



ADDITIONAL COUNCIL AGENDA

WEDNESDAY, November 14, 2012

12. CORRESPONDENCE

(a) Information Items I-1-I-7

I-7 A letter dated November 1, 2012, from the Mississauga Real Estate Board opposing the Land Transfer Taxes.

Receive and refer to Budget Committee for appropriate action

14. BY-LAWS

B-12 A by-law to authorize the execution of a Servicing Agreement, a Development Agreement and other related documents between AMACON Development (City Centre) Corp., The Corporation of the City of Mississauga, and the Regional Municipality of Peel, north side of Burnhamthorpe Road West, west of Confederation Parkway
Owner/Applicant: AMACON Development (City Centre) Corp.

Resolution 0046-2005/March 9, 2005



COUNCIL AGENDA
NOV 14 2012

November 01, 2012

Mayor Hazel McCallion
Office of the Mayor
City of Mississauga
300 City Centre Drive
Mississauga, ON L5B 3C1

Dear Mayor McCallion,

I am writing to inform you of the views of the Mississauga Real Estate Board (MREB) with regard to a Mississauga City Council potential request to the provincial government for additional taxing authority, specifically a municipal Land Transfer Tax.

Our City's economic competitiveness is a priority for MREB. Representing 1500 Board Members and 4000 REALTOR® colleagues in Mississauga, MREB Members have helped to create jobs and stimulate Mississauga's economic growth for 58 years; MREB Members and healthy real estate markets are fundamental to Mississauga's economic vibrancy.

The Board, its members and home owners understand taxation is necessary for quality service but when poorly designed, it can have detrimental and unintended consequences and be unduly burdensome. Such is the case with a municipal land transfer tax, which we believe will create a drag on economic activity, impact real estate markets and reduce Mississauga's competitiveness. **For this reason, MREB will not be supportive and will advocate against legislation or proposals that would allow for a municipal land transfer tax in Mississauga.**

Public is Opposed to Land Transfer Taxes

Recent polling conducted by Ipsos Reid, for the Toronto Real Estate Board, shows that the public in Toronto and **across the GTA** is overwhelmingly opposed to municipal land transfer taxes. According to this poll, 77 per cent of "905" residents planning to purchase a home, in the next two years, indicated that they are more likely to purchase a home in the "905" to avoid paying the Toronto Land Transfer Tax. Interestingly, 74 per cent of Toronto residents planning to purchase a home, in the next two years, indicated that they are more likely to purchase a home in the "905" to avoid paying the Toronto Land Transfer Tax. Clearly, not having a municipal land transfer tax gives the City of Mississauga a competitive advantage in the GTA.

Economic Analysis Shows Negative Impact of Municipal LTT

For your information, I have attached a copy of a recent study by the C.D. Howe Institute, which analyzed the impact of the Toronto Land Transfer Tax on Toronto's real estate market. According to their analysis, **Toronto's Land Transfer Tax has dampened home sales by an average of 16 percent, with**

I-7(a)

the greatest impact felt by homes below the median price, meaning lower income households are impacted the most.

Every Lost Housing Sale Costs Jobs

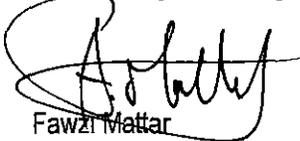
Research conducted by the Altus Group, found that **every resale housing transaction in Ontario generates \$40,350.00 in spin-off spending** on things like moving expenses, renovations, furniture and appliances. A recent poll conducted by Ipsos Reid found that 51 percent of those who recently purchased a home in Toronto said if they had not had to pay the LTT, they would have spent that money on home renovations or to purchase furnishings or appliances for their home. This type of spending is critical for Mississauga's economy and it creates thousands of jobs. In fact, according to this research, **approximately 4,000 Mississauga jobs rely on spending from re-sale housing transactions.**

Lack of Public Consultation

Unfortunately, MREB was not consulted prior to Mississauga City Council's recent consideration of this issue. This is a critically important issue for Mississauga and as such, MREB respectfully requests that City Council consult with REALTORS® and the public prior to any potential future consideration of this issue. Mississauga residents and businesses should have an opportunity to comment on such an unprecedented issue for our municipality.

We hope you find our views helpful. We would welcome an opportunity to discuss the issue with you further.

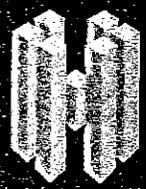
Sincerely,
MISSISSAUGA REAL ESTATE BOARD



Fawzi Mattar
President

Cc: Mississauga Council
City Manager, Janice Baker
City Clerk, Laura Wilson
MREB Board of Directors
MREB PAC Chair, Linda Pinizzotto

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INSTITUT C.D. HOWE INSTITUTE

COMMENTARY

NO. 364

Stuck in Place: The Effect of Land Transfer Taxes on Housing Transactions

Municipalities across the country should beware the example of Toronto, where the imposition of a land transfer tax depressed housing sales by 16 percent, raised relocation costs and reduced household mobility.

