Examining the Price of Housing on First Nation Land: A Case Study from Vancouver Island

by

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Abstract

Growth in the value of real property plays an important part of the lives of many Canadians. An increase in housing equity opens new economic opportunities by leveraging credit to create wealth. This paper examines whether there is a difference in the price of housing on First Nation reserve land vs off reserve land, leveraging the fact that Vancouver Island contains a multitude of non-First Nations leasehold land to directly compare land tenure systems. Using thirty-five years of sales data from the Victoria and Vancouver Island Real Estate Board combined with geo-spatial data, I explore whether a property being located on First Nations reserve land is worth more, less, or the same as the same property not on reserve. OLS regression models provide evidence of a negative correlation between property sale prices and being on First Nations land, conditional on the most common real estate characteristics. Using an Instrumental Variables strategy, the evidence points towards both a lower housing price on reserve vs off reserve for certain types of properties, while an increase in price for others. This paper then offers an explanation of what could cause such a difference, as well as touches on future research opportunities.

Contents

1 Introduction

Real property is a significant driver of economic activity. In Canada, approximately 10 percent of GDP is devoted to the real estate sector, in sectors such as construction, development, or sales. Over the past twenty years, home prices have increased 375% nationwide and in markets such as Toronto and Vancouver, as much as 490% (Stokes, 2021). Has this accumulation of wealth largely passed First Nations by? If so, is this discrepancy due to the institutions that govern property rights within the Nations? In this paper, I intend to uncover whether there is a difference in housing prices on First Nation reserves versus off-reserve homes by directly comparing properties with the same type of land tenure.

It has been well documented that First Nations economic outcomes tend to lag behind non-First Nations outcomes in Canada. As of 2019, there was a gap of 24.2 percentage points between the employment rate for First Nations on reserve and the non-Indigenous rate. Indigenous median income in Canada in 2019 is at 73.8% of the non-Indigenous population (NIED, 2019). First Nations men living on reserve have a total income of 35.8% of the average non-Indigenous income (Feir, 2024). Equating key economic indicators between non-Indigenous and Indigenous populations in Canada is an important goal for all Canadians, and aligns with the Truth and Reconciliation Commission of Canada's Calls to Action on Business and Reconciliation (92).

A clear area of opportunity is aligning property values both on and off reserve. While there can and will be price differences based on the different types of land tenure, First Nations have an opportunity to leverage their historical land for future economic development that benefits Nations as a whole. Higher property values on reserve can bolster the existing property-tax base for the Nation, as well as directly increase revenue for individual Nation

members from leasing property on reserve. Finally, higher property values mean more collateral for lending institutions, meaning there is a potential for the Nation or individual members to access more credit.

This paper provides the first empirical examination of the market price of housing on First Nation reserve land compared to similar properties off reserve. Using MLS® data from Vancouver Island between 1989-2023, I find a robust negative relationship between the price per square foot of on-reserve housing when compared to off-reserve when controlling for common real estate characteristics. These results are in contrast to the raw means due to the fact that First Nation properties are on average almost a decade younger in age. When separating property types, I find there is a significant and robust negative relationship between price per foot and the property being located on reserve for single family dwellings, while finding an equally robust positive relationship between price per foot and being located on reserve for manufactured dwellings. In other words, single family houses sold on reserve land have a lower sale price compared to similar houses off reserve. The reverse is true for manufactured homes. Thus, it appears that the type of property is a key factor on if the associated price of housing will be higher or lower on reserve, holding all other controlled-for factors constant.

This initial evidence cannot show that being located on reserve is the sole cause of the lower average house prices. An alternative explanation could be that First Nation property is inherently worth less than non-First Nation housing. This could be supported by the fact that in many instances, less than desirable plots of land were allocated to First Nation groups by colonists. Therefore, I attempt to disentangle these differences by using an Instrumental Variables (IV) technique to rule out any endogeneity in my key indicator variable due to omitted variable bias.

The instruments used are the distance to historical Fort Langley, as well as the elevation of the property. Using these instruments, I again find a significant and negative relationship between single family dwellings located on reserve and sale price, while a significant positive relationship between manufactured homes located on reserve and sale price. While the IV findings reinforce the OLS findings, the entire sample (both single family dwelling and manufactured homes) no longer has a statistically significant relationship using IV.

The paper is structured as follows: Chapter 2 and 3 provide a historical background on First Nation property tenure as well as previous research to date. Chapter 4 discusses the methodology used in both the OLS and Instrumental Variables analysis. Chapter 5 discusses the data used in the paper. Chapter 6 looks at the results, including robustness checks, before Chapter 7 concludes the paper and discusses reasons for the findings as well as implications.

2 Historical Background

Historically, most on reserve residents did not own their home. Sections 28 and 89 of the Indian Act prohibit lending institutions from seizing Indian assets and property in the event of a default. With no ability to secure their loans, independent third parties are reluctant to lend money to Status Indians[1] (Alcantara, 2005). More recently, some nations have offered different land tenure options to open the door to conventional financing of a home purchase, renovations, or a new home build.

In order to analyze property values on and off reserve, we must first understand the different types of land tenure on reserve. Until 1999, First Nations land was administered

[1]The use of "Indian" here is in reference to the Indian Act (R.S.C., 1985, c. I-5), which defines a Status Indian as a legal identity

under the Indian Act, unless the First Nation had a historical or modern treaty with the Crown. Under the Indian Act, band members could gain possession of property under three schemes: customary rights, certificates of possession (CPs), and leases (Alcantara, 2007).

Customary rights can allow an individual to possess a tract of land either through a resolution of the band council or informally. Although lower in terms of cost to transact, the downside of customary rights is that they are not legally enforceable by Canadian courts, so there is a lack of security for a third party if they wanted to occupy said lands. This type of ownership left much of the control of the land in the hands of the band council (Alcantara, 2007).

The second type of property right is a certificate of possession (CP). The main benefit of a CP is that it is legally enforceable in Canadian courts, meaning the band council cannot interfere with the member's use of the land (Alcantara, 2007). The downside is that CPs require significant transaction costs in terms of the time it takes to get approved by the Aboriginal Affairs and Northern Development Canada[2] (Alcantara, 2005). Both transfers of CP property and wills can also be time-consuming due to government bureaucracy. As of 2002, more than 100,000 certificates of possession have been issued on 288 reserves in Canada (Flanagan and Alacantara, 2004). The main drawback for CPs is that they can not be transferred to individuals outside the band.

Brinkhurst et al. (2013) asserts that the use of CPs under the Indian Act is surprisingly low and uneven, and their results suggest that using the system requires a relatively educated community and low poverty, as well as a favourable geographical location. Brinkhurst et al. (2013) also find that "there is some unobserved confounding factor that is causing income

[2]In 2017, Indigenous and Northern Affairs Canada (INAC) was dissolved and replaced by 2 new departments, Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) and Indigenous Services Canada (ISC). CP approvals would now fall under ISC

and CP usage to be negatively linked across Bands but not within the same Band. In other words, Bands that use lawful possession are systematically different – in a way that we cannot observe in our dataset – from Bands that do not, and this systematic difference is negatively correlated with income, but positively correlated with lawful possession usage, all else equal." (pp 21)

The last type of property right under the Indian Act is a lease. Leases are transferable and can be used as collateral for loans and mortgages. They operate similarly to off-reserve leases, and have been used on reserve for major industrial sites, golf courses, and residential developments (Alcantara, 2008). The downside of leases is that they also require the approval of either the band council or the federal government, which can be costly. Lastly, some leases are administered by the federal government, which weakens the sovereignty of the nation (Alcantara, 2008).

Since 1999, the First Nations Land Management Act (FNLMA) has allowed individual Nations to take more control over their lands codes, which could theoretically decrease transaction costs when doing business with companies and agents off-reserve. The benefits of utilizing the FNLMA include lower transaction costs by eliminating the need for federal government approval of land designation, improvement in flexibility to deal with land related transactions, and a reported increase in non-First Nation business ownership on reserve (KPMG 2013). There are however, significant costs associated with setting up an autonomous land code, as well as liability issues for bands who are now in control of the administration of land (Flanagan and Alacantara, 2004).

Regardless of the type of land tenure that each individual nation chooses, the main vehicle for allowing non-band members to live on reserve property is the lease. Typically, a First Nations member or government will grant a head lease over a tract of land, with individual

sub-leases generated that can be sold to purchasers. An example on Vancouver Island would be a mobile home park. The entire park would be governed by a single head lease. Each individual pad (land to put the mobile home on) would be sub-leased. All the sub leases in the park would be governed by the head lease. Owners are free to purchase and sell their sub-leasehold interest in the property without further encumbrances from the head lease[3]. Once the head lease expires, all sub leasehold interests expire with it, although the physical home (whether a mobile or purpose-built single family dwelling) remains the property of the lessee upon expiry of the lease. Many of the head leases on First Nations land have terms of 50–99 years.

