The Role of Housing Costs in Internal Migration for Immigrants to Canada by Skill Level

Sean Smith

Supervised by Dr. Martin Farnham

Department of Economics, University of Victoria

This research was supported by the Jamie Cassels Undergraduate Research Award, University of Victoria

March 21st, 2023

SUMMARY

- Housing costs affect labour mobility by making living in different regions more or less expensive. These effects on mobility may vary based on how skilled an individual is
- Since Canada has experienced a rapid rise in housing costs and has a large proportion of immigrant workers, I propose the question: Do rising housing costs impact the internal migration of immigrants to Canada at different skill levels?
- Using a two-stage least squares (2SLS) model and admission class as a proxy for skill, I find that mobility is impacted modestly at different immigrant skill levels

DATA

- Immigrant data are sourced from Statistics Canada's Longitudinal Immigration Database (IMDB)
- Census metropolitan areas (CMA), which are regions formed from multiple municipalities, are the geographic unit of analysis. Twenty-two CMAs are included in this analysis
- Housing costs are approximated using average multifamily rental costs from the Canada Mortgage Housing Corporation's (CMHC) Rental Market Survey
- Economic and demographic data for each CMA are sourced from Statistics Canada's Labour Force Survey
- CMA land area is derived from the 2011 Canadian census
- Table 1 shows the percentage of intended immigrants that each CMA has retained over the sample period

CMA	Total Retention 2009	Total Retention 2019	Change in Retention
Abbotsford-Mission	83.73	70.32	-13.42
Calgary	89.30	81.61	-7.69
Edmonton	90.66	83.22	-7.44
Greater Sudbury	100.00	58.60	-41.40
Halifax	80.00	64.47	-15.53
Hamilton	83.26	67.76	-15.50
Kitchener-Cambridge-Waterloo	86.08	70.96	-15.12
Lethbridge	82.35	75.24	-7.11
London	85.28	71.66	-13.62
Montreal	90.64	76.83	-13.81
Ottawa-Gatineau	86.87	74.98	-11.88
Quebec	84.87	61.55	-23.31
Regina	85.82	59.27	-26.55
Saint John	57.81	37.92	-19.89
Saskatoon	85.89	62.35	-23.53
St. Catharines-Niagara	83.94	70.16	-13.78
St. John's	78.69	53.62	-25.07
Toronto	94.17	84.47	-9.70
Vancouver	94.31	84.82	-9.48
Victoria	86.53	75.07	-11.46
Windsor	84.68	73.25	-11.43
Winnipeg	90.38	72.19	-18.19

Table 1 CMA retention of immigrants from all admission years together from 2009 to 2019

- Table 2 shows the number of recent immigrants in Canada

Admission year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2009, admission year	154990	167390	172710	176470	179110	179450	179655	180305	180680	182580	184325
2010, admission year		169385	182910	188960	193920	196685	197325	198130	198630	200910	203040
2011, admission year			152255	163605	169515	173540	176025	176535	176930	178605	180230
2012, admission year				162600	174890	179875	183295	185770	185875	187120	188290
2013, admission year					168695	179050	183130	186780	188460	189250	189700
2014, admission year						174590	183655	188045	191620	194435	195235
2015, admission year							180680	191220	196145	200440	203060
2016, admission year								191160	201900	207655	211870
2017, admission year									195470	206660	210670
2018, admission year										213235	225620
2019, admission year											223795
Total	154990	336775	507875	691635	886130	1083190	1283765	1497945	1715710	1960890	2215835

Table 2 Total population of immigrants over time, by admission year

METHODOLOGY

- Problematically, housing costs and inter-regional migration are simultaneously determined. This means that both migration and housing costs are a function of each other, and so discerning the exact value by which one value impacts another is difficult (Jeanty, et al., 2010).
- To control for the endogeneity from this simultaneity I utilize a 2SLS regression model with CMA land area per-capita used as an instrument in the first stage (Liang et al., 2016; Zhou & Chi-Man Hui, 2022) as follows.
- Stage one:

$$H_{tj} = \beta_0 + K_{tj} + \beta_1 L_{tj} + \varepsilon_{tj}$$

  - Where:
  - H_{tj} is the average monthly rent of a multifamily one-bedroom unit at time *t* in CMA *j*
  - K_{tj} represents a vector of all explanatory variables from the second stage
  - L_{tj} is the CMA land area per capita
  - And ε_{tj} is the error term
- Stage two:

$$M_{tij} = \beta_0 + \beta_1 \hat{H}_{tj} + \beta_2 \overline{H}_t + \beta_3 X_{jt} + \beta_4 D_i + \beta_5 \theta_j + \beta_6 T_t + \beta_7 T_t * D_i + \varepsilon_{tij}$$