Benjamin Dachis



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ABOUT THE AUTHOR

BENJAMIN DACHIS
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at the C.D. Howe Institute.

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Finn Poschmann
Vice-President, Research

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THE STUDY IN BRIEF

Numerous provinces and municipalities across Canada levy Land Transfer Taxes (LTTs). Among them, Toronto and Montreal have recently introduced municipal LTTs that apply alongside province-wide LTTs.

An LTT is a charge paid to a municipality or provincial government, upon the sale or transfer of real estate or similar immovable object. LTTs can be expensive, and make up a significant portion of the expenses associated with ordinary housing transactions, making moving more costly.

This *Commentary* builds on previous studies that estimate the short-term effect of LTTs by estimating the long-term effect of Toronto's LTT. In seeking to isolate the effect of Toronto's LTT on household mobility, from that of other potential determinants of trends in the city's real estate market, this analysis uses a uniquely detailed dataset of resale housing transactions covering the years from 2005 to 2012.

The LTT resulted in, on average, a 16 percent decrease in sales volume. The effect of the LTT on transactions varies by house price, with the largest effect on homes in areas with resale prices below the median market sale price. Because the LTT reduces the incentive to move, the LTT has resulted in more Toronto residents choosing renovations to their current homes as opposed to relocating.

The higher transaction costs, owing to the LTT, may cause some households to tolerate living in ill-suited homes for longer than they would have otherwise desired. Other potential effects of LTTs include government revenue volatility, commercial real estate market distortions, and higher construction costs.

Toronto, like other municipalities that levy LTTs, should limit itself to its other revenue-raising tools, and replace the LTT with a revenue-equivalent property tax levy. Provincial governments that impose an LTT should replace their LTTs with revenue from value-added taxes.

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Six provincial governments and some municipalities collect land transfer taxes (LTTs) of various rates and designs. The City of Toronto's LTT is the newest and perhaps the most politically contentious example, and offers a window through which to analyze the impact of LTTs on the real estate market and the behaviour of homeowners.

An LTT is, by broad definition, a charge paid to a municipality or provincial government upon the transfer of real estate or immovable object. Where an LTT is levied, the buyer is required to pay an amount that is usually proportional to the value of the purchase. An LTT is likely more politically appealing to politicians than is a broad-based property tax because few residents are directly subject to an LTT in a given year, compared with the population of homeowners generally. However, because it is a transaction tax, an LTT is economically distorting in a number of ways. In particular, because the transfer tax raises the costs of moving or relocating, it is likely to reduce a homeowner's propensity to relocate. Studies show that, within the first eight months of its existence, Toronto's LTT reduced single-family-dwelling transactions by 16 percent, with a disproportionate effect on transactions involving homes priced below the average house sale price, and reduced the average sale price in Toronto by 1.5 percent (Dachis, Durantou, and Turner 2008, 2012).

This *Commentary* builds on previous studies that estimate the effect of an LTT in its first eight

months of existence by estimating the long-term effect of Toronto's LTT.¹ The analysis shows that, from 2008 through June 2012 (that is, even through the most recent real estate boom), the number of real estate transactions was reduced by about 16 percent in Toronto relative to sales elsewhere in the Greater Toronto Area; that the most pronounced effect on the market was in areas with relatively low sales values; and that homeowners chose to renovate their homes rather than to relocate.

I limit the analysis in this *Commentary* to estimating the consequences of Toronto's LTT on housing sales, but the reduction in sales might reduce household mobility in Toronto. In turn, the existing economics literature suggests that reduced mobility might increase unemployment in places with an LTT, starve firms elsewhere of employees, deter workers from switching to more productive jobs, and result in homeowners keeping homes they no longer desire (Hilber and Lyytikäinen 2012). Further, I argue that an LTT also might have a number of other economic downsides. First, because it is a narrow transactions tax, an LTT distorts residential and commercial real estate

I thank Robbie Brydon for providing information from the Census Public Use Microdata File on movers in owner-occupied housing, and Gilles Durantou, Christian Hilber, Alex Laurin, Finn Poschmann, Robbie Brydon, and many anonymous reviewers for useful comments on earlier drafts. I remain responsible for any errors in this analysis.

1 Dachis, Durantou, and Turner (2008, 2012) find that the LTT led to a decrease in property prices of about the same magnitude as the tax. The LTT was thus immediately capitalized in Toronto house values.

markets. Second, like retail sales taxes, an LTT might cascade through the construction and sale of real estate projects, resulting in higher costs for homebuyers and fewer transactions. Third, the revenues from an LTT are highly volatile. Finally, an LTT is a weak tool with which to curb volatile housing markets, and policymakers should rely instead on broader housing market tools to curb house price fluctuations.

For the same reasons that many provinces have replaced distortionary retail sales taxes with broader based value-added taxes, so too should provinces revise their LTT's configurations along the lines of value-added taxes such as the HST. Municipalities like Toronto and Montreal should consider replacing their LTTs with broader based property taxes.