Figure 1 shows the approximate location of First Nation reserves on Vancouver Island. The Vancouver Island and Coast region shown in the black outline of the figure encompasses approximately 85,000 square kilometres of land on Vancouver Island and the central portion of B.C.'s mainland coastal region. Nearly half the region's residents reside in Victoria's CRD (Capital Regional District), 20% in Nanaimo and another 22% in smaller communities along the coast of the island. The rest of the region is sparsely populated and largely undeveloped. Many communities on the northern half of Vancouver Island and the mainland portion of the region are First Nations communities. Approximately 39,300 of the regional population identify as First Nations, which is the highest absolute First Nations population of any region in British Columbia (BC Assembly of First Nations, 2023).

While leasehold properties are very popular in the commercial real estate sector, they also exist in residential real estate in British Columbia. This makes the Vancouver Island data especially appealing, as it allows us to compare First Nations leased land to private leasehold

[3]Sub-lease owners must get permission from the head lease to transfer their interest, which usually cannot be unreasonably withheld. If the sub-lessee is in good standing with payments, then they can transfer their interest.

properties. These are owned by private corporations, government entities, or individuals. Most leasehold properties are not valued as high as fee simple properties due to the fact that there is some uncertainty on what happens at the end of the lease term, as well as the fact that one does not own the land the structure resides on, but simply the structure itself. Many leasehold properties also have maintenance regimes that are unfavourable to the lease-holder. Theoretically, these drawbacks of owning a leasehold property should be equivalent across geographical boundaries, including First Nation reserves. If they are not, there could be an extra mitigating factor that is hampering or augmenting values of property on reserve. One of those factors could be "uncertainty" on legal rights between non-First Nation members living on reserve and the first nation itself. We can look to the case *Musqueam Indian Band v. Glass*[4], in which judge Rothstein states:

> One consideration is the Indians' jurisdiction over the land and uncertainty relating to such matters as property taxation and, in particular, assessment for property taxation purposes by the Indian authority. Another is the publicized unrest on Indian reserves in British Columbia including road blockades in Penticton and Douglas Lake. A further reason is that non-natives cannot stand for election to the body governing the reserve, the Indian Band Council. Non-Indian residents have no vote on issues such as planning, zoning or taxation. Ministerial approval is needed for certain sales or mortgages or construction. Finally, services provided by the City of Vancouver are contracted but permanent arrangements have not been finalized

Musqueam Indian Band v. Glass looked at the difference in values between on reserve leasehold and fee-simple properties, but many of the points could be directly attributable to

[4] *Musqueam Indian Band v. Glass*, 2000 SCC 52

the property being on First Nation land, regardless of the type of land tenure.

By utilizing our Vancouver Island data that has only one type of land tenure, leasehold properties, one can reject that any significant difference in sale price on and off reserve is due to land tenure differences[5]. Therefore, any price differences found between on-reserve and off-reserve could imply that the specific legal institutions that govern land ownership and sale on reserve could affect market value of those properties. At the very least, the lack of knowledge of these legal institutions from non-reserve purchasers may cause this discrepancy.

3 Literature Review

There is a growing body of research on the effect of land ownership on several First Nation economic outcomes. Alcantara (2007) explores two case studies of the The Mississaugas of Scugog Island and Muskoday First Nation and finds that "land codes are effective mechanisms for addressing drag on on-reserve development" (pp 421). Previous studies have found a positive effect of private property ownership on-reserve on factors such as construction and housing quality, as well as a small positive effect on non-band member income; however, income of band members seems to be unrelated to previous increases in private land tenure in the community (Aragón and Kessler, 2020). Aragón (2015) looks into the effect of modern treaties on both on and off reserve income, and finds evidence that by clarifying property rights over land and natural resources, "modern treaties have reduced transaction costs and facilitated expansion of local extractive industries. This has translated into higher income for the local population" (pp 44).

South of the border, Leonard et al. (2020) draws a very interesting conclusion in that it

[5]When referring to land tenure, I am referring to the main structure of the land ownership. Technically, there would be different land tenures on each leasehold property depending on the structure of the sub-leases.

is not necessarily the quality of land inherited by Indigenous people that determines income levels, but the amount of ownership "fractionization" on allotted trust parcels. They find a U-shaped relationship between land quality and incomes on reservation. This is because of the specific history of the US Dawes Act and the fact that the quality of reserve land affected whether it was changed into fee-simple or not. Once land quality reached the approximate 40th percentile of quality, land began to be held in trust by the government, which lead through successive generations to many heirs to the same property. This caused a negative relationship between land quality and income, until approximately the 60th percentile. Anderson and Parker (2009) find evidence that creating institutions on reserve that are perceived as "stable" and "predictable" to non-Indian members can improve economic outcomes for American Indians living on reservations, which may provide some insight on why there could be a discrepancy in sale price on Vancouver Island. Anderson and Parker (2008) find that per-capita income on reservations that had dispute resolution systems run by the State of residence grew significantly faster than reservations that did not have State oversight. This gives credence to the idea that without clear rules and regulations that are understood by the non-Indigenous population, outside investment may lag on reserve compared to off reserve.

There is also a body of research on the different First Nation land regimes and certain characteristics of Nations that may encourage the choice of one land regime over another. One such study found that the communities that adopted freely transferable leasehold interests are precisely those communities that stand to gain the most from such interests (Lavoie and Lavoie, 2017). The current paper attempts to take a step back and look at the difference in property values across all nations on Vancouver Island (or at least all nations that have property to lease to the general public) to try and get a sense if there is an over-arching

difference in values simply because a property is on a reserve or not.

Closer to this paper's goal, there has been some research done in the United States linking reservation lands and property values, but mostly focused on a specific natural experiment, such as Akee (2009). Akee studied the late 1800s property division in Palm Springs to the Agua Caliente Nation and Non-Indian landowners, finding that the Agua Caliente reservation land created large transaction costs to development, and therefore suffered very little investment compared to non-Indian blocks of town. Once these restrictions were relaxed in 1959, the real estate values converged to those of non-Indian lands. Akee (2009) is close to the question that I would like to explore. However, in Akee (2009), one tract of land was freehold while the other was leasehold. Once Agua Caliente had the choice to convert their land to fee simple in 1959, the values converged. Therefore, Akee (2009) shows that values converged when both properties were fee simple. This paper focuses on whether they converge when both properties are leasehold.

While there is a dearth of literature on the relationship between neighbourhood composition and First Nation reserve values, many studies have established relationships between other racial compositions and neighbourhood desirability. St. John and Bates (1990) find that in Oklahoma City, white people rate neighbourhoods less favourably as percent of Black people increases, even when crime, neighbourhood characteristics, and distance from downtown are held constant. Previous studies have used a similar hedonic price model to look at the difference between white and Black neighbourhoods, and finds that property values lose at least 16 percent of their value when located in neighbourhoods that are more than 10 percent Black (Harris, 1999). This can be attributable to racial factors, socio-economic factors, or what Harris (1999) calls the "racial proxy hypothesis." Harris argues that people have concerns that poverty, joblessness and other socio-economic problems are contagious.

This leads to people moving out of neighbourhoods that have more low socio-economic status residents (Jencks et al., 1990). Further research would be needed to study the exact socio-economic composition on reserve compared to off reserve leasehold properties, and if the racial proxy hypothesis holds on reserve. Many First Nation reserves on Vancouver Island are seeing an influx of settler populations on their lands, but the socio-economic status of these populations would need to be explored further in the future.

One of the central drivers to this research is the potential economic outcomes from increased land values, with one possible pathway being the availability of credit. Meetings with planners from the Songhees Nation in Victoria seem to confirm these mechanisms, with officials stating that higher property values would allow for greater borrowing opportunities for Nation members, higher taxation for the Nation itself, and higher income to members when leasing out land to developers. We know that if the price of real estate goes up, a firm that holds a certain amount of real estate or land has unrealized capital gains and therefore a stronger balance sheet position. Since real estate serves as collateral for loans, the firm can borrow more for investment (Chen, 2001). Trosper (1978) studies the efficiency of American Indian ranching compared to fee-simple non-Indian ranchers. They argue that although Indian ranchers generated less output per acre, they were actually profit-maximizing given the Bureau of Indian Affairs (BIA) constraints on the land use, which limited their access to credit. In other words, a lack of credit availability may lead to lower productivity in a profit maximizing agent.

