

Jiakang Zhang

Housing & Urban Data Analyst · MA Sociology, University of Guelph (2026)

Kitchener, Ontario · jiakangz.0907@gmail.com · 647-740-9412 · zhangjiakang.pro · linkedin.com/in/jz0907

Six independent, reproducible studies on public data, plus an award-winning MA thesis. Each study is three committed Python scripts (fetch, analyze, chart); every number below traces to saved model output. Full plain-language write-ups, technical notes, estimate tables, and academic references for each study are at zhangjiakang.pro/projects.html. Limits are stated up front throughout, and each study documents a real data problem caught and fixed before shipping.

01 · Is high rent bad for your health?

HEALTH & HOUSING · SURVEY-WEIGHTED LOGISTIC REGRESSION · CANADIAN HOUSING SURVEY 2022 (14,110 RENTER HOUSEHOLDS)

Fair-or-poor mental health climbs from 23% to 37% as the share of income going to shelter rises. Adjusted with Statistics Canada's 1,000 bootstrap replicate weights, the ratio itself stops predicting mental health; what survives is hardship.

Missed or delayed a housing payment: **2.3× the odds** of poor mental health, at any income level (95% CI 1.7 to 3.1).

Cross-sectional associations, stated as such. Exposure variable switched after the questionnaire showed the first candidate measured general money trouble.

02 · Did the 2023 refugee crisis change Toronto's shelter numbers?

PROGRAM EVALUATION · CONTROLLED INTERRUPTED TIME SERIES · TORONTO SHELTER SYSTEM FLOW + IRCC ASYLUM CLAIMS, 54 MONTHS

Refugee shelter counts were climbing 6% a month for 18 months before the crisis made news. The crisis months themselves show no significant jump; the change that holds up is a lasting shift of about +21% above the pre-crisis path (95% CI +6 to +38), with a placebo series near zero. Ontario asylum-claim volumes trace the same wave upstream.

Linear post-trend rejected for visible underfit; published model uses a curve, $R^2 = 0.97$. Pipeline auto-refreshes monthly.

Newey-West errors; identification limits stated on the page.

03 · Are apartments worse in poorer neighbourhoods?

HOUSING QUALITY & PROGRAM EVALUATION · DESCRIPTIVE + OLS · RENTSAFETO AUDITS (3,452 BUILDINGS) + CENSUS INCOMES

The expected income gradient is nearly flat: audit scores average about 89 in every income third (a doubling of income is worth +2.4 points, adjusted). The clearest findings are citywide heat risk and program effects over time.

84 in 100 audited buildings provide no air conditioning, in rich and poor neighbourhoods alike. Under the pre-2023 scheme, citywide averages climbed **65.5 to 80.9** in six years; 93% of re-inspected buildings improved, with gains largest exactly where enforcement pressed (regression to the mean stated).

A punctuation mismatch initially dropped 239 buildings from the income join; normalized keys matched every one.

04 · What does Airbnb's 28-day loophole rent for?

SHORT-TERM RENTALS · HEDONIC REGRESSION, FIXED EFFECTS · INSIDE AIRBNB (9,109 LISTINGS) + CMHC BENCHMARKS

58.7% of entire-home listings sit past the 28-night line where Toronto's by-law stops. Like-for-like, they price 53% below short stays (95% CI 51 to 55) in every distance ring, which still implies far more than ordinary rent.

Median loophole one-bedroom: **\$3,671 a month**, versus \$2,365 for an average rental condo (CMHC, Oct 2025). Extends the thesis finding that unregulated listings carried 2.5× the rent impact.

Listed prices, never transactions; benchmark extracted programmatically from CMHC's own data tables.

05 · How long do Toronto building applications wait?

URBAN PLANNING · CURRENT-STATUS SURVIVAL + LOGISTIC REGRESSION · 25,944 DEVELOPMENT APPLICATIONS

The tracker records no decision dates, so the design follows what the data honestly supports: each year's share still open. The open queue holds 5,065 files, median age 4.1 years; half of everything submitted since 2022 is still open. Rezoning clear the city's review faster than site plans at the same age, but 54.6% of open rezonings sit at the appeals tribunal (vs 8.7% of site plans).

Best bug story on the site: hidden trailing whitespace silently dropped **3,799 records** and flipped a key odds ratio; a 98% figure failed the smell test and exposed it.

"Closed" bundles approvals, refusals, and withdrawals; no approval rate is claimed.

06 · What did the pandemic do to opioid deaths?

PUBLIC HEALTH · SINGLE-SERIES INTERRUPTED TIME SERIES · PHAC / HEALTH INFOBASE, 40 QUARTERS

Deaths jumped when the pandemic hit (immediate shift bracketed +54% to +85% across functional forms, both $p < .001$), peaked at 2,082 in late 2021, and stand a third below peak in late 2025. Ontario's rate has halved from its peak; B.C.'s remains about four times as high.

A nationwide shock has no comparison group; the page says so and contrasts the design with study 02. The post-peak trend (**-2.6%/quarter, $p = .063$**) is reported as not quite clearing significance.

Quadratic-form sensitivity published on the page; recent quarters flagged as revisable.

MA thesis · Does Airbnb make rent more expensive?

ECONOMETRICS · INSTRUMENTAL VARIABLES (2SLS) · ORIGINAL 10-SOURCE DATASET, 6,165 RENTAL LISTINGS · UNIVERSITY OF GUELPH

Citywide, entire-home Airbnb activity is linked to rents about 5.6% higher than they would otherwise be; listings that sidestep the by-law carry 2.5× the impact of regulated ones. Awarded for "original dataset creation, complex data analysis methods, and clear communication of findings" (Methodological Excellence Award, 2026).

Full story in eight chapters at zhangjiakang.pro/research.html; one-page brief available.

How to check any of this: zhangjiakang.pro/evidence.html links every skill phrase above to the exact chart, model, or write-up that demonstrates it. Code and full write-ups available on request. This brief lists only what the portfolio can show.