LAND TRANSFER TAXES IN CANADA

Numerous provinces and municipalities across Canada levy LTTs, among them Toronto and Montreal, which have recently introduced municipal LTTs that apply alongside province-wide LTTs. At the provincial level, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, and Ontario, and Prince Edward Island all levy an LTT. British Columbia, Manitoba, and Ontario have progressive rates on transaction values, with the lowest rates of 0.5 or 1 percent applying on the initial value of the transaction and with a top marginal rate of 2 percent (see Table 1). These

three provinces collected an estimated \$2.4 billion in LTT revenues in fiscal year 2011/12. New Brunswick, Newfoundland and Labrador, and Prince Edward Island each levies a flat rate LTT ranging from 0.25 percent to 1 percent of the value of a home.²

Toronto, under the authority of Ontario's *City of Toronto Act, 2006*, is the only municipality in Ontario that has the authority to impose its own LTT. Nevertheless, in July 2007, Toronto City Council narrowly defeated the proposed implementation of an LTT and instead voted to defer a decision until October 2007. In response, the mayor announced emergency cuts to municipal services. City Council did approve the LTT scheme in October, however, and the tax took effect on all sales effective February 1, 2008.³ The top marginal rate is 2 percent of the value of a house above \$400,000. With a top provincial and municipal combined marginal rate of 4 percent, Toronto's LTT is tied with that of Philadelphia as the highest top-statutory rate in North America (Dachis, Duranton, and Turner 2008).⁴ In 2011, Toronto collected \$319 million from the LTT, representing 3 percent of that year's operating budget.

In Quebec, municipalities are required to collect duties on the transfer of property, with a top provincially mandated marginal rate of 1.5 percent for homes with a value of over \$250,000. Starting in January 2010, Montreal introduced two additional

2 Alberta and Saskatchewan levy land title transfer fees instead of a tax. At an effective rate of 0.02 percent, the Alberta amount is economically insignificant; however, the Saskatchewan rate is 0.30 percent of the purchase cost of a house. For details on provincial rates, see <http://www.ratehub.ca/land-transfer-tax>.

3 Some sales in the first month of the existence of the LTT were not subject to the tax; see Dachis, Duranton, and Turner (2008) for details. Rebates of the city's LTT are given to first-time homebuyers if the value of the purchase is under \$400,000; rebates of the provincial LTT are given to first-time homebuyers if the value of the purchase is under \$227,500.

4 Benjamin, Coulson, and Yang (1993) find that properties located within Philadelphia and subject to that city's LTT declined in value relative to properties outside and that the decline was much larger than the tax increase; however, their study does not examine the effect on transaction volumes or mobility. A European study of a tax in the Netherlands similar to the LTT (Van Ommeren and Van Leuvensteijn 2005) suggests that an LTT-equivalent tax with the same rate would decrease mobility by 8 to 19 percent.

Table 1: Land Transfer Taxes Levied by Select Canadian Municipalities and Provinces

Toronto		Ontario		British Columbia		Manitoba		Montreal		Other Quebec Municipalities	
<i>LTT Rate by Sale Value (\$)</i>											
0-55,000	0.5%	0-55,000	0.5%	0-200,000	1.0%	30,000-90,000	0.5%	0-50,000	0.5%	0-50,000	0.5%
55,000-400,000	1.0%	55,000-250,000	1.0%	200,000+	2.0%	90,000-150,000	1.0%	50,000-250,000	1.0%	50,000-250,000	1.0%
400,000+	2.0%	250,000-400,000	1.5%			150,000-200,000	1.5%	250,000-500,000	1.5%	250,000+	1.5%
		400,000+	2.0%			200,000+	2.0%	500,000-1,000,000	2.0%		
								1,000,000+	2.5%		
<i>Estimated Total Revenues Collected (\$ million and fiscal year)</i>											
319 (2011)		1,412 (2011/12)		935 (2011/12)		63 (2011/12)		100 (2011)		Data not available	

Sources: Tax codes of the various jurisdictions; revenue data are the estimate of previous year LTT revenue from each jurisdiction's most recent budget.

brackets, with a higher rate applying at prices above \$500,000 and an additional bracket for transactions above \$1,000,000. Montreal's total 2011 revenue from the LTT was \$100 million, representing 2.7 percent of the city's total revenues that year.

Other cities, such as some municipalities in Nova Scotia, also levy a special LTT. Winnipeg, which has the legislative authority to impose an LTT, has chosen not to do so.

Although the federal government does not levy an LTT, its tax policies do have an effect on the incentives of provinces and cities to levy one. The federal government provides an income tax deduction for individuals who move at least 40 kilometres closer to a new place of work

or education. The moving expense deduction allows federal tax filers to deduct taxes paid for the registration or transfer of title against their taxable income. By reducing the after-tax cost to homebuyers of an LTT – along with any other cost of purchasing a home – this tax deduction creates tax room for provinces and municipalities to impose an LTT, as some of the cost of an LTT would reduce federal tax receipts. The Department of Finance estimates that the total tax revenue cost associated with deductible moving expenses – tax revenues that the federal government forgoes because of the deduction – resulted in \$135 million less federal revenue in 2011 (Canada 2012).⁵

5. In the 2009 budget, the federal government introduced the First-Time Home Buyers' Tax Credit, which gives federal taxpayers a tax credit of up to \$750; as it applies to taxpayers no matter which city they live in, it does not affect the results in this *Commentary*.