4 Methodology

Using similar methods to Fry and Mak (1984) as well as Hansz and Hayunga (2016), the first model is a hedonic price regression. This model attempts to pinpoint the value of specific real estate characteristics, based on sale prices and property features. The model takes the following form, where i indexes the property and m the month sold and t the year sold:

$$P_{imt} = \alpha + \theta FN_{imt} + R_{imt}\psi + \gamma_t + \lambda_m + \epsilon_{imt} \quad (1)$$

and

$$p_{imt} = \tilde{\alpha} + \tilde{\theta} FN_{imt} + R_{imt}\tilde{\psi} + \tilde{\gamma}_t + \tilde{\lambda}_m + \varepsilon_{imt} \quad (2)$$

Where

P = Sale price per foot of leasehold property.

p = Log (sale price per foot) of leasehold property.

α = Constant

FN = Indicator variable if property i is located on First Nation reserve, and zero otherwise.

R = Matrix of common real estate characteristics such as age, building type, bedrooms, bathrooms, and real estate sub-area.

γ and $\tilde{\gamma}$ = Fixed effects for the year sold.[6]

λ and $\tilde{\lambda}$ = Fixed effects for the month sold.

[6]Although I would prefer to control for the specific year and month together, there was not enough variation in the data to get useful results.

ϵ and ε = Standard error, clustered by sub-area.[7]

In both models, the null hypothesis will be that $\theta = 0$, with a test size of 5 percent. If $\theta = 0$ is not rejected, then I take it as evidence that there is little or no difference between leasehold properties on reserve and off.

It is important to note that the dependant variable is price per foot (PPF) of housing consumption, which is different from the total price of housing (which would be PPF x sqft). While many people outside of real estate economics consider the total price paid, PPF is a more accurate description of the price of housing, since many consumers will substitute the amount of housing (size of dwelling) consumed based on the price. While the total price paid could be ambiguous (lower price per foot but a larger house), PPF tends to decrease the further from the city centre, all things being equal. When PPF decreases, consumers tend to substitute towards more housing consumption, which explains why density is lower, building height is lower, and dwellings are larger in the suburbs (Brueckner, 2011).

The second analysis involves using an IV model with instruments I argue are correlated with the location of First Nation reserves, but uncorrelated with the price of housing or square footage. As instruments for the location of First Nation reserves, I use the distance to Fort Langley, as well as the elevation of the individual properties. The validity of the instruments relies on the assumption that both the distance to Fort Langley and elevation are significantly correlated to the location of First Nation reserves, while not directly affecting

[7]Several specifications are not clustered by sub-area. One is the IV regression for Manufactured Homes (Table 5 column 4). When including sub-areas in this regression, there is perfect collinearity between FN and the instruments. In other words, the first stage regression has an $R^2 = 1$. I believe this is due to the fact that there is very little, if no, mixing of FN and non-FN manufactured homes within the sub-areas. The first two columns of each sequential OLS regression in Tables 2, 3, 4, A1, A2, and A3 do not include sub areas, so the errors are heteroskedasticity robust.

the sold price of real estate on Vancouver Island. Below, I provide the intuition for why these variables should both be "relevant" and "excludable."

4.1 Fort Langley Instrument

The location of Fort Langley was primarily chosen to establish a "grand Pacific depot" at the mouth of the Fraser River. There was concerns that Fort George (Astoria, Oregon) would be settled by Americans during the Oregon Country dispute (see Figure 2), and the Fraser River seemed to possess other advantages over the Columbia, including providing direct access from New Caledonia to the Pacific. John McLoughlin, the superintendant of the Columbia Department from 1824-1845, found the Indigenous peoples inhabiting the lower Fraser River friendly and soil that was rich and fertile (Cullen and Thomas, 1979).

However, once Forts were established (including Fort Victoria and Fort Rupert), European settlers arrived, and it was deemed necessary by the colonists to resolve land claims with local First Nations in order to extinguish aboriginal title and give the land to the settlers. On Vancouver Island, James Douglas negotiated 14 treaties with several First Nations between 1850 and 1854, now known as the Douglas Treaties. With the exception of the T'Sou-ke Nation, these treaties were located on the East coast of Vancouver Island. Of course, the Douglas Treaties only represent a small fraction of total reserves on Vancouver Island. These Eastern Vancouver Island locations are closer to Fort Langley, which likely would have made them a popular choice for European colonists to establish. Therefore, I believe that the establishment of Fort Langley would have had an impact on the position and likelihood of a First Nation reserve being declared. Our analysis shows a significant positive relationship between our First Nations indicator variable and the distance to Fort Langley, confirming our assumptions that the Fort Langley instrument is relevant.

Arguably, the distance to Fort Langley does not directly influence property values on Vancouver Island. For example, Nanaimo is closer to Fort Langley than Sidney, which is closer than Victoria. However, Nanaimo has the lowest average price of a home of the three cities. Going further away from Fort Langley, prices start decreasing rapidly (towards the West Coast of Vancouver Island). Overall, there is no discernible pattern linking distance from Fort Langley to property values, which aligns with the exclusion restriction requirements for valid instruments. This excludability could be due to transportation advancements over the past 150 years. Originally, all settlements on Vancouver Island were serviced by ship. Once automobiles took over as the dominant method of transportation on Vancouver Island, property values have adjusted according to the opportunity cost of travel time, which is no longer determined by the wind and currents. The excludability also feasibly holds due to the fact that the very conditions that made Fort Langley a desirable location (friendly First Nations and fertile soil) are no longer relevant to property values in the Lower Mainland of British Columbia or Vancouver Island.

While the local First Nations along the Fraser River likely influenced the founding of Fort Langley, there is no evidence to suggest that the location was chosen due to proximity to Vancouver Island Nations. Therefore, we will assume the location of Fort Langley is relevant for the establishment of First Nation reserves, but that the existence of First Nations on Vancouver Island did not cause the establishment of Fort Langley. Therefore, we will assume the Fort Langley instrument is exogenous in this regard.

4.2 Elevation Instrument

Since time immemorial, First Nations groups on Vancouver have reaped the vast resources of the Pacific Ocean for sustenance. Traditional foods include fish, bi-valves, herring roe,

sea cucumber, abalone, octopus, and seaweed (Davis and Twindale, 2011). Locations of First Nation reserves on Vancouver Island are almost exclusively located along the coast. Exceptions include the We Wai Kai Nation and Ts'uubaa-asatx Nation[8]. Due to the deep and timeless relationship that the Nations on Vancouver Island have with the Pacific Ocean and Salish Sea, the elevation of many of the existing reserves are very low; they are almost exclusively within 20 meters of sea level. Therefore, we would expect to see a negative relationship between elevation and our First Nation indicator variable. Thus, we argue elevation is a relevant instrument.

One could be hard-pressed to think of an instrument more exogenous than elevation, as this is the result of the Earth's tectonic plate movement over millions of years. There is also little evidence that elevation directly affects house prices in our model. One could ask if elevation would affect sale price through other observable characteristics like ocean view. That is certainly plausible, although houses with high elevations overlooking water are equally likely to fetch higher sale prices. The one variable that we have not controlled for in this model is "ocean front", which likely does command a price premium. That said, there are always houses one street back from the ocean at the same elevation that do not command a premium. Overall, in our sample, there are high-priced properties at higher elevation and lower elevation, so on average, elevation does not seem to be directly linked to sale price, thereby satisfying the exclusion restriction.

[8]BC Assembly of First Nations, 2023b

5 Data

The data used in this analysis comes from the Multiple Listing Service (MLS®) that is operated by the Vancouver Island and Victoria Real Estate Board. These two boards cover almost all MLS properties on the Island. When listing a property for sale on Vancouver Island, you do have the option to list the property on an outside board (such as the Vancouver Real Estate Board), but it is quite rare[9]. The data set is from the years of 1989-2023 and includes over 3000 leasehold property sales.

It is important to note that not all properties are transacted through the MLS[10]. Private transactions do occur and are not reported through the MLS system. These sales would be reported at the Land Title Office, but many of the characteristics of the property sold would not be disclosed, such as square foot and age. The number of non-MLS® sales is estimated to be low compared to the sample size, so should not affect the results.

The information contained in an MLS® listing is produced by the Realtor® under contract to list the property for sale. As this is a human process, errors can and do occur in the production of listing information. For the variables that we are investigating, I would find it unlikely that there would be errors. Number of bathrooms, bedrooms, and square footage of a home are easily discoverable and verifiable. Lot size is usually taken from BC Assessment records[11].

