (versus did not move out)
- Report adjusted hazard ratios (aHRs) and 95% confidence intervals (95% CIs)
Flow Chart for Construction of the Study Cohort

4789 applicants moved in between January 1, 2007 & December 31, 2008 and resided ≥ 30 days

3131 (65.4%) applicants

1658 (34.6%) applicants excluded
Average Number of Days in Public Housing

- **Did not move**
  - Average Number of Days: 719.8

- **Evicted**
  - Average Number of Days: 674.1

- 14.2% of residents were evicted
- 37.2% did not move
- 48.6% remained in public housing
## Characteristics of the Cohort by Move-Out Group

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Categories</th>
<th>Moved</th>
<th>Did not move</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>![Evicted]</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Males</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18 – 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 – 39</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 – 64</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>65+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region</td>
<td>Winnipeg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Winnipeg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Assistance</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moved in the Year Prior</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Values are percentages*
Receipt of Income Assistance (IA) by Mover Group

Categories are not mutually exclusive.
Income Quintile by Mover Group

*Values may not total to a 100% due to unassigned postal codes or an area having a small non-institutionalised population.
### Characteristics of the Cohort by Move-Out Group

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<thead>
<tr>
<th>Covariates</th>
<th>Categories</th>
<th>Moved</th>
<th>Did not move</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EVICTED</td>
<td></td>
</tr>
<tr>
<td><strong>Health Status</strong></td>
<td>Chronic Physical Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Substance Use Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospitalized</strong></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emergency Department Visits</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Winnipeg residents)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Values are percentages

<table>
<thead>
<tr>
<th></th>
<th>Mean # of General Practitioners Visited (SD)</th>
<th>Mean # of Specialists Visited (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Moved</td>
<td>Did not move</td>
</tr>
<tr>
<td></td>
<td>7.0 (6.6)</td>
<td>7.9 (8.3)</td>
</tr>
<tr>
<td></td>
<td>2.3 (4.8)</td>
<td>2.6 (4.3)</td>
</tr>
</tbody>
</table>
Adjusted Hazards Ratios (HRs) and 95% Confidence Intervals for Moving Out of Public Housing by Move-Out Reason

- **Sex (Ref = Female)**
  - Male
- **Age (Ref = 65+ years)**
  - 18-24 years
  - 25-29 years
  - 40-64 years
- **Region (Ref = Non-Wpg)**
  - Winnipeg
- **Income Quintile (Ref = Q5)**
  - Q1 (poorest)
  - Q2
  - Q3
  - Q4
  - NF
- **Income Assist. (Ref = No)**
  - Yes
  - Yes
- **Moved (Ref = No)**
  - Yes
- **Health Conditions (Ref = No)**
  - Chronic Physical Illness
  - Injury
  - Mental Disorder
  - Substance Abuse Disorders
- **Hospitalization (Ref = No)**
  - Yes
- **Continuity of Care (Ref = Yes)**
  - No
  - NA
- **Physician Visits (Ref = 0 or 1 visits)**
  - 7+ visits
  - 2-6 visits

**Voluntary moves (vs did not move)**
- Statistically significant
- Not statistically significant

**Evicted (vs did not move)**
- Statistically significant
- Not statistically significant
### Summary of Key Findings from the Multivariable Cox Proportional Hazards Models

<table>
<thead>
<tr>
<th>Variable</th>
<th>Voluntary Moves</th>
<th>Evicted Moves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (males)</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Age</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Region (Winnipeg)</td>
<td>↓</td>
<td>-</td>
</tr>
<tr>
<td>Income Quintile</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Income Assistance</td>
<td>↓</td>
<td>-</td>
</tr>
<tr>
<td>Residential Mobility</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Chronic Physical Illness</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Injury</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Mental Disorder</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Substance Use Disorders</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Continuity of Care (No)</td>
<td>-</td>
<td>↑</td>
</tr>
<tr>
<td>Physician Visits</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

↑ = Increased risk  
↓ = Decreased risk  
- = Not significantly associated

Compared to not moving
Summary of Findings

- For movers, average duration of tenancy was slightly less than 2 years.
- Substantial proportion of public housing residents have very long tenancies.
- Movers differ from non-movers on multiple characteristics.
- Some socioeconomic characteristics were associated with moving out of public housing voluntarily.
- Health status and healthcare use were not associated with voluntarily moving out of public housing, but were associated with being evicted.
Policy Implications

• Understanding tenancy behavior is important for planning future needs for public housing
• Forced moves have negative consequences
• Preventing eviction has health, social, and economic benefits for tenants, landlords, and taxpayers
Policy Implications

• Early detection of at-risk individuals is important; healthcare system may have a role to play
• Support housing stability by creating capacity to direct services to tenants at greatest risk of eviction
• Strategically locate health and social services
• Support health and wellness programs in public housing
Future Research

• Include characteristics of the household members or household-level or building/project-level characteristics

• Investigate outcomes of residents when they move out of public housing (voluntarily and forced)

• Qualitative study to investigate the impact of moving out/being evicted
Disclaimer

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Thank You


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