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LAND TRANSFER TAXES, HOUSEHOLD MOBILITY, AND LABOUR MARKET ADJUSTMENTS

An important part of the hypothesis presented in this *Commentary* is that transaction costs affect residential mobility; accordingly, using the number of housing transactions as a proxy for household mobility, one can examine the effect of Toronto's LTT on mobility. It must be admitted, however, that house sales are an imperfect proxy for mobility because sales could be undertaken by investors or landlords, rather than by owner-occupiers. Moreover, homeowners could circumvent the LTT by renting out their previous home rather than selling it (Hilber and Lyytikäinen 2012). As well, examining transactions of house sales also limits the analysis to measuring the potential effect on the mobility of homeowners, and not renters.

That said, LTTs make up a significant portion of homeowners' moving expenses. The Organisation for Economic Co-operation and Development (OECD) estimates that, in 2007, before the introduction of Toronto's LTT, average total housing transaction costs – real estate agents' fees, lawyers' fees, existing transfer taxes, and so on – amounted to 7.8 percent of the average property value in Canada (Andrews, Sánchez, and Johansson 2011). The addition of Toronto's LTT, which had an average rate of 1.1 percent for the average sale price of all resale transactions of \$469,000 in that city from 2008 through June 2012, increased average transaction costs in Toronto by an estimated 14 percent.⁶

Mobility and Taxes

In the United Kingdom, a "stamp duty" levies a progressive transfer tax of between 1 and 5 percent. A study of the stamp duty (Hilber and Lyytikäinen 2012) finds that the main effect of its economic cost is to restrict the ability of households to find the most suitable home in a particular labour market, rather than on mobility between labour markets.⁷ The stamp duty is similar to an LTT in all but one important respect: instead of applying progressively higher rates to the portion of a sale price above succeeding thresholds the entire value of the transaction is subject to the higher rate. This results in a very high marginal effective tax rate on houses at £250,000, the threshold between a 1 percent tax and a 3 percent tax. By comparing the mobility rates of households with self-assessed house values slightly above and below this threshold, Hilber and Lyytikäinen (2012) find that a £5,000 increase in the stamp duty reduces household mobility by around 30 percent. They also find, however, that this result is almost entirely driven by moves of less than 10 km – likely those households that move into different types of homes within the same labour market.

ESTIMATING THE EFFECT OF TORONTO'S LTT

In seeking to isolate the effect of Toronto's LTT on household mobility from that of other potential determinants of trends in the city's real estate market, I use a uniquely detailed dataset of

- 6 This estimate assumes that other transaction costs as a share of property value are the same in Toronto as in the rest of Canada. However, because property values in Toronto are generally above the national average, the total of other transaction costs as a share of the total property value is likely lower in Toronto than nationally because some transaction costs are fixed, not a percentage of the sale value. This suggests that the LTT resulted in transaction costs as a share of the transaction increasing by more than 14 percent.
- 7 Whether such results of a differential effect based on the type of move is also true of Toronto's LTT is an issue that must remain for future research that is able to track individual movements, not just house sale counts.

resale housing transactions: sales of single-family freehold houses – primarily composed of detached, semi-detached, and row townhouses – listed in the Multiple Listing Service (MLS) and sold between January 2005 and June 2012. These data cover a large share of the overall housing market in the Greater Toronto Area (GTA).⁸ I exclude condominium sales from the analysis because such units are often sold directly by developers and not included in the MLS data. Further, it seems reasonable to expect that condominium sales – which have a lower average value than single-family homes – are more likely than single-family dwellings to be bought by first-time homebuyers, who receive a limited rebate of their tax paid, although to my knowledge there are no data available to confirm this.⁹

Methodological Considerations and Assumptions

To assess the effect of the LTT on household mobility, one must distinguish it from overall market trends and local real estate market effects. For example, there were significant swings in the economic cycle, particularly in the housing market, between 2005 and 2012. Housing prices and the level of transactions in the overall market rose between 2005 and 2007, only to fall quickly in 2008, followed by an even faster rise starting in 2009. Accordingly, I isolate the analysis to narrow

regions that faced similar economic conditions and local real estate characteristics, but where some were subject to the LTT and others were not. In practice, this means looking at housing sales in small regions along the border of Toronto. To test the effect of the LTT, I compare the changes in the number of real estate transactions in suburban municipalities along the border with Toronto with those in otherwise similar areas of Toronto that straddle the border of suburban municipalities. By comparing the changes in each area before and after the introduction of the LTT, I estimate how the pattern of real estate transactions changed in markets that could be expected to show patterns similar to those of neighbouring markets but for the introduction of the LTT.