[9] Of the 5429 active listings current available on Vancouver Island, only 7 are posted by an outside real estate board

[10] When comparing the sales through the land title office to the MLS statistics, the number of sales in common residential regions tend to be within 5% of each other. Unfortunately, the land title jurisdiction boundaries differ from the MLS boundaries, so this comparison is difficult

[11] A common real estate characteristic, *days on market* was not used in the hedonic price analysis. After careful consideration of the data, I believe this parameter is unreliable as a true measure of the length of time a property was for sale. From my previous experience in real estate, I am aware that many developers sell their properties outside the MLS system, and simply report the sale later with zero days on market. This seemed to occur often in the data, particular in the Sun-River development in Sooke. Re-setting the days on market parameter is a common real estate tactic to make a property look like it has not been on the market for a long period, thereby attracting new entrants to the market.

Unfortunately, there was some ambiguity in the classification of manufactured homes in the MLS system. There was a large contingent of manufactured homes that were classified as "other". When I contacted the Victoria Real Estate Board, they confirmed that the "other" classification is simply a catch-all for when an agent feels the property does not fit in the other standard classifications. Upon review of each listing, I determined that almost all the "other" labelled properties were in fact manufactured homes, so they were included in the analysis as such.

Upon further analysis of the data set, it was found that there were only two types of property that were more or less equally represented by First Nation and non-First Nation properties; Single Family Dwellings and Manufactured Homes. This is shown in Figure 3. Therefore, we analyze both the entire sample (with all four property types), and subsamples with single family and manufactured homes as standalone property segments.

Lastly, as can be seen in Figure 4, the properties outside of the Capital Regional District (i.e. North of Mill Bay) did not have balance in any property category between First Nations and non-First Nation properties. The Central and North Island had almost no sales on First Nations reserves. This is likely because the property markets in the Central and North Island areas are much less robust than the South Island, and the financial incentives for Nations in this area to develop and lease their land is low or non-existent. In the author's opinion, including these properties and their respective sub-area fixed effects did not create any more clarity on the effect of First Nation properties on house prices. I did however include regressions run with the entire Island sample in the Appendix (Tables A1, A2, A3), which do not vary in any significant way from our CRD results.

6 Results

Figure 5 shows the average sale price per foot for all housing types in our sample. Between 2000-2015, the average sale price per foot was fairly similar between First Nation and non-First Nation properties. However, since 2015 these sale prices have begun to diverge. Figure 6 may help explain the reason for this diversion. Although the price of housing (price per foot) is higher for non-First Nation property, this could be due to the influx of larger properties being sold and marketed on First Nation land compared to years past. Notice that in Figure 6, average sale prices are actually increasing for First Nation properties more than non-FN properties. It is common in real estate to see larger properties have a lower price per foot, as people substitute towards larger (i.e., more) housing as the price decreases. Housing is a normal good in this regard.

Summary statistics for the data are shown in Table 1. We immediately notice significant differences between First Nation and non-First Nation property sales. First, the mean sale price on reserve is $23,857 higher on reserve than off. This is not necessarily insightful, as the difference could be entirely attributable to both the sale year of the subject property.

The mean age of a home when sold on reserve is on average 8.22 years lower on reserve compared to off. This is an interesting statistic, which may indicate that properties built on First Nations land tend to get re-sold more quickly compared to off reserve. The average year built of homes on First Nations property is over 8 years newer than off reserve properties. This may be attributable to both the historic suppression of First Nations land management through the Indian Act, or changing attitudes towards First Nations from the settler population. Regardless, it does seem to indicate that properties were built and marketed close to a decade later on average on First Nations land.

The average number of bedrooms and bathrooms on reserve is higher than off-reserve, which I would attribute to the large number of smaller condominiums constructed off-reserve compared to on reserve. The average year and month sold are almost identical, which provides evidence that there is a balanced data set between off and on reserve in terms of time and date of sale. Lastly, we see a statistically significant difference in both elevation and distance to Fort Langley between on reserve and off reserve sales, which gives credence to our beliefs that both variables are relevant.

Next, we explore the distribution of price per foot and log price per foot. Figure 7 shows the distribution of the level of PPF. We see that PPF is skewed to the right, which will make inference and statistical significance problematic. One of the reasons for the skewness is the dynamic nature of our data, which moves through several decades of property sales. As Figure 5 showed, sale price per foot has steadily increased throughout the years in our sample. As higher priced sales are added to the existing distribution, the tail to the right starts to get thicker. Once we take the log of PPF however, the distribution approaches a more normal distribution. This is shown in Figure 8. Using the log also allows us to interpret the regression coefficients in a more intuitive way, by showing the percentage increase or decrease in price per foot when the property is located on First Nations land. Therefore, we will prefer to work with the log of price per foot.

Output from the first sequential OLS hedonic price regression on sold price per foot (PPF) and log sold price per foot (lPPF) is shown in Table 2. In the first columns of both Panel A and B, we regress the dependant variable on the First Nations indicator variable while controlling for the type of property sold. In the second columns of both panels, we include sixty sub area controls. In the third columns, we additionally control for age of structure. Finally, in column five of each panel we control for most other real estate characteristics

include bedrooms and bathrooms.

In the preferred specifications of column 5 in Panel A and B, properties located on First Nation land are associated with a lower price per foot and log price per foot of approximately $53 and 31% respectively, when all other real estate characteristics are controlled for. These results are significant at the 5% and 1% levels respectively.

Table 3 presents the same sequential OLS hedonic regression as Table 2, but with a subsample of properties that are all single family dwellings. In the preferred specifications (column five in both panels), properties located on First Nation land are associated with a lower price per foot and lower log price per foot of approximately $105 and 21% respectively, when all other real estate characteristics are controlled for. These results are both significant at the 1% level. Reasons for the lower sale price of single family dwellings could be attributed to neighbourhood effects (lower average income on reserve) or discrimination against First Nations. Further research in this field is required.

Table 4 presents the same sequential regression as Table 2 and Table 3, but with a subsample of properties that are all manufactured homes. In the preferred specifications (column five in both panels), properties located on First Nation land are associated with a higher price per foot and higher log price per foot of approximately $3.50 and 23% respectively, when all other real estate characteristics are controlled for. These results are both significant at the 1% level. Looking at the single family dwelling and manufactured homes subsamples allow us to dissect what is happening in the overall sample results. We see that the decrease in prices associated with single family houses on reserve is driving the overall decrease seen in Table 2. What is not apparent from Table 2 is that there is actually a positive relationship between price per foot and the property being located on a First Nation reserve for Manufactured Homes.

Next, Table 5 presents the results of the Instrumental Variables specification. In this case, the dependent variable is log price per foot. The first two columns include all properties in the CRD, while columns 3 and 4 include only Manufactured Homes. Columns 5 and 6 include only Single Family Houses. The odd columns (1,3 and 5) are the OLS regression results that correspond to Tables 2, 3, and 4. The even columns (2, 4, and 6) represent the fully controlled IV results with associated F statistics for the instruments. As we can see from Column 2, the IV specification on the entire sample does not yield a statistically significant result. This is likely because we are trying to identify two competing factors (the positive correlation between manufactures homes and first nation reserves, and the negative correlation between single family dwellings and reserves). However, looking at column 4, the IV specification reports a 20.9% increase in price per foot of manufactured homes on reserve when controlling for all other real estate factors, which is significant at the 1% level. Lastly, column 6 shows the IV specification for Single Family Homes. Homes located on reserve are associated with a 29.1% decrease in price per foot compared to on reserve. On both the single family dwelling and manufactured homes samples, the IV results compliment the OLS hedonic regression results. The associated F-statistics for the First Stage regressions on the all-property, manufactured homes, and single family dwellings are 13, 9918, and 137 respectively. The lower F-statistic on the all-property sample is likely due to the two property types with opposite correlations cancelling each other out. The F-statistics on the manufactured home and single family dwelling suggest the instruments are relevant in these specifications.

Continuing our look at Table 5, the IV specifications for all properties and single family dwellings (columns 2, and 6), the Hansen-J statistics are 0.372 and 0.002 respectively. Therefore, we fail to reject the null that the instruments are both valid at the 5% level. For

the manufactured home specification, the Hansen-J statistic is 9.75, which casts doubt on the validity of at least one of the instruments for this subsample. This is due to the fact that we could not include sub area controls in this specification, as there is very little if no mixing of First Nation and non-First Nation manufactured homes within the sub areas. When sub areas are included in the first stage regression, those instruments perfectly predict the existence of a First Nation sale (first stage R^2 of 1). When running the IV regression on the entire sample, which has more manufactured sales in different sub areas, this issue is not present. Looking at the Hausman endogeneity test results, we fail to reject the null that the instruments are exogenous at all normal significance levels. In other words, the coefficients for being on First Nation property in the OLS and IV treatments are not significantly different from each other.

