Real Estate Development Timing in Toronto: Insights from Multi-Residential Development Applications

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Land Acknowledgement

We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional lands of the Huron-Wendat, the Seneca, and most recently, the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

Questions?

Ask in person

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Presentation Outline

- Research motivation and questions

- Theoretical background

- Data and methods

- Preliminary findings

- Next steps and future research

Research Motivation and Questions

2229–2245 Kingston Road

First above-grade building permit pulled within five months of initial approval

64–70 Shuter Street

First above-grade building permit pulled within 14 months of initial approval

175–191 Dundas Street East and 235 Jarvis Street

First above-grade building permit pulled within 17 months of initial approval

Expeditious Development

50 Bloor Street West

Initial approval received approx. 10 years ago; construction yet to commence

89 Avenue Road

Initial approval received 10 years ago; first above-grade building permit pulled approx. 9.5 years later

481 University Avenue

Initial approval received approx. 10 years ago; first above-grade building permit pulled approx. 8 years later

Prolonged Development

1 Yonge Street

Applied for 10- and 12-storey increases to initially approved tower heights

619–637 Yonge Street

Applied for 24-storey increase to initially approved tower height

1 Bloor Street West

Applied for 9-storey increase to initially approved tower height
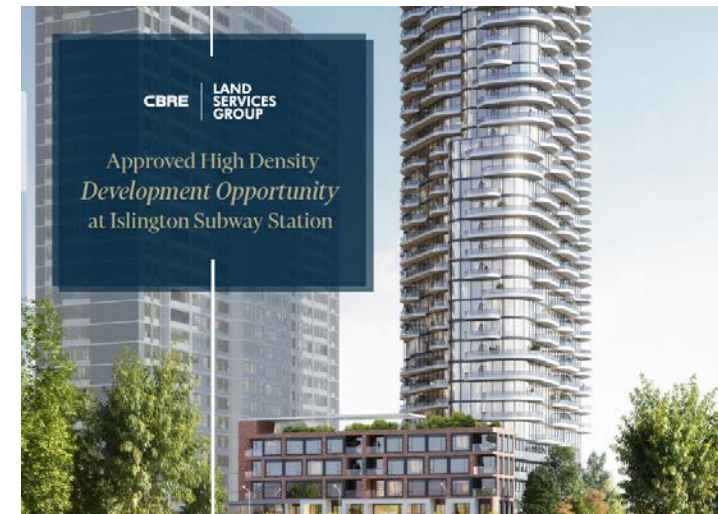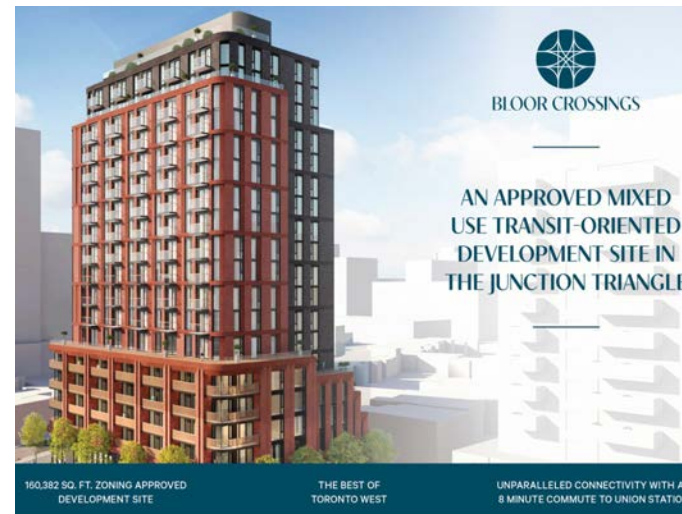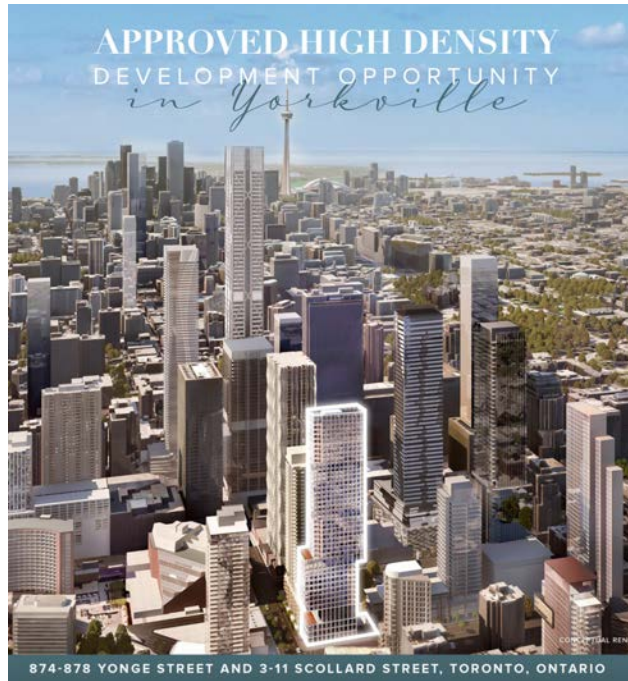

175 Wynford Drive

Applied for 18- and 19-storey increases to initially approved tower heights and for two additional towers