More specifically, I isolate the analysis to 30 “forward sortation areas” (FSAs) – postal delivery areas that describe an exact area of a city – that directly touch Toronto’s border (see Figure 1 for details, and the Appendix for the reasons for selecting these particular FSAs). This approach is similar to that of Dachis, Duranton, and Turner (2008, 2012), who use a finer level of geographical detail to identify precisely the distance of each real estate transaction from the Toronto border from 2005 through August 2008.¹⁰ They find that neither the level of spatial aggregation nor distance thresholds significantly change the results.¹¹ Based on these findings, I use the number of real

8 The methodology I use is known as a spatially restricted difference-in-difference estimate.

9 Investors or landlords who purchase condominiums and do not occupy them as their principal residence within nine months of purchase are not eligible for a rebate. The estimates of the share of condominium units purchased by investors ranges from as low as 15 percent to as high as 60 percent in some new buildings (Hogue 2012). I was unable to discern from the data whether a condominium was purchased by an investor or a principal resident.

10 The two major methodological differences between this *Commentary* and Dachis, Duranton, and Turner (2008, 2012) are, first, instead of using the count of the number of transactions per month per postal code, as they do, I use the count of the number of transactions per FSA per month; second, they calculate the precise distance of the centre of each postal code from the Toronto border using Geographical Information System software, while I define the distance to the Toronto border based solely on whether a FSA abuts the border.

11 A finer level of geographical detail, such as using only postal codes that directly run along the Toronto border would provide a greater degree of certainty. However, this approach would provide few real estate transactions to compare.

estate transactions per FSA per month, as this is the simplest method of defining the location and timing of sales.

The methodology rests on the assumptions that:

- there were no other important and unobserved changes in real estate demand in Toronto relative to other municipalities in the GTA;
- all municipalities in the study area experienced similar trends in housing demand;
- all municipalities in the GTA face the same seasonal real estate patterns; and
- the introduction of the LTT was sudden and not anticipated by buyers.

Let me examine these assumptions in some detail.

Real estate demand in Toronto and other GTA municipalities: From 2005 through 2012, residential property tax rates in large municipalities within the GTA have taken different paths.¹² To control for the potential effect of such divergence, I added a proxy for the average total residential property taxes due on detached homes sold in an FSA in each year from 2005 through 2012 to the analysis. However, if other government policies that affect real estate demand changed in some municipalities but not others – such as increases in service quality, capital investments, or changes in the demographic characteristics of neighbourhoods – the effect of these changes might be confounded with the estimate of the effect of the LTT. A related concern is that local real estate markets

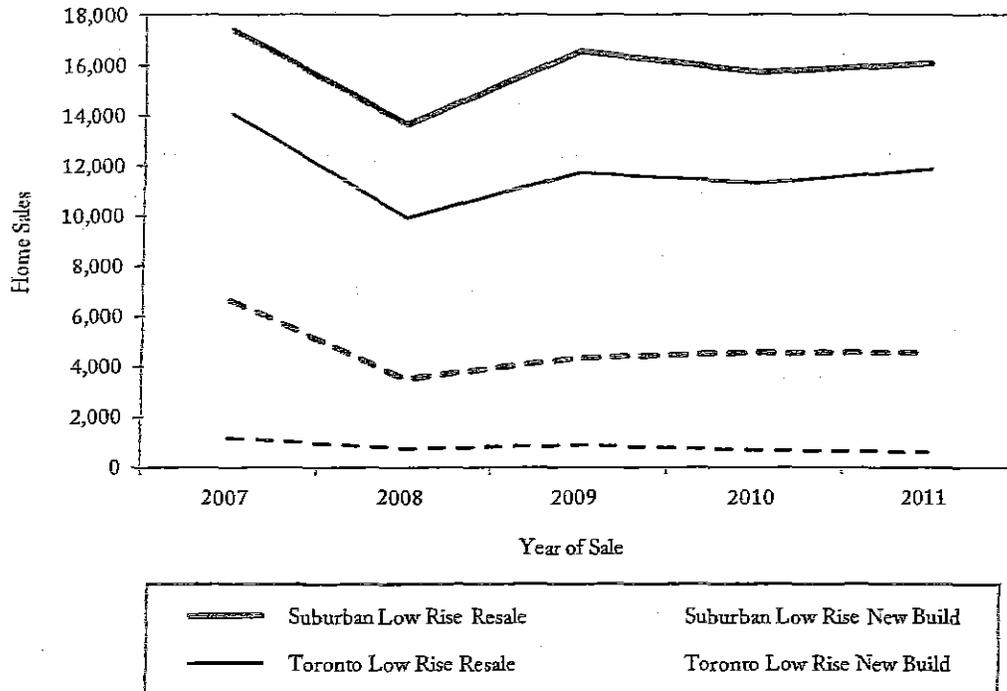
might have changed in some manner because of a change in local conditions, such as the location of new schools, parks, or other public facilities. Some neighbourhoods may be more desirable than others by virtue of their location, but for reasons that are location-specific and for which the analysis cannot control. Where those amenities do not change over time – such as the location of subway stations, highways, or other fixed amenities – one can control for the inherent desirability of a neighbourhood by comparing changes in sales per FSA over time.¹³