Due to the high Hansen-J statistic in the manufactured home IV regression, we present Tables A.7 and A.8 in the appendix, which compare the IV results using both instruments, or each instrument on their own. The results are consistent across each specification, although there appears to be more evidence that the distance to Fort Langley is a stronger instrument than elevation, judging by the first stage F statistics and the adjusted R^2.

It may initially seem surprising that single family dwellings selling on reserve are associated with a higher sale price compared to off reserve, while the opposite is true for manufactured homes. Further analysis of the manufactured home property market shows that all mobile homes located on non-First Nation property are subject to shorter term tenancies, with a high degree of risk that the property will eventually be sold in order for the owner to realize large capital gains. The opposite is true on First Nation reserves. Not only can the property not be sold for a large capital gain, but leases on First Nation mobile home parks are significantly longer, sometimes up to 40 years, compared to month-to-month in

private parks. Therefore, the security for mobile home purchasers on First Nation land is much higher. This could explain the reason why manufactured homes on reserve are associated with higher prices per foot of housing. Contrast this to the single family dwelling market, where many of the houses on private land also had long term leases (many were 100 years). Therefore, the security discrepancy on reserve and off reserve for single family dwellings does not exist.

6.1 Robustness Tests

While our initial results are both statistically and economically significant, there was some concern that other large-scale events that occurred during the data collection period could be influencing the results. We present tables A.4, A.5, and A.6 in the Appendix, which show our initial OLS hedonic price regression results in the full model specification (columns 1 and 4), omitting the COVID-19 pandemic years (columns 2 and 5) and omitting both the COVID-19 pandemic years and the great recession years (columns 3 and 6). As the tables show, the results do not vary much at all, nor does the adjusted R^2. When eliminating both the COVID-19 and great recession years, the difference between the full specification is approximately $7 per foot and 3 percentage points in the logged case for the entire CRD sample. The results vary even less in the full Vancouver Island sample, with the aforementioned difference of $4 per foot and 2 percentage points respectively.

7 Conclusion

In Canada, there are 677,000 Indigenous households living in urban, rural and northern areas. Of those households, 124,000 are in housing need (Office of the Parliamentary Budget Officer,

2021). While the majority of the existing literature focuses on the relationship between land management systems and outcomes such as income, provision of public goods, and health, this paper is the first of its kind to quantitatively measure the difference between on reserve and off reserve housing prices. This paper attempts to cut right to the potential source of wealth - the real estate prices themselves. Access to capital for new projects requires collateral, and higher real estate valuations are part of the solution. At a micro-economic level, higher real estate values allow individual property holders to increase borrowing, which may allow further investment in real estate ventures or upgrades to existing infrastructure. At the Nation level, a Band with higher property values could potentially increase the tax base of non-First Nation leaseholders on reserve, which can finance other important projects on reserve.

This paper has shown that there is an economic and statistically significant relationship between property located on first nation reserves and sale price of housing. While single family dwellings have a lower sale price on reserve, manufactured homes actually sell for more. While this may point to an inherent bias against First Nation property in the single family market, the fact that manufactured homes sell for more on reserve potentially show us that housing consumers do adapt to market forces (such as perceived risk) and do not base housing decisions solely on preconceived notions of ethnicity or race.

I hope this research can be used to further close the gap on First Nations on reserve income compared to non-Indigenous income. By increasing future property values on reserve, First Nation members can leverage more credit to create wealth, while also increasing their property tax base. In the future, we will look for the reasons why we see these discrepancies between on reserve and off reserve housing, including the effects that the current credit regulations have on both types of properties. Eventually, the goal is to find and eliminate

potential roadblocks for First Nation housing prices and offer solutions to bring additional economic value to communities across Canada.

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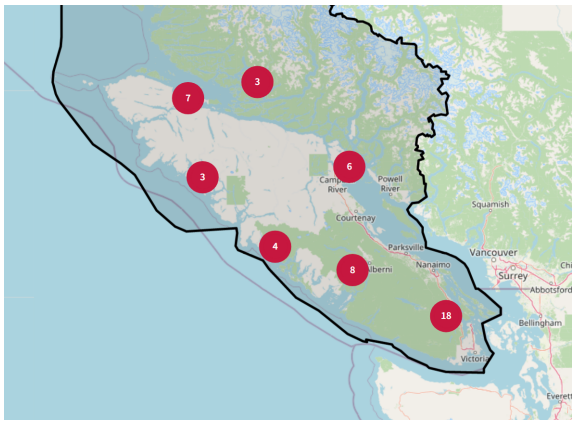
8 Figures

Figure 1: Locations of First Nations Reserves - Vancouver Island

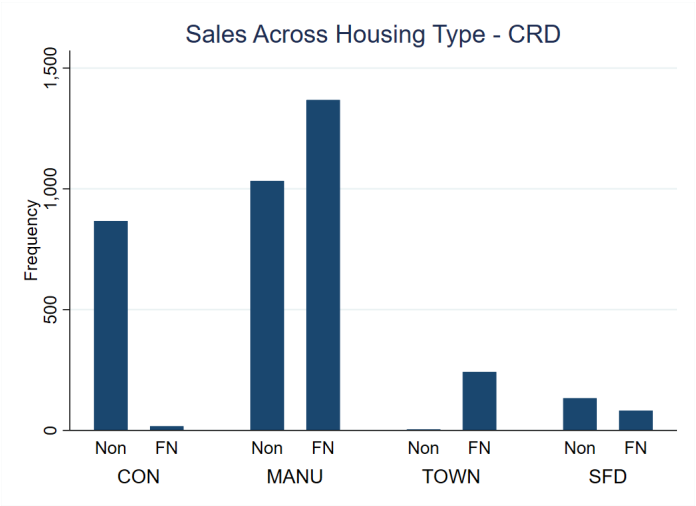


Notes: This figure shows the relative locations of First Nation reserves on Vancouver Island and the North Coast. Source: BC Assembly of First Nations (2023) https://www.bcafn.ca/first-nations-bc/interactive-map

Figure 2: Oregon Territory Dispute

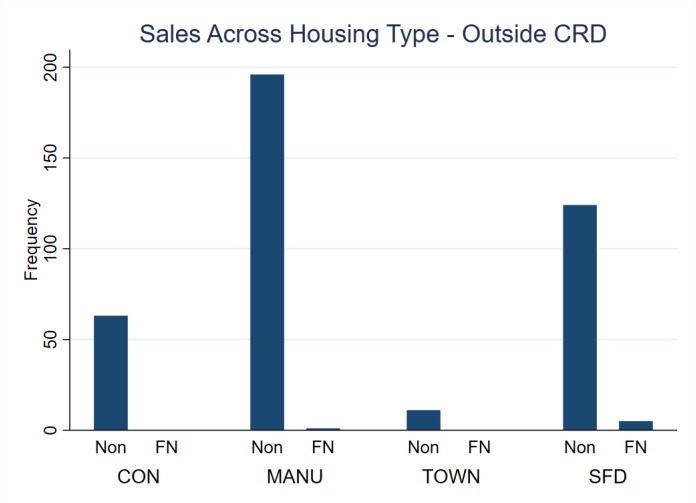
Notes: Oregon Country by Kmusser is used under a CC-BY-SA 2.5 license. This figure shows the territorial disputes between the British and Americans during the Oregon Boundary Dispute (or Oregon Question). British claims reached as low as the 42nd parallel, while American claims reached as high as the 54th parallel. Eventually, the Oregon Treaty established the boundary at the 49th parallel (excluding Vancouver Island and the Southern Gulf Islands). The British established Fort Langley in the event their southern claims were rejected.