Repeat Applications

APPROVED HIGH DENSITY DEVELOPMENT OPPORTUNITY *in Yorkville*

874-878 YONGE STREET AND 3-11 SCOLLARD STREET, TORONTO, ONTARIO

CBRE LAND SERVICES GROUP

ONE SEVENTY FIVE WYNFORD DRIVE
TORONTO, ONTARIO

AN ICONIC FOUR TOWER DEVELOPMENT OPPORTUNITY WITH APPROVED ZONING FOR ±1,840,000 SQ. FT. OF DENSITY

CBRE LAND SERVICES GROUP

57-93 BALLIOL STREET
TORONTO, ON

APPROVED FOR A 40 STOREY TOWER WITH ±366,000 SQ. FT. OF DENSITY WITHIN TORONTO'S COVETED MIDTOWN MARKET

BLOOR CROSSINGS

AN APPROVED MIXED USE TRANSIT-ORIENTED DEVELOPMENT SITE IN THE JUNCTION TRIANGLE

160,382 SQ. FT. ZONING APPROVED DEVELOPMENT SITE | THE BEST OF TORONTO WEST | UNPARALLELED CONNECTIVITY WITH AN 8 MINUTE COMMUTE TO UNION STATION

CBRE LAND SERVICES GROUP

Approved High Density *Development Opportunity* at Islington Subway Station

Sales of Entitled Development Sites

8

What should Doug Ford's government do about developers who go years without building homes?

Some Ontario cities want power to slap 'use it or lose it' penalties on stalled housing projects

Mike Crawley · CBC News · Posted: Nov 30, 2023 4:00 AM CST | Last Updated: November 30, 2023

Developers claim they're not hoarding vacant land, fearing use-it-or-lose-it policy

By Colin D'Mello & Isaac Callan · Global News
Posted February 22, 2024 2:03 pm · Updated February 23, 2024 10:43 am · 3 min read

Ontario developers deny they're feeding housing crisis by sitting on land

Report commissioned by industry groups finds new home construction at 33-year high

Mike Crawley · CBC News · Posted: Feb 22, 2024 6:00 AM EST | Last Updated: February 22

spacing
CANADIAN URBANISM UNCOVERED

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HOUSING

LORINC: THE TORIES' USE-IT-OR-LOSE HOUSING RUSE

Province may force shovels in the ground in the Greenbelt but they should be forcing high-rise developers to stop sitting on land, too

BY JOHN LORINC

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SEPTEMBER 7, 2023
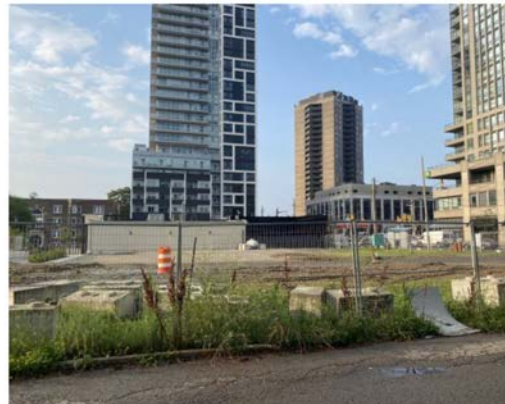
The vacant Foret development site

4

Research Questions

1) To what degree do developers delay multi-residential development, particularly after securing planning approvals, and what are the characteristics of projects that are delayed?

2) What is the relationship among different forms of land use regulation (LUR) and multi-residential development timing?

Theoretical Background

Neoclassical economic and investment theory

Real options theory

Neoclassical investment theory

- Discount future cash flows to their present value using necessary compound rate of return on investment

- Compare discounted future cash flows to initial equity investment to derive Net Present Value (NPV) of investment

    - If NPV of investment is ≥ 0, invest
        - Investment would generate exactly or more than required rate of return on equity

    - If NPV of investment <0, do not invest

Neoclassical economic theory

- Building heights will rise until the marginal cost of housing construction = price (profit-maximizing level of production in competitive markets) (Glaeser et al., 2006; Gyourko and Molloy, 2015; Dachis and Thivierge, 2018)

- If price exceeds marginal cost, overly stringent land use regulations are preventing firms from building at densities necessary to reach profit-maximizing level of production (where marginal cost = price)

- In reality, marginal cost is the "minimum profitable production cost" (cost of land, construction costs, and ordinary profits) (Glaesar and Gyourko, 2018)
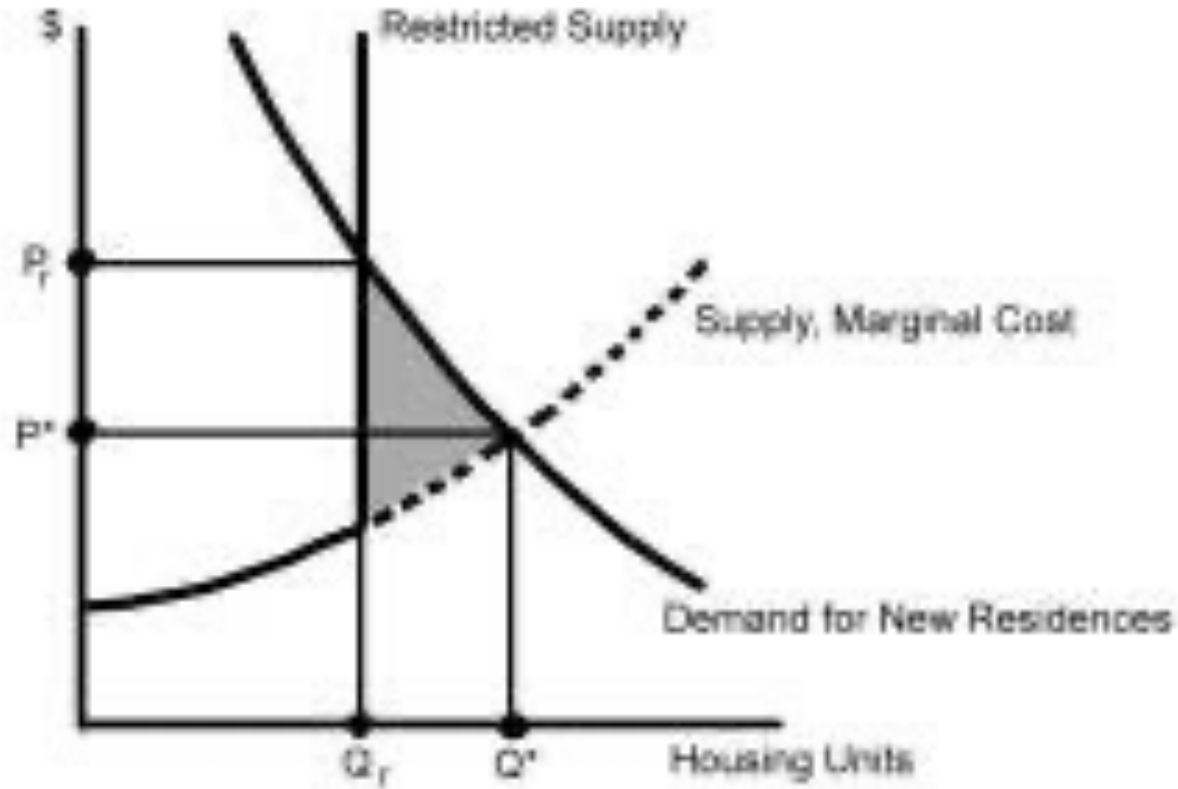
Source: Quigley and Rosenthal (2005)

