1 Introduction

Taxes and restrictions on foreign purchases of residences have been implemented in multiple jurisdictions worldwide with the stated purpose of making homes more affordable for domestic residents. For example, in extending a ban on foreign purchases of Canadian residential real estate, a government press release stated: "For years, foreign money has been coming into Canada to buy up residential real estate, increasing housing affordability concerns in cities across the country, and particularly in major urban centres. Foreign ownership has also fueled worries about Canadians being priced out of housing markets in cities and towns across the country."[1]

There are theoretical and empirical reasons to expect foreign buyer taxes to succeed in bringing down local housing prices, many of which are detailed in a comprehensive study by **favilukisVanNieuwerburgh**. The disincentive to purchase homes should reduce the number of buyers considering purchasing properties and lower willigness to pay among remaining foreign buyers. This reduction in prices hurts landlords and incumbent property owners through lost property value and rents, but makes home ownership more affordable for locals who do not yet own homes. There may be an associated loss of construction jobs, and the analysis in **favilukisVanNieuwerburgh** does not consider the effect of reciprocal taxes on domestic residents who may wish to purchase property overseas.[2]

Existing studies of the impact of the entry and exit of foreign buyers on local home prices present estimated effects that range from modest to quite large, as summarized in **davidoffZheng**. **LiShenZhang**, **gorbackGlobalCapitalLocal2020**, **pavlovImmigrationFlows**, and **BadarinzaRamadorai** find that within metropolitan areas, submarkets exposed to foreign buyers see larger price increases when the types of foreign buyers prone to buy in those submarkets face increased incentives to buy overseas. **DachisDurantonTurner**, **klevenBest**, **kopczukMunroe**, and **davidoffLeigh** find, as a general matter, that increasing transaction taxes on housing purchases leads to fewer transactions and lower prices. **HartleyForeign**, **andalfattoEstimatingEffectMetro2023**, **DuYinZhang**, and **pavlovForeignBuyer** collectively find that foreign buyer taxes in Australia, Canada, and New Zealand led to lower prices.

As **favilukisVanNieuwerburgh** observe, foreign buyers may not leave homes empty, but rather rent them out to locals. In their calibration, this changes the social welfare effect of foreign buyers from negative to slightly positive. The effect of out of town buyers is moderate because local investors are highly price sensitive in their demand for rental properties, and out-of-town buyers represent a small share of overall capital investment. In this way, foreign buyers represent a slightly positive form of capital accumulation. This is a salient consideration, as British Columbia has imposed significant taxes on empty homes and vacation properties in urban areas while also imposing significant taxes on foreign buyers, and the Canadian federal government has both imposed taxes on empty homes owned by foreigners and has temporarily banned the purchase of single residences by foreigners.

At the time of writing, the market for condominiums in Vancouver and Toronto are so

[1] **gOC**.

[2] It is not obvious that a target country would wish to reciprocate to disincentivize the host country's tax. For example, China, the source of most foreign buying in Canada prior to the recent spate of taxes (per, e.g. **ctvNews**) has made efforts to discourage capital flight.

weak that construction has stopped. While indicative of falling prices, the lack of condo presales has led some observers to suggest that the taxation of foreign buyers has overshot, leading to a negative supply response larger than the positive demand response on prices from foreign buying, such that locals have been adversely affected. It is thus worthwhile asking whether there is empirical evidence supporting the idea that foreign buyers, particularly in the presence of empty homes taxes, may have positive welfare effects and their taxation adverse effects on housing affordability for locals. QUOTE GOODMAND AND RENNIE HERE

There are several channels through which foreign buyers could have positive affordability effects. First, per **favilukisVanNieuwerburgh**, foreign buyers may rent houses to locals, particularly in the presence of an empty homes tax.[3] Second, foreign buyers may purchase condominiums in the presale phase of condominium development and then assign their contracts prior to completion. The presence of foreign presale purchasers would raise presale prices, encouraging the supply of condominiums, but with no increase in demand for occupied space. The net effect of that form of investment should be positive for affordability for end users, with an adverse competition effect for locals who wish to occupy homes purchased through the presale channel.