  - Where:
  - M_{tij} is a vector of changes in immigration statistics including *in migration*, *out migration*, and *retention rate* at time *t*, in CMA *j*, of the group of immigrants *i*
  - $\hat{H}_{tj}$ is the estimated value of average rent from the first stage of the equation
  - $\overline{H}_t$ is the average rent across CMAs in the given year
  - X_{jt} is a vector of CMA characteristics including the population and the unemployment rate
  - D_i is a vector of characteristics of the immigrant group whose mobility statistics are being estimated, including age and admission year
  - θ_j represents the CMA as a fixed effect to capture its amenities and other unobserved characteristics
  - T_t is a time trend variable which is also interacted with admission year to control for different cohorts following similar trends at different times
  - ε_{tij} is the error term

RESULTS

- Figure 1 shows the differences by admission class the effect a $10 change in rents has at both the CMA (local) and cross-CMA (national) level
- Housing costs have a relatively modest impact on migration in and out of CMAs
- **Out migration carries the same sign as in migration in response to housing costs.** This is a puzzling result, but is found in other studies of determinants of migration flows (Conway & Rork, 2006)
- Changes in the retention rate were found to be both statistically and economically insignificant
- Results both overperformed OLS models and retained significance after adjusting standard errors for clustering on CMAs

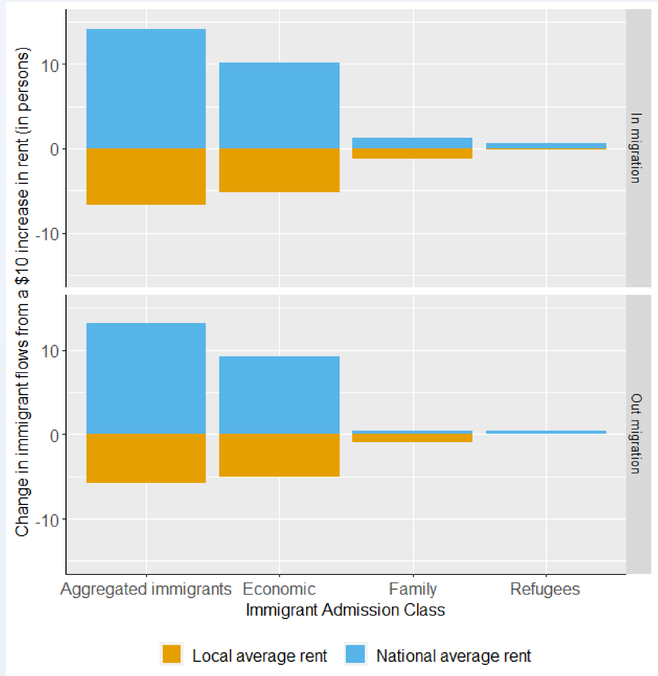

Figure 1 Change in immigrant flows from both a $10 change in the local rent level and cross CMA average rent level

CONCLUSIONS

- Housing costs impact the migration of economic immigrants significantly more than family immigrants or refugees
- Changes to CMA *in migration* and *out migration* from increasing housing costs almost completely offset each other whether the costs rise nationally or regionally
- Average housing costs nationwide have a greater impact on economic immigrants' movements than local housing costs
- The same-sign problem with out migration leaves the door open for further study on how out migration is impacted by housing cost changes

REFERENCES

- Broxterman, D. A., & Yezer, A. M. (2015). Why does skill intensity vary across cities? The role of housing cost. *Regional Science and Urban Economics*, *55*, 14–27. https://doi.org/10.1016/j.regsciurbeco.2015.08.003
- Conway, K. S., & Rork, J. C. (2006). State "Death" taxes and elderly migration—The chicken or the egg? *National Tax Journal*, *59*(1), 97–128. https://doi.org/10.17310/ntj.2006.1.05
- Jeanty, P. W., Partridge, M., & Irwin, E. (2010). Estimation of a spatial simultaneous equation model of population migration and housing price dynamics. *Regional Science and Urban Economics*, *40*(5), 343–352. https://doi.org/10.1016/j.regsciurbeco.2010.01.002
- Liang, W., Lu, M., & Zhang, H. (2016). Housing prices raise wages: Estimating the unexpected effects of land supply regulation in China. *Journal of Housing Economics*, *33*, 70–81. https://doi.org/10.1016/j.jhe.2016.07.002
- Mueller, R. E., & Truong, N. T. K. (2022). Wage and basic skills inequality between immigrants by immigration admission categories and Canadian non-immigrants. *Empirical Economics*, *62*, 1833–1884. https://doi.org/10.1007/s00181-021-02084-6
- Roback, J. (1982). Wages, Rents, and the Quality of Life. *Journal of Political Economy*, *90*(6), 1257–1278. https://doi.org/10.1086/261120
- Rosen, S. (1979). Wage-based indexes of urban quality of life. *Current Issues in Urban Economics*, 74–104.
- Zhou, J., & Chi-Man Hui, E. (2022). Housing prices, migration, and self-selection of migrants in China. *Habitat International*, *119*, 102479. https://doi.org/10.1016/j.habitatint.2021.102479

ACKNOWLEDGEMENTS

My sincerest thanks for the guidance and help of my thesis supervisor, Dr. Farnham, and the assistance of the Honours Seminar supervisors, Dr. Voss and Dr. Rondeau. Without their feedback, guidance, and advice this project would not have been possible.