Neoclassical investment theory – Critique

- Anderson (2012) identifies six problems with the neoclassical investment rule:

  1) Decision-makers lack information (e.g. appropriate discount rate, future events that are affected by entrepreneurial efforts)

  2) Ignores option value (option to wait)

  3) Ignores firm policy, strategy, and reputation

Neoclassical investment theory – Critique

4) Decision-makers often do not follow the rule (e.g. firms invest in projects that generate returns in excess of required hurdle rates, firms stay in business despite incurring substantial operating losses)

5) Ignores liquidity constraints (e.g. inability to secure construction financing even if project is profitable)

6) "Entrepreneurs are entrepreneurs" (e.g. entrepreneurial spirit leads businesspeople to continue with ventures that begin with negative NPV)

Neoclassical economic theory – Critique

- Guthrie (2010) demonstrates new house prices can deviate significantly from marginal construction costs in the absence of restrictive regulation

  - Contends wedge between marginal cost and price = the option value of delaying development of the marginal parcel of undeveloped land

  - "Removing building restrictions would not remove the delay options embedded in undeveloped land" (p. 67), so house prices would never fall/equate to marginal construction costs
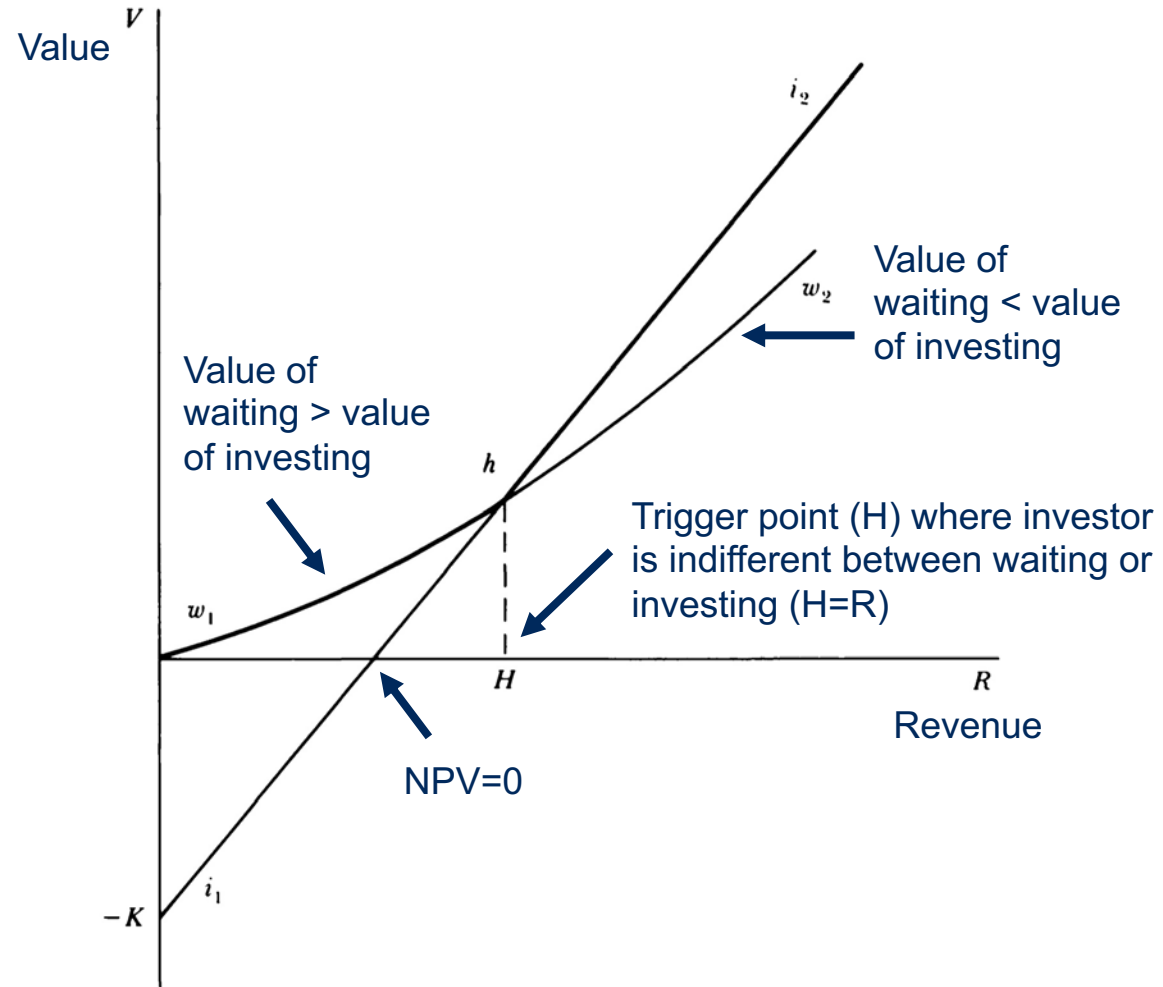
Real options theory