A third way in which foreign buyers could have a beneficial effect on housing affordability for local apartment buyers if they have a relative preference for quality, and if there is a high degree of vertical differentiation within buildings. In that case, foreign buyers could make projects more profitable than they would otherwise be, increasing supply, but without crowding out local demand. This would be a variant of the positive "pecuniary externality"

In the next sections, we review some available economic evidence on the extent to which the channels alluded to above are operative in the Vancouver housing market.

2 Stock and flow of foreign purchases in Greater Vancouver

For the years starting in 2018, the Canadian Housing Statistics Program has used its access to ownership data on the universe of Canadian residences to publish statistics on ownership by residency status in Canada. This is an approximation of foreign ownership, because some owners who live overseas are Canadian citizens or permanent residents, and hence exempt from foreign buyer taxes. Also, some Canadian residents are not yet landed immigrants, and hence are subject to the foreign buyer tax. Thus CHSP represents an approximation of the stock of "foreign" ownership over time. Unfortunately, the stock measure is not readily available prior to 2018. Between 2018 and 2022, the number of non-resident owners in the Vancouver Census Metropolitan Area grew from 24,135 to 26,350, but fell from 9.6% to 9.0%.

The apparent declining stock of foreign ownership as a share of all residences is matched by a declining share of the flow into ownership. The B.C. provincial government started collecting data on the nationality of residential property buyers shortly before implementing the additional property transfer tax of 15% on foreign buyers in mid-2016. In the month

[3] This observation is echoed in the BC context in a policy brief, **Goodman**.

Table 1: Fraction of residential transactions in Metro Vancouver with foreign participation, per BC Property Transfer Tax data. Source: `https://catalogue.data.gov.bc.ca`

Year	Fraction of transactions with foreign participation
2017	3.7%
2018	2.9%
2019	2.0%
2020	1.4%
2021	1.1%
2022	1.3%
2023	0.9%
2024	0.9%

(July) prior to implementation, 15% of purchases in Metro Vancouver involved foreign participation. For the years since, the fractions have been as shown in Table 1. COVID and the national foreign buyer ban have likely contributed to the decline over time in foreign participation.

3 Do foreign buyers leave homes empty?

Depending on whether empty homes taxes are set at a sufficiently high level or not, foreign buyer taxes may be desirable if foreign owners both (a) tend to leave homes empty for much of the year, rather than occupying them full time or renting them out to locals, and (b) are not responsive to taxes in that behaviour.

In the presence of the B.C. empty homes tax regime, foreign owners who retain their properties most commonly rent them out. Per **specTax2019**, of 3,709 foreign owners deemed subject to the empty homes tax in 2018, a large majority no longer held empty homes in 2019. 1,205 of these foreign owners subject to the Speculation and Vacancy tax transitioned to renting their homes out in 2019, 1,413 sold their property, 951 remained subject to the tax, and 66 transitioned to using the home as a primary residence.

4 Do foreign buyers specialize in the most luxurious units within buildings?

Consider a limiting case, in which foreign buyers have infinitely elastic demand for high-quality units, at a willingness to pay of p_f, and no willingness to pay for ordinary units. These high-quality units might represent the penthouses of condo buildings, with all other units being of ordinary quality. Suppose by contrast that local buyers have no additional willingness to pay for penthouse suites and thus pay p_l for either penthouses or ordinary units. Suppose that the fraction of all units purchased by foreign buyers is α, that fraction will be bounded above by the fraction of homes that are penthouse units and below by zero. In that case, the equation of the supply and demand of homes purchased by locals will be:

$$[1-\alpha]\, q_s\left([1-\alpha]\, p_l + \alpha p_f\right) = q_l(p_l). \tag{1}$$