Figure 3: Number of Sales By Housing Type - Capital Regional District



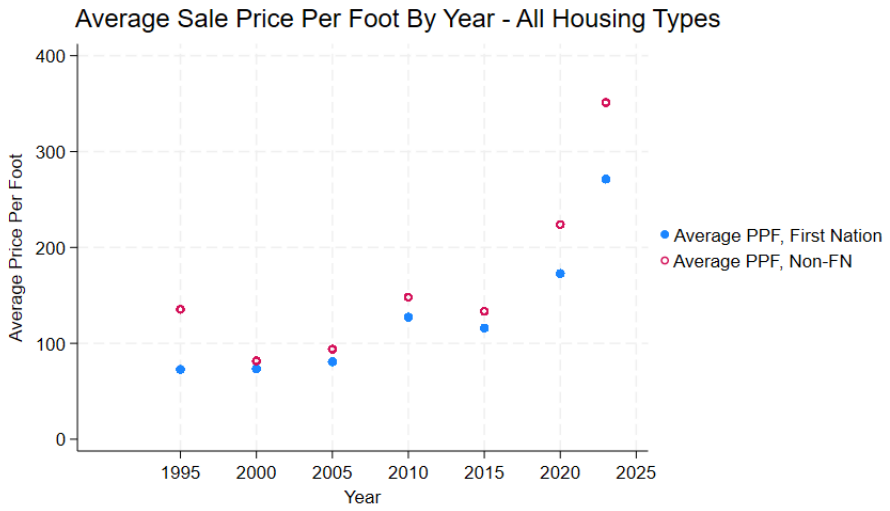
Notes: This figure shows the balance of properties between those located on First Nation reserve and those located off reserve for the reduced sample of the Capital Regional District (CRD). The four main property types (Condo, Manufactured Home, Townhouse and Single Family Dwelling respectively) are shown on the horizontal axis. It is clear that both Townhouses and Condos do not have enough First Nation sales to provide covariate balance. Hence why we have executed regressions for both manufactured homes and single family dwellings separately.

Figure 4: Number of Sales By Housing Type - Rest of Vancouver Island



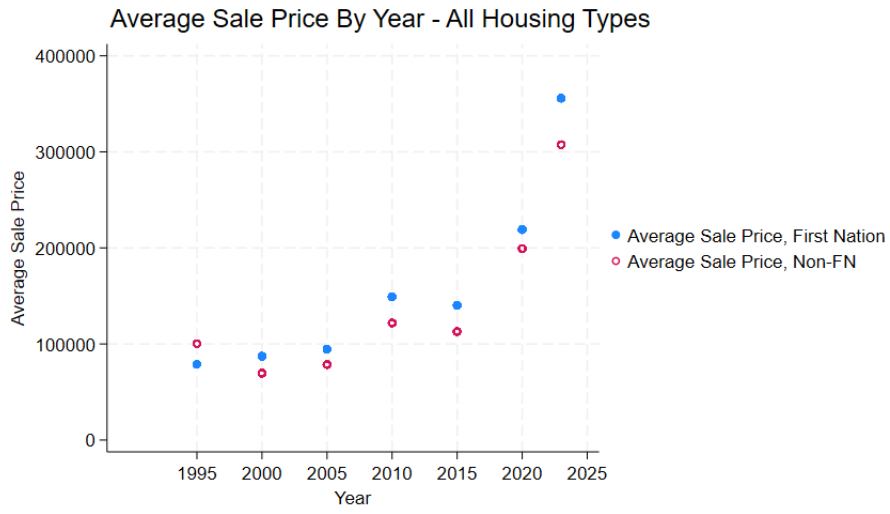
Notes: This figure shows the balance of properties between those located on First Nation reserve and those located off reserve for the entire Vancouver Island sample. The four main property types (Condo, Manufactured Home, Townhouse and Single Family Dwelling respectively) are shown on the horizontal axis. It is clear that all property types do not have enough First Nation sales to provide covariate balance. Hence why we have executed regressions based on the CRD sample.

Figure 5: Average PPF by Year - All Housing Types



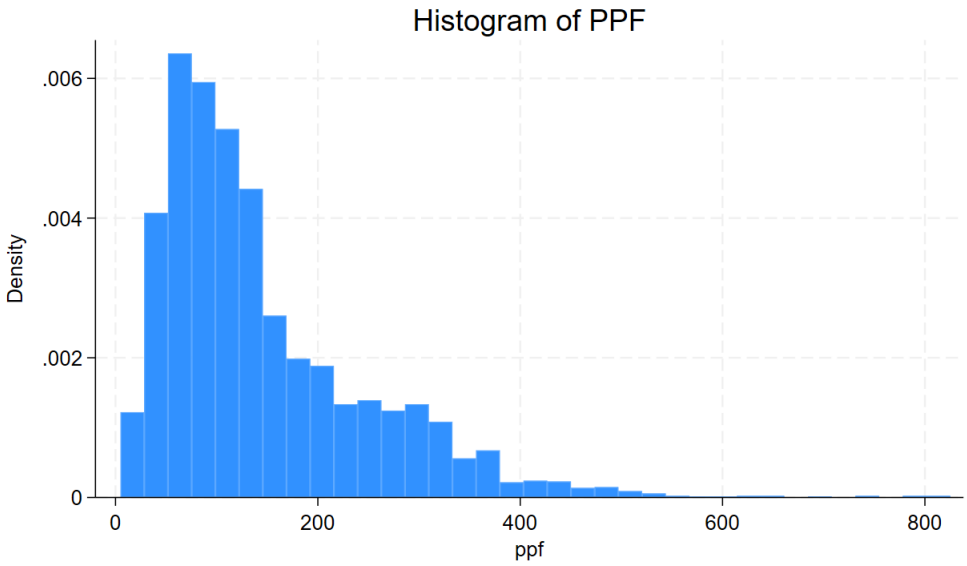
Notes: This figure shows the average sale price per foot for First Nation (blue) and non-First Nation (hollow-red) properties, based on five year groupings. When looking at price per foot, First Nation continually lags behind non-First Nation properties, with the gap increasing.

Figure 6: Average Sale Price By Year - All Housing Types



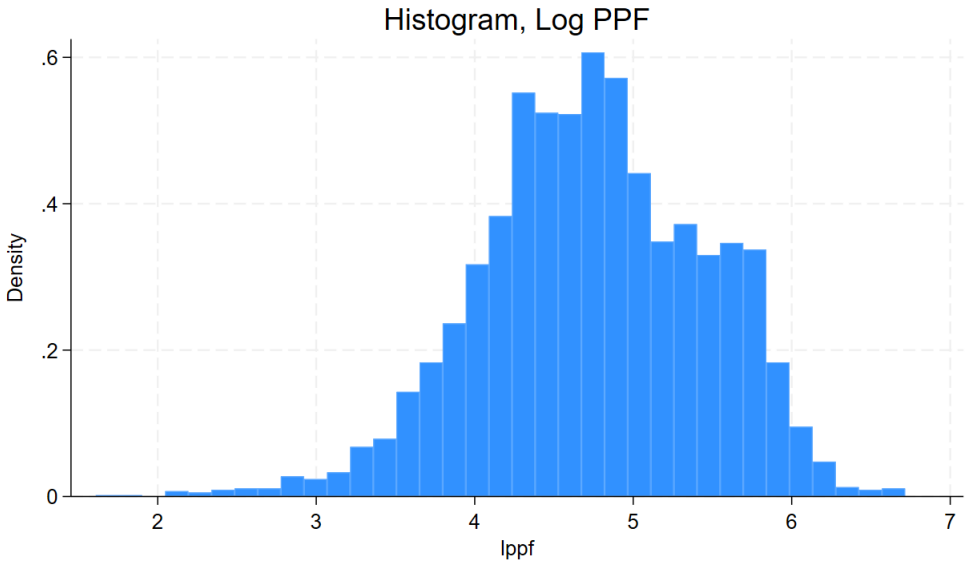
Notes: This figure shows the average sale price for First Nation (blue) and non-First Nation (hollow-red) properties, based on five year groupings. When looking at total sales price, First Nation properties have sold for higher on average than non-First Nation properties since 1995. This evidence, combined with Figure 5, would suggest that First Nation properties have a higher average square footage than non-First Nation properties.

Figure 7: Histogram of Price Per Foot



Notes: This figure shows the distribution of sold price per foot for our CRD sample. As properties sell later in the sample, their price per foot increases. Therefore, we have skewness to the right.

Figure 8: Histogram of Log Price Per Foot



Notes: This figure shows the distrobution of log price per foot in the CRD sample. Once the log transformation is taken, the distribution is closer to a normal distribution, which is required for statistical inference.