- Emphasizes dynamism and timing (rather than static economic analysis)

- Landowners may delay development until a future date, even if currently permissible and profitable, if it will maximize the return from developing the land to its highest and best use (Guthrie, 2020)

- Applies financial option pricing theory to real assets: like a call option, landowners reserve the *right, without the obligation*, to invest in the asset at a specified (strike) price at a specified period

  - Option value increases with uncertainty in future market conditions and investment irreversibility (Guthrie, 2020; Womack, 2015)

Real options theory

- Waiting for a specified period permits "an investor to avoid the downside risk in revenues over that interval while realizing the upside potential" (Dixit, 1992, p. 111):

    - The positive value of waiting derives from "the selective reduction of risk over time"

    - Conversely, the cost of waiting derives from the sacrifice of profit over time, such that it will make no sense to wait any further if current net income is sufficiently high

Figure 1
Values of Waiting and Investing

Value

Value of waiting > value of investing

Value of waiting < value of investing

Trigger point (H) where investor is indifferent between waiting or investing (H=R)

NPV=0

Revenue

Source: Dixit (1992)

20

Real options theory

- To the degree they are predictable and stable, land use regulations can reduce the option value of undeveloped land by limiting uncertainty about its profit-maximizing use (Cunningham, 2007; Jou & Lee, 2007; Neutze, 1987; Titman, 1985; Turnbull, 2005)

- Regulation may therefore have investment incentive effects that make immediate development more attractive and increase the *rate* of new housing supply (Neutze, 1987; Turnbull, 2005; Murray, 2022)

- However, frequent changes to land use regulation may, in turn, increase uncertainty about future development patterns

Ford's Bill 108 attempts to rush urban development bill without asking cities

By Morgan Sharp | News, Politics | June 1st 2019

Ford government unveils sweeping new changes to housing rules

By Isaac Callan & Colin D'Mello · Global News
Posted April 10, 2024 1:40 pm · Updated April 10, 2024 2:27 pm · 7 min read

Paul Calandra | HOUSING MINISTER

Global TORONTO

Toronto

Ontario passes housing bill amid criticism from cities, conservation authorities

Bill is part of province's plan to build 1.5 million homes in 10 years

Allison Jones · The Canadian Press · Posted: Nov 28, 2022 12:29 PM EST | Last Updated: November 28, 2022

...cipal Affairs and Housing Minister Steve Clark says Ontario is in a housing crisis and the new measures in ...5 are necessary to help the province achieve its goal of building 1.5 million homes in 10 years. (Evan ...i/CBC)

Ontario proposes more sweeping changes to real estate planning framework
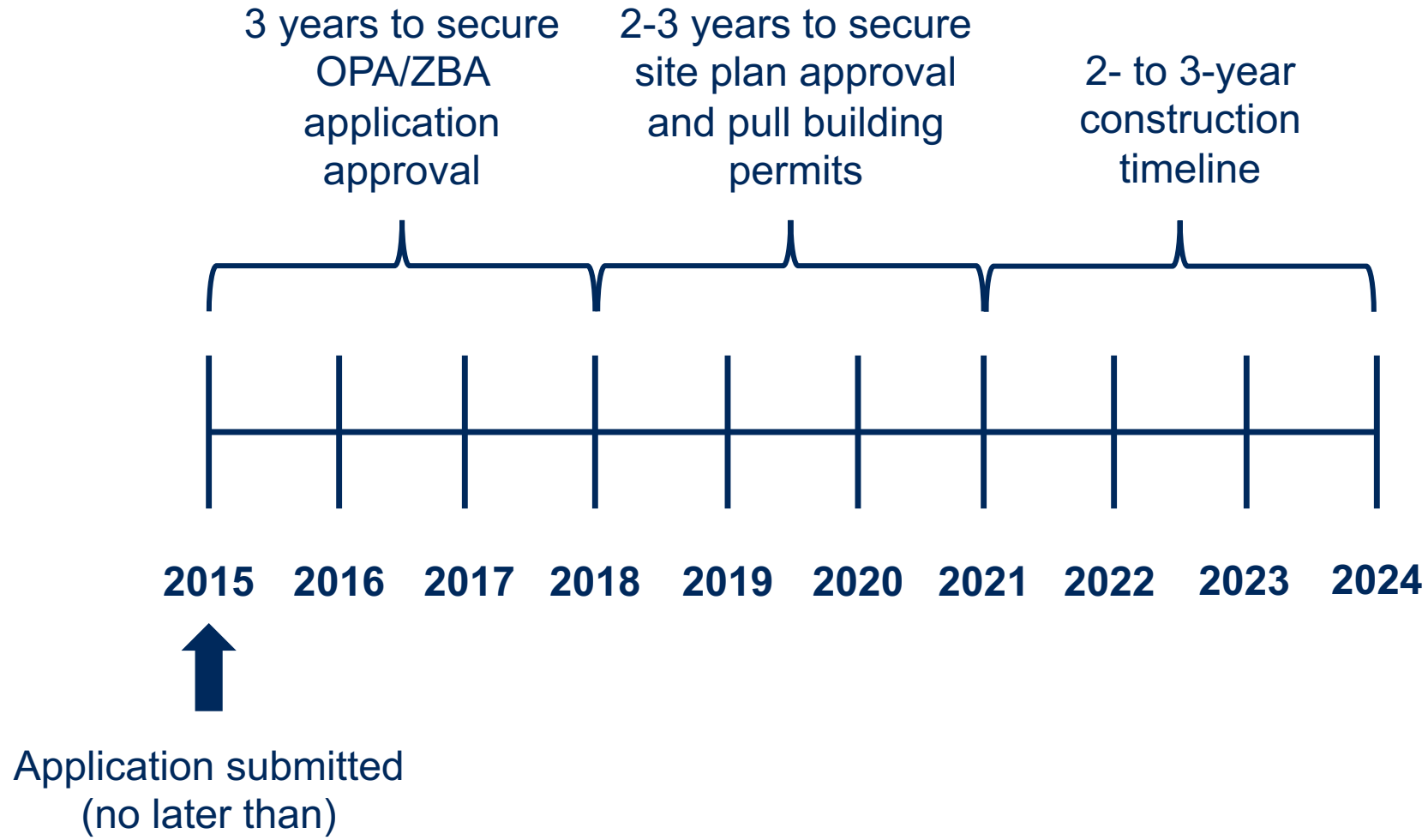
What is the point of all this?