Trends in housing demand: A related change that might have occurred on one side of the border but not the other is an increase in new residential real estate investment, potentially resulting in households' buying new units – for which I do not have sales data – instead of resale units. If households are better able to buy new housing units on one side of the border than on the other, this would affect the results. In reality, however, new construction of low-rise housing has followed similar trends in outer Toronto and suburban municipalities; moreover, new construction of low-rise housing – including, by definition, single-family dwellings – is a small fraction of the amount of resale low-rise units along both sides of the border (see Figure 2).¹⁴ These factors further bolster the case for not analyzing condominium sales and for isolating the study to low-rise dwellings.

12 Based on published municipal tax rates, between 2005 and 2012 the amount of municipal property taxes due per house – using average sale price, not assessed value – in the FSAs bordering Toronto increased by 34.4 percent in Vaughan, 39.8 percent in Mississauga, 29.7 percent in Toronto, 36.1 percent in Pickering, and 46.6 percent in Markham. This is only a proxy of property taxes due, as the actual amount paid will depend on the assessed value of a house.

13 This is known as a spatial fixed effects model. All results I present in the main text use FSA fixed effects. See the Appendix for a discussion of different specifications. In the Appendix, I show that the potential effect that the construction of a new subway extension to North Toronto would have on sales is negligible. However, if demand for location-specific characteristics has changed over time since the introduction of the LTT, this might affect the analysis.

14 Data on new housing development at the FSA level were not available at an affordable price to the author, but there is no *a priori* reason to believe that new housing development in suburban municipalities is spatially concentrated on the border in any different way than in the City of Toronto, as levels of development on each side of the border are roughly similar.

Figure 2: Resale and New Build Home Sales, 2007/2011

Note: Suburban municipalities are Mississauga, Vaughan, Markham, and Pickering; Toronto boroughs are Etobicoke, North York, and Scarborough.

Source: Author's calculations using data from RealNet Canada, MLS, and Canada Post.

Changing real estate tastes and restrictions on the development of agricultural and green space in suburban GTA municipalities seem to have contributed to a boom in condominium demand in downtown Toronto, perhaps at the expense of demand for suburban, single-family housing. But any potential real estate shock that affected demand equally in border FSAs on both sides of the Toronto border – such as a surge of demand for living downtown at the expense of the suburbs – would have no effect on the results presented here. However, the estimates might be affected by changes in the kinds of buyers who purchase homes on one side of the border as opposed to the other in response to the LTT – that is, those who know they

are more likely to relocate in the future might have moved to suburban cities to avoid paying the tax multiple times.

Seasonal real estate patterns: Real estate sales exhibit a particular seasonal trend, with a significant upswing in sales during summer months. I account for this seasonal pattern, which holds in all GTA municipalities, by using season or month-of-year controls where appropriate.

The unanticipated LTT: Although legislation granted Toronto the power to enact an LTT, it was uncertain if the city would choose to do so rather than impose other taxes. Indeed, the LTT's initial defeat at City Council might have made its announcement in October 2007 all the more

unexpected, and residents had only a limited window in which to adjust their behaviour in anticipation of the change. It is unlikely that many households chose to bring forward to late 2007 housing purchases they had intended to make many years later, such as in 2011 or 2012.

Empirical Results

The analysis shows, in short, that the LTT has caused a permanent reduction of housing transactions in Toronto, and that the effect has been most significant on households in areas with the lowest sale prices.

Reduced sales: By isolating the effect of the LTT and adding additional controls for the natural seasonality of the housing market, average house characteristics in each FSA, property taxes, and the overall trend in the number of sales in Toronto (see the Appendix for details), I find that the LTT resulted in, on average, four fewer sales per month per FSA, amounting to a 16 percent decrease in sales volume (see Table 2).¹⁵ Based on the number of sales of single-family houses in all of Toronto in 2011, I estimate that about 3,500 such sales have been forgone per year because of the LTT.¹⁶

This effect should logically extend to other parts of Toronto's real estate market. Although my estimates are based on single-family housing sales along the border of Toronto and its suburbs, this tax-induced gap between what sellers are willing to accept and what buyers are willing to pay applies equally to sales throughout Toronto, not only to those along the border. The conclusion that the LTT reduces transactions applies equally to the border of Toronto and to downtown Toronto; however, it is impossible for such an analysis to disentangle the effect of the LTT from underlying market trends in a market like downtown Toronto's condominium market, where there is no comparable real estate market that is not subject to LTT.