9 Tables

Table 1 - Summary Statistics by Reserve Status - Full Sample

	(1) Reserve Mean (sd)	(2) Not Reserve Mean (sd)	(3) Difference
Price Sold	163712.90	139200.00	-23856.83***
	(121327.20)	(114280.50)	
Age of Home	20.79	29.01	8.22***
	(10.34)	(14.63)	
Build Year	1988.18	1979.54	-8.64***
	(9.87)	(14.68)	
# Beds	2.24	1.94	-0.30***
	(0.48)	(0.83)	
# Baths	1.74	1.36	-0.37***
	(0.50)	(0.55)	
Finished Square Feet	1197.13	940.28	-254.48***
	(248.36)	(343.66)	
Year Sold	2008.97	2008.55	-0.45
	(8.02)	(7.84)	
Month Sold	6.43	6.34	-0.08
	(3.19)	(3.27)	
Elevation	20.99	100.27	79.59***
	(7.53)	(219.95)	
Miles from	56.55	69.38	12.97***
Fort Langley	(3.29)	(14.94)	
Observations	1710	2392	683

Notes: This table displays sample means with standard deviations below in parentheses. Column (1) reports summary statistics for properties sold on First Nation reserves. Column (2) reports summary statistics for properties sold off reserve. Column (3) reports the difference in means tests between column (1) and column (2).
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2 - Sequential Regression, All Types CRD

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	-26.45***	-29.60***	-84.94***	-52.24**	-53.27**
	(3.27)	(2.33)	(24.36)	(24.36)	(24.50)
Age				-3.01***	-3.02***
				(0.35)	(0.37)
Beds					-22.50***
					(8.09)
Beds^2					3.07*
					(1.74)
Baths					-0.35
					(2.94)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Prop Type Con	N	N	Y	Y	Y
Observations	3736	3736	3736	3720	3720
Adjusted R^2	0.016	0.500	0.802	0.843	0.845

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	-0.013	-0.026	-0.462**	-0.302**	-0.312***
	(0.02)	(0.02)	(0.23)	(0.14)	(0.14)
Age				-0.026***	-0.025***
				(0.00)	(0.00)
Beds					-0.023
					(0.05)
Beds^2					-0.004
					(0.01)
Baths					0.058***
					(0.02)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Prop Type Con	N	N	Y	Y	Y
Observations	3736	3736	3736	3720	3720
Adjusted R^2	0.000	0.423	0.792	0.851	0.853

Notes: This table displays coefficient estimates from OLS specifications. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area, property type, or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and property type controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3 - Sequential Regression, Single Family Houses CRD

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	-56.65***	-8.75	-127.21***	-131.57***	-105.46***
	(16.17)	(18.95)	(9.84)	(6.61)	(10.48)
Age				-2.47	-3.25**
				(1.80)	(1.49)
Beds					14.83
					(55.40)
$Beds^2$					-5.11
					(11.17)
Baths					-18.99
					(13.33)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	207	207	207	206	206
Adjusted R^2	0.062	0.666	0.855	0.887	0.900

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	-.244***	-0.070	-0.248***	-0.263***	-0.209***
	(0.06)	(0.06)	(0.04)	(0.02)	(0.03)
Age				-0.018**	-0.020***
				(0.01)	(0.01)
Beds					0.014
					(0.11)
$Beds^2$					-0.013
					(0.02)
Baths					-0.041
					(0.04)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	207	207	207	206	206
Adjusted R^2	0.100	0.774	0.908	0.939	0.947

Notes: This table displays coefficient estimates from OLS specifications for Single Family Houses only. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4 - Sequential Regression, Manufactured Homes

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	54.11***	39.95***	21.93***	4.436***	3.592*
	(1.71)	(1.95)	(1.35)	(1.35)	(1.89)
Age				-3.070***	-2.979***
				(0.29)	(0.31)
Beds					12.17
					(9.11)
Beds^2					-3.286*
					(1.79)
Baths					4.546**
					(1.83)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	2400	2400	2387		
Adjusted R^2	0.150	0.648	0.666	0.787	0.789

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	0.654***	0.504***	0.276***	0.276***	0.229***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Age				-0.0273***	-0.0258***
				(0.00)	(0.00)
Beds					0.486**
					(0.16)
Beds^2					-0.085***
					(0.029)
Baths					0.081***
					(0.02)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	2400	2400	2387	2387	2387
Adjusted R^2	0.218	0.609	0.650	0.765	0.770

Notes: This table displays coefficient estimates from OLS specifications for Manufactured Homes only. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 - Log Price Per Foot Results by Property Type and Regression Method

	(1) lPPF	(2) lPPF	(3) lPPF	(4) lPPF	(5) lPPF	(6) lPPF
FN	-0.312***	3.068	0.229***	0.242***	-0.209***	-0.291***
	(0.14)	(4.23)	(0.03)	(0.02)	(0.03)	(0.13)
Age	-0.025***	-0.027***	-0.026***	-0.024***	-0.020***	-0.020***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Beds	-0.023	-0.041	0.486**	0.483***	0.014	0.021
	(0.05)	(0.06)	(0.16)	(0.14)	(0.11)	(0.10)
$Beds^2$	-0.004	0.003	-0.078***	-0.081***	-0.013	-0.014
	(0.01)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Baths	0.059***	0.053***	0.081***	0.087***	0.042	0.033
	(0.02)	(0.03)	(0.02)	(0.01)	(0.04)	(0.03)
Property Type	ALL	ALL	MANU	MANU	SFD	SFD
Regression Type	OLS	IV	OLS	IV	OLS	IV
First Stage F-Stat		13.46		9918		137
Hansen J Stat (p-value)		0.54		0.0018		0.96
Hausman Endog (p-value)		0.42		0.26		0.16
Observations	3720	3720	2387	2387	206	206
Adjusted R^2	0.857	0.019	0.778	0.522	0.96	0.343

Notes: This table displays coefficient estimates from both the OLS and IV specifications for the reduced sample. The dependent variable is log price per foot. Columns (1) and (2) include all properties in the CRD, while columns (3) and (4) include only Manufactured Homes. Columns (5) and (6) include only Single Family Houses. The odd columns (1),(3) and (5) are the OLS regression results that correspond to column (5) in Tables 2, 3, and 4. The even columns (2), (4), and (6) represent the fully controlled IV results with associated F statistics for the instruments. Note than in Columns (5) and (6) I am unable to cluster the standard errors due to sample size. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A Appendix

Table A.1: Sequential Regression, All Types - Full Sample

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	-22.91***	-26.36***	-76.61***	-51.93***	-55.72***
	(3.11)	(2.19)	(17.33)	(17.72)	(18.82)
Age				-2.871***	-2.860***
				(0.33)	(0.34)
Beds					-15.39*
					(8.72)
Beds^2					1.53
					(1.74)
Baths					0.309
					(2.64)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Prop Type Con	N	N	Y	Y	Y
Observations	4139	4139	4139	4102	4102
Adjusted R^2	0.011	0.491	0.800	0.841	0.842

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	0.008	-0.007	-0.450***	-0.325***	-0.327***
	(0.02)	(0.02)	(0.19)	(0.11)	(0.12)
Age				-0.024***	-0.023***
				(0.00)	(0.00)
Beds					-0.016
					(0.05)
Beds^2					-0.005
					(0.01)
Baths					0.074***
					(0.02)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Prop Type Con	N	N	Y	Y	Y
Observations	4139	4139	4139	4102	4102
Adjusted R^2	0.000	0.415	0.786	0.842	0.844

Notes: This table displays coefficient estimates from OLS specifications for the entire Vancouver Island sample. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area, property type, or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and property type controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.2: Sequential Regression, Single Family Houses - Full Sample

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	24.261	5.006	-111.459***	-108.73***	-81.425***
	(16.37)	(13.08)	(18.70)	(14.68)	(15.90)
Age				-3.062***	-3.823***
				(0.81)	(0.83)
Beds					1.987
					(11.02)
Beds^2					-1.410
					(1.50)
Baths					-29.071**
					(6.24)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	335	335	335	316	316
Adjusted R^2	0.004	0.670	0.831	0.876	0.888

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	0.121*	0.042	-0.201***	-0.205***	-0.136***
	(0.07)	(0.05)	(0.06)	(0.05)	(0.05)
Age				-0.016***	-0.019***
				(0.00)	(0.00)
Beds					0.004
					(0.03)
Beds^2					-0.007
					(0.00)
Baths					-0.077***
					(0.01)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	335	335	335	316	316
Adjusted R^2	0.005	0.728	0.882	0.920	0.927

Notes: This table displays coefficient estimates from OLS specifications for the entire Vancouver Island sample of Single Family Houses. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area, property type, or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and property type controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: Sequential Regression, Manufactured Homes - Full Sample

Panel A: Dependent Variable is Price Per Foot (PPF)

	(1)	(2)	(3)	(4)	(5)
FN	53.115***	39.728***	15.217	62.727***	66.533*
	(2.46)	(1.65)	(12.17)	(10.69)	(9.80)
Age				-2.879***	-2.771***
				(0.30)	(0.32)
Beds					12.818
					(8.29)
Beds^2					-3.425**
					(1.63)
Baths					5.980**
					(2.10)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	2598	2598	2598	2583	2583
Adjusted R^2	0.148	0.639	0.669	0.783	0.785