- While delays can result from approvals processes, there are also rational economic reasons for landowners to delay development under circumstances of risk and uncertainty

- Planning is regarded by many as a barrier to new housing supply, but such perspectives ignore the role that planning plays in facilitating certainty about future development patterns

- Without any form of planning/land use regulation, the entire process of developing new housing would be inherently less certain and increase the option value of undeveloped urban land

Data and Methods

Data

- All development sites for which an Official Plan Amendment and/or Zoning By-law Amendment (OZ) application was submitted to the City of Toronto between 2012 and 2015 and was subsequently approved in principle by the City or Ontario Land Tribunal (OLT)

- Captures all OZ applications proposing to develop at least one mid- or high-rise apartment building (5+ stories) (N=262)

- Data collected from various sources (TMMIS, City staff reports, OLT Decisions, zoning by-laws, architectural plans, building permits)

3 years to secure OPA/ZBA application approval

2-3 years to secure site plan approval and pull building permits

2- to 3-year construction timeline

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Application submitted (no later than)

Construction status of approvals

Construction Status	Est. # (%) of Approved Applications	Est. # (%) of Approved Dwelling Units
Completed	154 (58.8%)	61,792 (46.2%)
Under Construction	31 (11.8%)	22,238 (16.6%)
Pre-Construction	77 (29.4%)	49,753 (37.2%)
Total	**262 (100.0%)**	**133,783 (100.0%)**

Timing measures

Time to Initial Zoning Approval

Time to Development Following Approval

Data

- Measures of approval time

  - Days from date of application submission to date of approval by City Council or the OLT using decision dates for both initial applications and, where applicable, multiple applications

  - Difficult to interpret because approval timelines reflect delays on part of both City staff, politicians, and developers

Data

- Measure of development timing

  - Days from date of approval and date of issuance of the first above-grade (conditional or full) building permit (BP) using decision dates for an initial application

  - Values on the lower end reflect more efficient timelines to secure site plan approval while values on higher end reflect delays in initiating development

Approval and development time by height

Tallest Building Height (stories)	Avg. Days from Application to Initial Approval (First app.), 2012-2015	Avg. Days from Application to Initial Approval (All apps.), 2012-2015	Avg. Days from Initial Approval to BP Issuance (First app.), 2012-2015
5-12	863 (2.4 years)	1,111 (3.0 years)	1,808 (5.0 years)
13-24	967 (2.6 years)	1,481 (4.1 years)	2,124 (5.2 years)
25-39	1,015 (2.8 years)	1,488 (4.1 years)	1,659 (4.5 years)
40-59	990 (2.7 years)	1,607 (4.4 years)	2,124 (5.8 years)
60+	999 (2.7 years)	1,393 (3.8 years)	2,253 (6.2 years)
Total	**948 (2.6 years)**	**1,369 (3.8 years)**	**1,896 (5.2 years)**

Methods

- Descriptive analysis (full sample, N=262)

- Regression analysis (subsample, applications submitted between 2012 and 2013, N=137)

- Non-parametric survival analysis (full sample, N=262)

- Parametric survival analysis (subsample, applications submitted between 2012 and 2013, N=137)

Methods

- Regression analysis

  - Statistical model for estimating the relationship between one or more explanatory variables and a dependent variable

$$\log(Approval\ Time) = \beta_0 + \beta_1 x_1 + \ldots \beta_p x_p + \varepsilon$$

Different development characteristics and measures of land use regulation

Methods

- Survival analysis

  - Class of statistical techniques for analyzing time-to-event data

  - Concerned with both event *timing* and *occurrence*

  - Used to handle censored data (observations without event occurrence)

- Survivor function *S(t)* – probability that a development 'survives' (i.e. construction has not yet commenced) past a certain time

Methods

- **Accelerated failure time (AFT) model** – Effect of covariates is to accelerate/decelerate survival time