The effect of the LTT on transactions also varies by average neighbourhood sale price. In separating the FSAs into those where the average value of homes sold is either above or below the median price for homes in the GTA in the year they were sold,¹⁷ I find that the number of transactions in FSAs where the average sale price was below the median fell by 25 percent (see Table 3). Transactions in FSAs where the average sale price was above the median also fell, but by only 6 percent, a reduction so small that it is statistically indistinguishable from

- 15 This is the percentage change using the preferred regression specification of sales per FSA per month in a fixed effects ordinary least squares regression. I calculated the percentage change in sales by dividing the estimated coefficient of the reduction of sales of -3.9 sales per month per FSA by 25, the mean number of sales per FSA per month in the GTA between 2005 and 2012. See the Appendix for details.
- 16 Dachis, Duranton, and Turner (2008, 2012) similarly find that sales per postal code per month fell by 16 percent in the first eight months of the existence of the LTT, resulting in about 3,500 fewer single-family dwelling sales per year in Toronto. Because the condominium market likely exhibits very different market characteristics, I cannot estimate the reduction in the number of condominium sales. Excluding these sales makes the estimate of about 3,500 fewer sales in Toronto likely an underestimate.
- 17 Using a comparison of sale prices above and below the median price, rather than a fixed price cutoff, controls for the potential problem of looking at the number of transactions of houses sold at prices below or above a fixed price, since a general trend of houses increasing in value might reflect fewer homes sold below or above the fixed cutoff line due to the price trend. Using houses above or below this annual median thus controls for this normal price change. In 2009, the twenty-fifth, fiftieth, and seventy-fifth percentiles of house prices in the GTA were \$352,114, \$417,053, and \$489,227, respectively, whereas in the first two quarters of 2012, the equivalent percentiles were \$433,855, \$543,315, and \$625,687.

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Table 2: The Effect of the LTT on Sales per FSA per Month

	Change in Number Transactions
Percent change in transactions due to LTT	-16%
Reduction in number of detached dwelling transactions, 2011	3,469

Source: Author's calculations from MLS, municipal property tax data.

Table 3: The Effect of the LTT on Sales per FSA per Month, by FSA Average Sale Value

	Percent Change in Transactions due to LTT
Average values of sales in FSA below yearly GTA median	-25
Average values of sales in FSA above yearly GTA median	-6*

* Reduction in sales per forward sortation area (FSA) is statistically indistinguishable from zero.

Source: Author's calculations from MLS, municipal property tax data.

zero. This suggests that sellers of homes in areas with lower average values are less willing or able to accept sale prices that are affected by the LTT than are sellers in areas with higher-value homes. Notably, this effect is present even though the tax is progressive with respect to house price.

Substituting renovations for moving: In addition to a real estate transaction boom in the GTA, there has also been a substantial increase in housing renovations, both in Toronto and in suburban municipalities. Some of this boom might be due

to common factors, such as the 2009 federal Home Renovation Tax Credit (see Canada 2009). However, as the LTT reduces the incentive to move, Toronto residents instead might have decided to renovate their current home to upgrade their living space. To test this, I use detailed data on renovation permits issued in the outer boroughs of the City of Toronto – Etobicoke, North York and Scarborough – and in the neighbouring suburban municipalities from January 2006 through April 2012.¹⁸ I use the total value of permits per month in both Toronto

18 Toronto provides information on the type of structure being built, the type of permit issued, the FSA in which the work is being done, and the estimated construction cost of the project. The permit-issuing process allows, but does not universally require, permit applicants to report the estimated construction cost of their renovation. The validity of the analysis here is conditional on permit applicants' not changing the likelihood of reporting construction costs after the introduction of the LTT.

and suburban municipalities.¹⁹ I find that the average total reported value of housing renovation permits per month in outer Toronto increased from \$636,000 before the introduction of the LTT to \$1,420,000 afterward.²⁰ However, total permit values also increased in suburban municipalities. Using the same methodology as above to disentangle the effect of the LTT on permits from overall market trends, I find that total permit values per month in suburban Toronto boroughs increased by about 58 percent in response to the LTT (see Appendix Table A-3 for details).²¹ This represents about half of the increase in reported permit values per month in suburban boroughs of Toronto, with other potential factors explaining the rest of the increase in renovation values.

Summary

I have compared otherwise identical house sales and renovations in areas subject and not subject to Toronto's LTT, to isolate the economic consequences of the LTT on the Toronto housing market. I find that the LTT reduced the number of single-family home sales per FSA per month by 16 percent, thus likely reducing household mobility. The largest effect has been on home sales in FSAs with an average sale price below the yearly median price. Moreover, Toronto residents appear to be substituting home renovation for relocations. These economic consequences of the LTT are

likely to be similar in other jurisdictions that have imposed such a tax, especially municipalities such as Montreal that levy a special LTT on top of a provincially mandated LTT.

THE POTENTIAL EFFECTS OF AN LTT ON MARKETS AND BEHAVIOUR

The existing empirical literature suggests a reduction in household mobility as a consequence of higher transaction costs has two main effects on the economy. First, people might be deterred from taking up jobs far from their place of residence or from switching to more productive jobs to which they cannot reasonably commute from their existing home. Second, higher transaction costs might cause some households to tolerate living in ill-suited homes for longer than they would have otherwise desired (Hilber and Lyytikäinen 2012). Other potential effects include government revenue volatility, commercial real estate market distortions, and higher construction costs.