Panel B: Dependent Variable is Log Price Per Foot (lPPF)

	(1)	(2)	(3)	(4)	(5)
FN	0.813***	0.654***	0.073***	0.655***	0.779***
	(0.02)	(0.02)	(0.05)	(0.07)	(0.06)
Age				-0.026***	-0.025***
				(0.00)	(0.00)
Beds					0.542**
					(0.15)
Beds^2					-0.085***
					(0.03)
Baths					0.098***
					(0.03)
Time Controls	N	Y	Y	Y	Y
Sub Area Controls	N	N	Y	Y	Y
Observations	2598	2598	2598	2583	2583
Adjusted R^2	0.211	0.597	0.644	0.752	0.760

Notes: This table displays coefficient estimates from OLS specifications for the entire Vancouver Island sample of Manufactured Homes. Panel A reports estimates using price per foot as the dependent variable, while Panel B reports estimates using log price per foot as the dependent variable. Column (1) does not use any sub area, property type, or time controls. Column (2) introduces time controls. Column (3) introduces sub-area and property type controls. Column (5) adds age as a regressor. Column (6) is the preferred specification with most common real estate characteristics controlled for. Standard errors are in parenthesis.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: Hedonic Price Regression Results

	(1) PPF	(2) PPF	(3) PPF	(4) lPPF	(5) lPPF	(6) lPPF
FN	-53.27**	-52.28**	-46.01*	-0.312***	-0.306**	-0.280**
	(24.497)	(22.728)	(23.901)	(0.138)	(0.139)	(0.153)
Age	-3.023***	-2.764***	-2.779***	-0.0246***	-0.0248***	-0.0249***
	(0.369)	(0.330)	(0.342)	(0.002)	(0.002)	(0.002)
Beds	-22.50***	-25.02***	-23.38***	-0.0228	-0.0460	-0.0448
	(8.088)	(8.740)	(8.412)	(0.052)	(0.054)	(0.050)
$Beds^2$	3.074*	3.979**	3.704**	-0.00386	0.00247	0.00230
	(1.741)	(1.851)	(1.751)	(0.011)	(0.012)	(0.011)
Baths	-0.350	3.414**	2.471	0.059***	0.068***	0.0613***
	(2.941)	(1.470)	(1.566)	(0.017)	(0.018)	(0.020)
Observations	3720	3457	3185	3720	3457	3185
Adjusted R^2	0.845	0.837	0.837	0.853	0.836	0.837

Notes: This table displays results from an OLS hedonic price regression for all property types in the CRD sample. Columns (1) to (3) have price per foot as the dependent variable. Columns (4) to (6) have log price per foot as the dependent variable. Columns (1) and (4) include all years. Columns (2) and (5) exclude COVID-19 Pandemic years. Columns (3) and (6) exclude COVID-19 and Great Recession Years. Property type, sub-areas, and time is controlled for in all specifications. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: Hedonic Price Regression Results - Manufactured Homes

	(1) PPF	(2) PPF	(3) PPF	(4) lPPF	(5) lPPF	(6) lPPF
FN	3.592*	3.869**	6.171***	0.229***	0.225***	0.270***
	(1.886)	(1.891)	(1.969)	(0.026)	(0.025)	(0.026)
Age	-2.979***	-2.905***	-3.023***	-0.0258***	-0.0262***	-0.0260***
	(0.307)	(0.296)	(0.321)	(0.002)	(0.002)	(0.002)
Beds	12.17	10.72	12.11	0.486**	0.471**	0.487**
	(9.110)	(9.273)	(10.183)	(0.155)	(0.156)	(0.159)
$Beds^2$	-3.286*	-2.892	-3.203	-0.079***	-0.076***	-0.079***
	(1.786)	(1.731)	(2.038)	(0.028)	(0.028)	(0.029)
Baths	4.546**	5.257***	3.601*	0.081***	0.085***	0.076***
	(1.834)	(1.676)	(2.074)	(0.022)	(0.022)	(0.024)
Observations	2387	2270	2196	2387	2270	2196
Adjusted R^2	0.789	0.766	0.794	0.770	0.751	0.776

Notes: This table displays results from an OLS hedonic price regression for Manufactured Homes in the CRD sample. Columns (1) to (3) have price per foot as the dependent variable. Columns (4) to (6) have log price per foot as the dependent variable. Columns (1) and (4) include all years. Columns (2) and (5) exclude COVID-19 Pandemic years. Columns (3) and (6) exclude COVID-19 and Great Recession Years. Sub-areas and time is controlled for in all specifications. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6: Hedonic Price Regression Results - Single Family Dwellings

	(1) PPF	(2) PPF	(3) PPF	(4) lPPF	(5) lPPF	(6) lPPF
FN	-105.5***	-110.8***	-102.4***	-0.209***	-0.228***	-0.202***
	(10.478)	(18.464)	(10.531)	(0.027)	(0.050)	(0.029)
Age	-3.251**	-3.703***	-3.294*	-0.0203***	-0.0226***	-0.0197***
	(1.493)	(0.754)	(1.824)	(0.005)	(0.004)	(0.006)
Beds	14.83	59.75	11.70	0.0138	-0.132	0.000812
	(55.396)	(55.865)	(55.344)	(0.114)	(0.228)	(0.119)
$Beds^2$	-5.108	-14.36	-4.283	-0.0126	0.0145	-0.00961
	(11.166)	(10.686)	(11.171)	(0.022)	(0.043)	(0.023)
Baths	-18.99	-4.215	-23.06	-0.040	0.00610	-0.0505
	(13.332)	(11.993)	(13.844)	(0.038)	(0.029)	(0.038)
Observations	206	139	196	206	139	196
Adjusted R^2	0.900	0.941	0.899	0.947	0.965	0.949

Notes: This table displays results from an OLS hedonic price regression for Single Family Dwellings in the CRD sample. Columns (1) to (3) have price per foot as the dependent variable. Columns (4) to (6) have log price per foot as the dependent variable. Columns (1) and (4) include all years. Columns (2) and (5) exclude COVID-19 Pandemic years. Columns (3) and (6) exclude COVID-19 and Great Recession Years. Sub-areas and time is controlled for in all specifications. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.7: Manufactured Homes IV Regressions By Instrument

	(1) lPPF	(2) lPPF	(3) lPPF
FN	0.246***	0.284***	0.138
	(0.017)	(0.047)	(0.087)
Age	-0.024***	-.023***	-0.0254***
	(0.001)	(0.001)	(0.001)
Beds	0.483**	0.471	0.510
	(0.138)	(0.164)	(0.165)
$Beds^2$	-0.081***	-0.561**	-0.084**
	(0.026)	(0.029)	(0.029)
Baths	0.080***	0.076***	0.095***
	(0.013)	(0.023)	(0.028)
Instrument Used	Both	MFFL	Elev
First Stage F-Stat	9918	5582	1334
Observations	2387	2387	2387
Adjusted R^2	0.522	0.521	0.517

Notes: This table shows the results of the IV regressions on log price per foot based on different combinations of instruments used, as well as the corresponding first stage F statistic. Column (1) uses both Miles From Fort Langley and Elevation as instruments. Column (2) uses only Miles from Fort Langley. Column (3) uses only elevation. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.8: Manufactured Homes IV Regressions By Instrument - Full Sample

	(1) lPPF	(2) lPPF	(3) lPPF
FN	0.290***	0.276***	0.334***
	(0.021)	(0.025)	(0.050)
Age	-0.022***	-.023***	-0.022***
	(0.001)	(0.001)	(0.001)
Beds	0.443*	0.449*	0.433*
	(0.134)	(0.134)	(0.134)
$Beds^2$	-0.077**	-0.556**	-0.075**
	(0.026)	(0.026)	(0.026)
Baths	0.101***	0.102***	0.096***
	(0.013)	(0.014)	(0.015)
Instrument Used	Both	MFFL	Elev
First Stage F-Stat	2256	2289	481
Observations	2583	2583	2387
Adjusted R^2	0.500	0.501	0.499

Notes: This table shows the results of the IV regressions on log price per foot based on different combinations of instruments used, as well as the corresponding first stage F statistic. This table uses the entire Vancouver Island sample. Column (1) uses both Miles From Fort Langley and Elevation as instruments. Column (2) uses only Miles from Fort Langley. Column (3) uses only elevation. Standard errors are in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$