  - Survival time (and, by extension, error term) assumed to follow particular distribution(s)
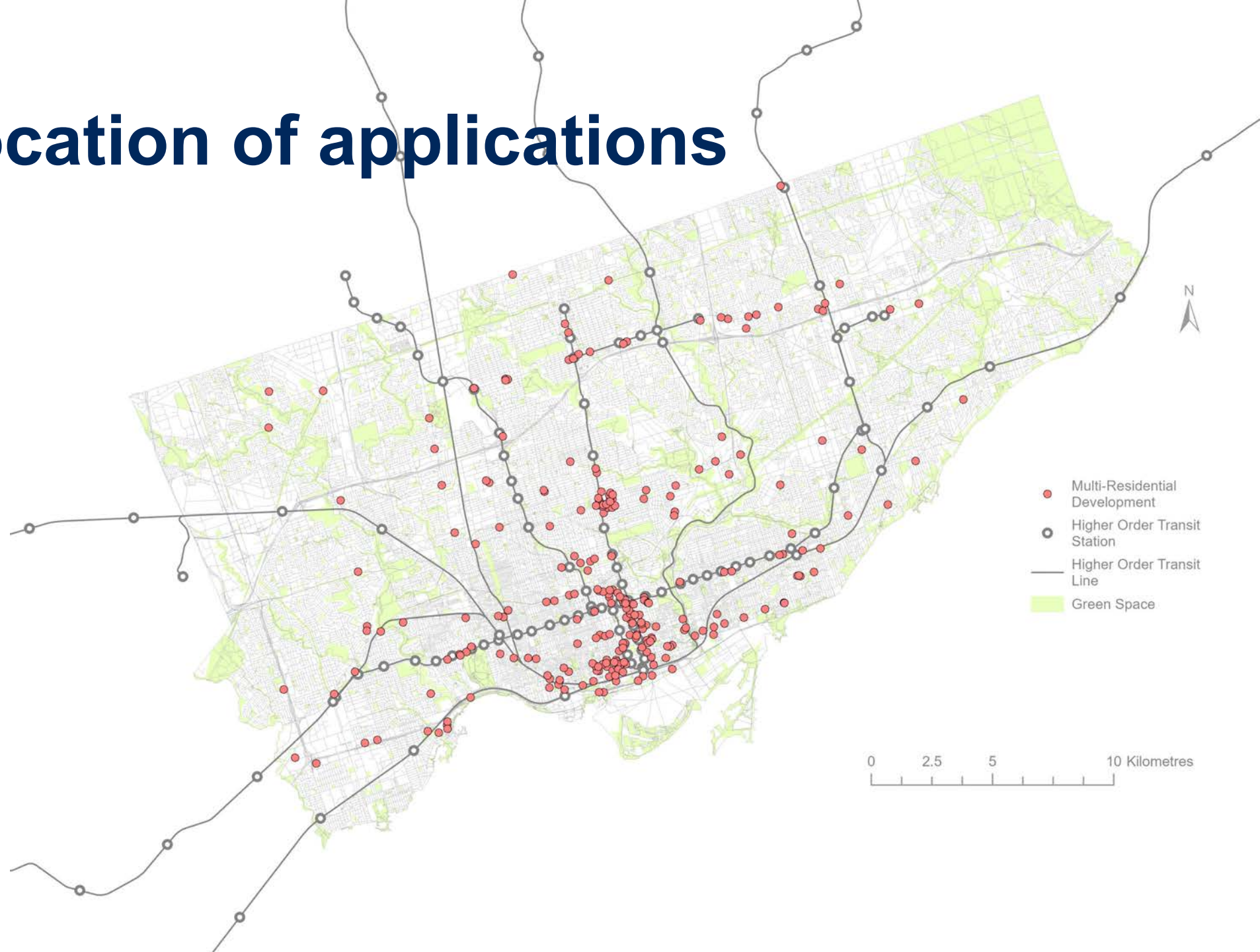
$$\log(Time\ to\ Development) = \beta_0 + \beta_1 x_1 + \ ... \beta_p x_p + \sigma\varepsilon$$
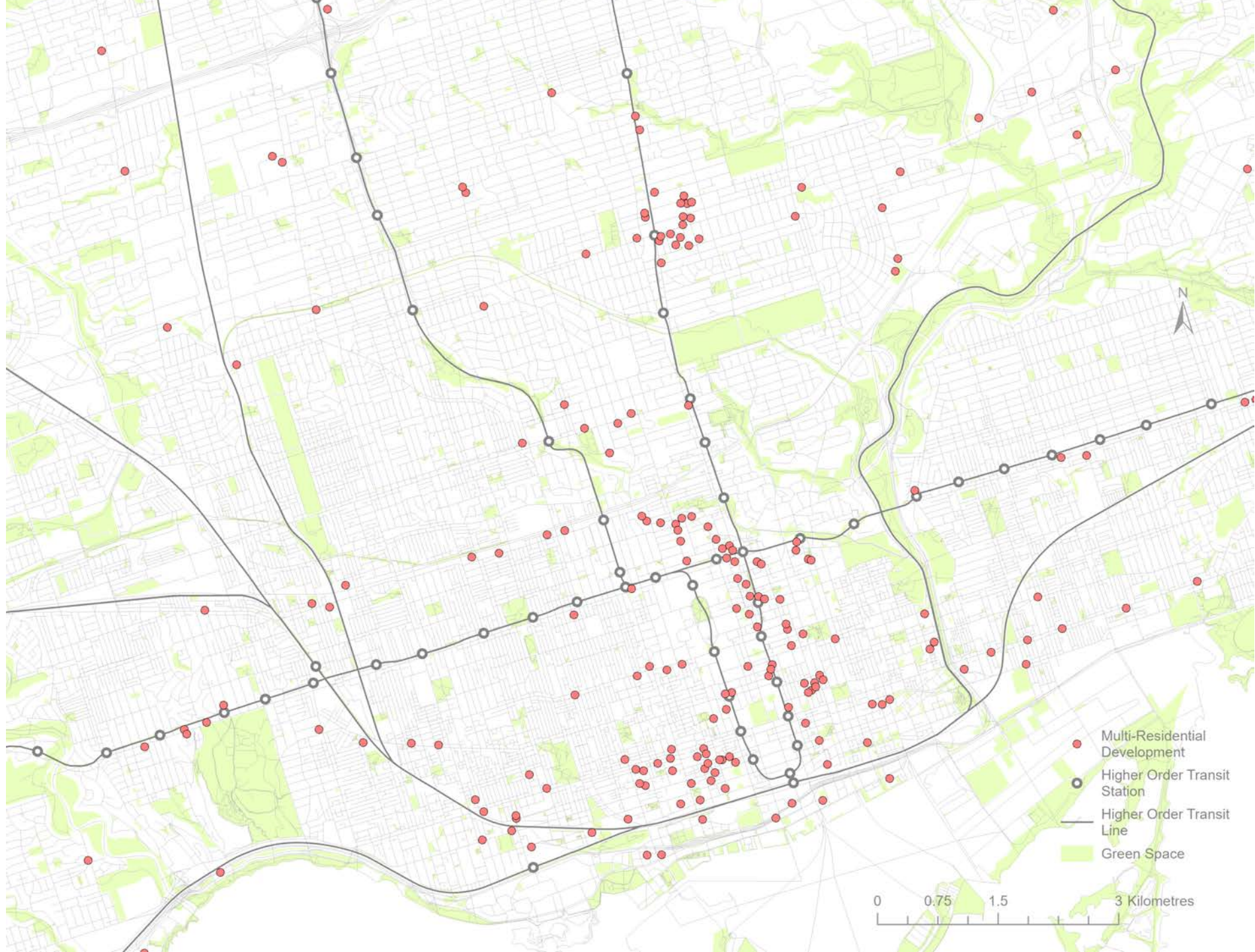
Scale parameter