Developers will supply more units the higher the average price per unit paid by locals and foreign buyers weighted by their share of all units built. Implicitly differentiation of equation (1) indicates that the effect on local prices of a small increase in the foreign buyer share depends is:

$$\frac{dp_l}{d\alpha} = -\frac{-q_s + [1-\alpha]\, q_s' \,[p_f - p_l]}{[1-\alpha]^2\, q_s' - q_l'}. \tag{2}$$

The denominator of the right hand side of equation (2) is positive as long as supply slopes up and local demand slopes down in price. Defining market average price $\bar{p} \equiv [1-\alpha]\, p_l + \alpha p_f$, the numerator of the right hand side of equation (2) is negative, so that price falls with an increase in the permitted foreign share if:

$$\text{sign}\left(\frac{dp_l}{d\alpha}\right) = \text{sign}\left(1 - \frac{q_s' p_l}{q_s}\frac{p_f - p_l}{\bar{p}}\,[1-\alpha]\right). \tag{3}$$

Equation (3) shows that with complete market segmentation as described above, foreign buyers will reduce prices for locals by inducing enough new building to overcome the attendant within-building loss of penthouse units if:

- Supply is sufficiently elastic with respect to price ($\frac{q_s'\bar{p}}{q}$ is sufficiently large, so that the sacrifice of luxury units associated with increase foreign purchases is compensated with relatively more new buildings).
- Local demand is sufficiently large relative to foreign demand (α is close to zero, so that most of each induced new building is occupied by locals),
- The difference in valuation for high-quality units between foreign and local buyers is sufficiently large relative to the market price so that new foreign buyers have a large effect on average unit prices in buildings.

units of different quality within buildings is sufficiently large relative to local willingness to pay. If supply is inelastic, or locals and foreign buyers compete for luxury units within buildings, then foreign buyes will crowd out local buyers and raise prices of all units to locals.

a high level of quality, and local buyers are indifferent between low- and high-quality apartments. First suppose apartment buildings can be built at a constant cost of \$$c$ per sdquare foot, and that builders will build infinitely many so long as the price they can charge per square foot is greater than c. so that Suppose that foreign buyers will only purchase penthouse apartments, and are willing to pay p_f for a penthouse unit. Local buyers, are willing to pay a price of x To see this channel, consider a limiting case in which top-floor penthouse units have a high level of quality, and all homes below the penthouse have a lower level of quality. For simplicity, assume all buildings are 10 storeys tall. If steady state construction supply is infinitely elastic at a price of \$X, then if foreign investors are permitted in a market, then the price to locals will be:

$$.9p_l(q) + .1p_f = X \tag{4}$$
$$p_l = \frac{X - .1p_f}{.9}. \tag{5}$$

Without foreign buyers, the price of lower-quality units would be $p_l = \frac{X - .1p_d}{.9}$. In that way, luxury foreign demand could crowd out local luxury demand, but subsidize local consumption of generic units.

Figure **??** presents suggestive evidence on the question of whether foreign buyers may offer implicit subsidies to local buyers of standard-quality units through abnormally high willingness to pay for higher quality units, for example, those with prime views. The data are taken from condominium resales in Greater Vancouver between 2010 and 2023, with data provided by BC Assessment. The plot measures the year of transactions on the horizontal axis. On the vertical axis are measures of the variance of the natural logarithm of transaction prices by year. The red line plots the variance of all transaction prices. The green plots the variance of mean prices across buildings.[4] The blue line plots the mean variance of log transaction prices within buildings.

The dashed vertical line in Figure **??** coincides with the imposition of the foreign buyer tax in July, 2016. Consistent with foreign buyers demanding more expensive units [CITE], the overall variance of prices drops sharply in the years after the tax, consistent with loss of an important luxury segment of the market. However, the reduction in price variance appears to be almost entirely driven by

[4] If there were only one transaction for each building with a transaction in a given year, the red and green lines would coincide.

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