- Diagnostic plots and statistics suggest AFT model with log-normal distribution is the best fit for the observed data

Preliminary Findings

Location of applications

Legend:
- Multi-Residential Development
- Higher Order Transit Station
- Higher Order Transit Line
- Green Space

0   2.5   5   10 Kilometres

Multi-Residential
Development

Higher Order Transit
Station

Higher Order Transit
Line

Green Space

0   0.75   1.5   3 Kilometres
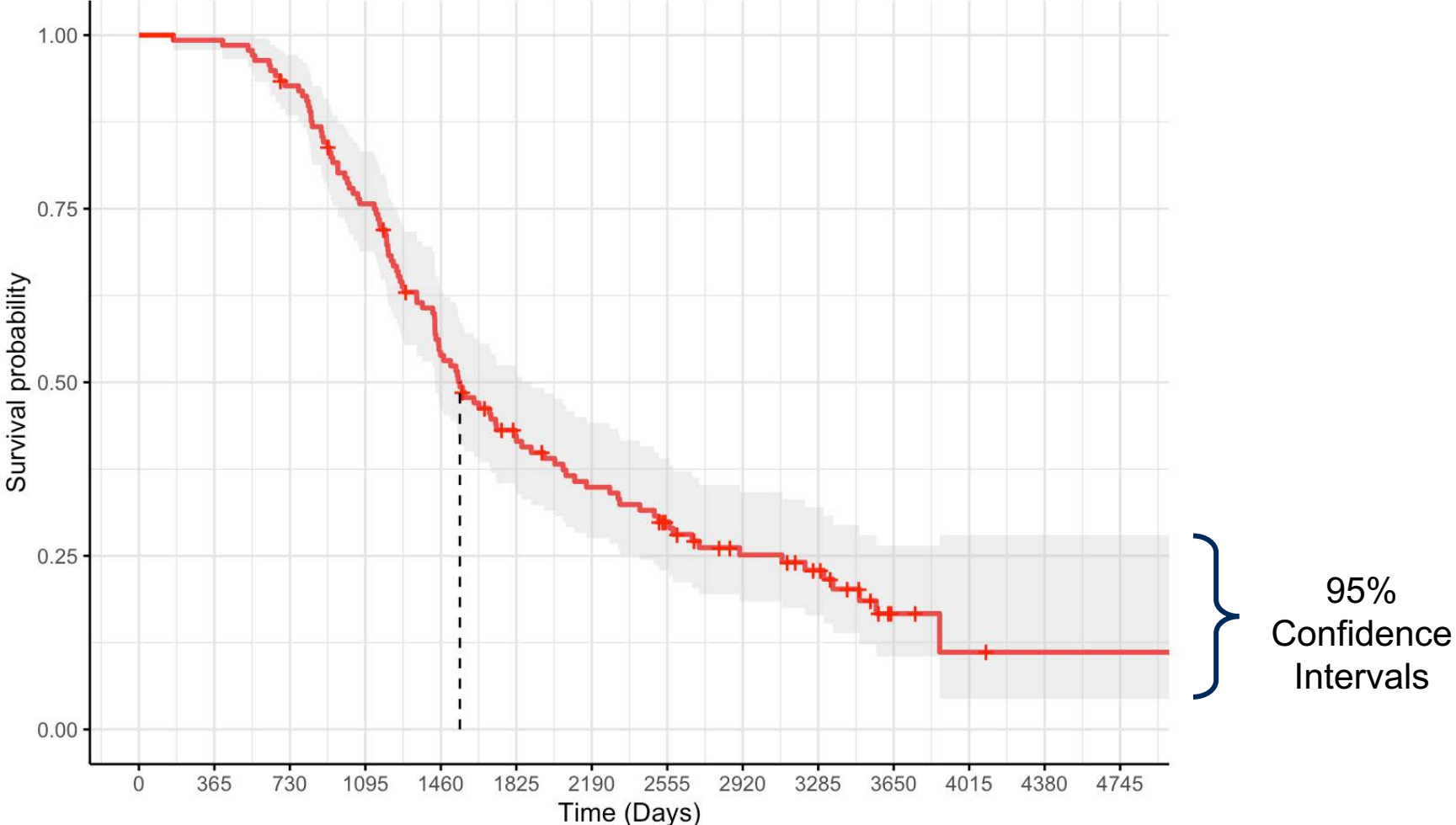
Survival Function for Time (Days) from Initial Approval to
Issuance of First Above-Grade Building Permit (Kaplan-Meier estimate)

	Log(Days to Initial Approval, 1st App)	Log(Days to Initial Approval, All Apps)
Intercept	5.016*** (0.0460)	4.812*** (0.454)
OLT Appeal (Yes, Ref = No)	0.367*** (0.088)	0.334*** (0.086)
Ln(Achieved Res. Density, Sq. m.)	0.139*** (0.049)	0.169*** (0.048)
As-of-Right Building Height (Metres)	-0.002 (0.002)	-0.004 (0.002)
Construction Status (Ref = Completed)		
Pre-Construction	0.524*** (0.106)	0.509*** (0.103)
Under Construction	0.364** (0.125)	0.318* (0.122)
Repeat Application (Yes, Ref = No)	-0.497** (0.149)	0.583*** (0.145)
ZBA to Lift Hold (Yes, Ref = No)	-0.170 (0.189)	0.625*** (0.184)
R-Squared	0.346	0.539
Adjusted R-Squared	0.310	0.514
Observations	137	137

Sig. +p<0.10; *p<0.05; **p<0.01; ***p<0.001.

Takeaways

- **Appeals to the Ontario Land Tribunal lead to significant delays in receiving an initial approval**

  - 59.2% of all applications under observation were appealed to the Tribunal

  - Appealing an application leads to an estimated 37% increase in the time to receive an initial approval, on average

Takeaways

- **Higher-density development projects require longer times to receive an initial approval**

  - A 1% increase in residential density (square metres) leads to a 0.14% increase in the time to receive initial approval, on average

  - Underscores the importance of normalizing development timelines against project density

  - Suggests that, as higher-density projects are approved over time, approval timelines will increase, even though the average approval time-per-unit of density may be stagnant or declining

Takeaways

- Development projects that have faster initial approval timelines are more likely to be the subject of a subsequent application for additional height and/or density

- Repeat applications lead to longer overall development timelines

- Sites with one or more applications to lift a holding symbol (e.g. need for servicing, municipal works, site remediation, etc.) experience longer approval timelines

Takeaways

- **Development projects that have longer approval timelines result in longer times to development post-approval (less likely to be constructed)**

  - On one hand, delays in the approval process that increase costs may result in developments no longer being viable

  - On the other, landowners who exercise the option to wait may be less pressed to receive a timely approval

Accelerated Failure Time Model (Log-normal Distribution)	Time from Initial Approval to Issuance of First Above-Grade Building Permit	
	Coefficients	Exponentiated Coefficients
Intercept	5.063 (0.776)***	
Repeat Application (Yes, Ref = No)	0.602 (0.202)**	1.826
Ln(Achieved Res. Density, Sq. m.)	0.258 (0.076)***	1.294
As-of-Right Height (Metres)	-0.007 (0.776)*	0.993
Land Use Des. (Ref = Employment Areas)		
Apartment Neighbourhoods	-0.213 (0.215)	0.808
Mixed Use Areas	0.194 (0.203)	1.214
Regeneration Areas	-0.108 (0.276)	0.898
Revision (Yes, Ref = No)	-0.411 (0.137)**	0.898
HCD (Yes, Ref = No)	0.400 (0.229)+	1.491
ZBA to Lift Hold (Yes, Ref = No)	-0.457 (0.254)+	0.633
Downtown (Yes, Ref = No)	-0.271 (0.071)+	0.762
Observations	137	
Log Likelihood	-876.5***	

Sig. +$p<0.10$; *$p<0.05$; **$p<0.01$; ***$p<0.001$.

Takeaways

- **Developments that achieve higher densities have longer timelines to building permit issuance**

  - Consistent with real options theory to the degree that larger developments are characterized by higher levels of risk and uncertainty

  - However, larger developments are often characterized by longer site plan approval timelines, which are not isolated from, and would be captured by, my measure of development timing

Takeaways

- **Repeat applications lead to longer timelines to building permit issuance following initial approval**

    - Consistent with real options theory to the degree that landowners may exercise the option to wait and apply for additional approvals

- **Conversely, applications that undergo minor revisions have faster timelines to BP issuance following initial approval**

    - Applicants working to ensure zoning by-law amendments are practicably functional are more eager to build

Takeaways

- **Higher as-of-right building heights under the City's zoning by-laws lead to faster timelines to building permit issuance, but the magnitude of this effect is numerically small**

    - Since higher-density developments have longer development timelines, sites with higher as-of-right building heights may request lower overall heights and densities than sites having lower as-of-right building heights at the time of application

Takeaways

The following have no statistically significant effects on development timing after controlling for other covariates:

- As-of-right building densities

- Net increases in building densities

- Distance to higher-order transit (m)

- Located within 800m of higher-order transit station

- OP Urban Structure designation

- Being in an Urban Growth Centre

- Being subject to a Secondary Plan

- Apartment buildings as a permitted land use

Limitations

- Site-specific land use regulation limited in ability to measure certainty (from real options perspective) since as-of-right permissions often do not reflect sites' highest and best uses

- To derive more definitive conclusions, development timing needs to be analyzed in relation to area-based changes to land use regulation, which are relatively rare compared to site-specific rezonings

- Need to isolate site plan activity within time between initial approval and above-grade building permit issuance

Next Steps and Future Research

Next Steps and Future Research

- Collect and analyze data on all OZ applications submitted to City from 2007 to 2022 (anticipating between 1,200-1,500 observations)

- Collect and analyze data on dates of land acquisition and land sales following entitlement

- Collect and analyze data on submission and approval dates of site plan applications

Next Steps and Future Research

- Integrate methods of controlling for spatial autocorrelation in survival models

- Analyze development timing in relation to area-based changes in land use regulation (as opposed to site-specific changes)

- Conduct interviews with members of the development industry to contextualize quantitative findings

Questions?

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