Effects on Labour Market Adjustment

Many individuals and families move in order to be closer to a job opportunity. In 2007, for example, 6 percent of the population of OECD countries moved in the previous year (OECD 2011). Canada has a high overall rate of mobility relative to the OECD average, with 14 percent of Canadians reporting in the 2006 Census that they had moved

- 19 I use the total value of permits per month in all suburban municipalities, as Statistics Canada does not provide spatially disaggregated permit information. In addition to comparing the value of permits in suburban municipalities to the value of permits in Toronto boroughs, I also test the effect of the LTT on permits by aggregating permits in suburban boroughs to the city of Toronto as a whole. See the Appendix for details.
- 20 I also control for the number of permits, and permit values, issued during the period of the Toronto municipal workers strike in July 2009.
- 21 To reach this estimate, I take the exponent of the parameter of the effect of the LTT on permit values from column 1 of Appendix Table A-3.

in the previous year.²² In Alberta, the province with the highest degree of labour mobility, 19 percent of the population moved in the year prior to the Census.

The migration of workers from areas of few to areas of greater employment opportunities is fundamental to the process of labour market adjustment to structural economic change, and reduces the economic and social harm of unemployment (see Blanchard and Katz 1992; Beine, Coulombe, and Vermeulen 2012). At the same time, high transaction and moving costs are associated with lower mobility of workers (Rupert and Wasmer 2009); they also reduce the ability of homeowners to move to areas where local amenities better suit household preferences, which, by constraining individual choices, reduces social welfare.

The Tax Base of the LTT

In the case of Toronto's LTT, the economic cost – the excess burden, or deadweight loss – of the tax is exacerbated by the existence of an LTT imposed by the province of Ontario, which will have resulted in forgone sales by homeowners closest to the margin of indifference between moving and staying in their current home. In turn, these forgone sales will have reduced the taxable base of the provincial LTT, thus reducing the LTT revenue that might otherwise have accrued to the province.²³

Part of the reason why the LTT is an inefficient tax is because it is applied to a relatively narrow base. Residential property taxes, applied to the broad base of all properties in a municipality in

a year, do not have the distortionary effects on mobility or the economic costs of an LTT, which applies only on the subset of properties sold in a given year.²⁴ Unlike property tax increases, which are highly visible and are paid directly by most homeowners – 67.6 percent of GTA residents owned their residence in 2006 and thus likely paid property taxes – in contrast, only 7.2 percent of GTA residents moved into a home purchased that year.²⁵

Distortions to Commercial Real Estate Markets

Since Ontario taxes the value of the transfer of property from one party to another, corporate mergers and acquisitions typically result in an LTT liability, making commercial transactions more costly. A further complication is that, in such transactions, there is no market transaction of the transferred properties and thereby no clear asset value on which to assess the tax. Existing property tax assessments might be out of date or incorrectly reflect the true market value of an asset, requiring an independent valuation of the property.

The existence of an LTT also impairs firm restructurings. In Ontario, when a firm transfers assets between corporate entities – so that final ownership does not change – it must post a bond of the equivalent value of the LTT due on the fair market value of the transfer. Even though the firm eventually gets the bond back, the carrying cost of posting the bond increases corporate restructuring costs. An LTT also affects minor

22 The OECD does not report the Canadian mobility rate as determined by Statistics Canada in its international comparison of mobility, which suggests that the Statistics Canada measure might differ from international data.

23 See Dachis, Duranton, and Turner (2008) for a more detailed discussion of the economic cost of a single versus dual LTT levied on the same tax base.

24 Property taxes are not completely neutral: if a municipality raises property taxes, people will purchase less housing and more of other forms of saving and consumption, which invokes other types of economic distortions. As Dachis, Duranton, and Turner (2008) argue, however, the economic losses associated with additional property tax revenue applied on a broader tax base are less than those associated with an LTT applied on a relatively narrower tax base.

25 These estimates are from the Census Public Use Microdata File. The finest level of geographic detail available is for the GTA.

business transactions – for example, the transfer of an Ontario property is taxable if the identity of a limited partner holding 5 percent or more of the property changes.²⁶

The Cascading of an LTT through the Construction Supply Chain

When a piece of land or real estate changes hands multiple times, the LTT can end up being applied more than once on the same project – or on variations of it – during its construction process and final sale.²⁷ For example, a developer who purchases vacant land from a landowner would pay the LTT on the initial purchase. If that developer then chose to resell the vacant property to another developer who then builds homes on it, the LTT would apply at three different stages in the construction and sale of a home and would either be embedded in the final purchase price for the buyer or result in a lower sale price for the landowner.²⁸

Government Revenue Variability

An LTT has a higher degree of year-over-year variability than other major revenue sources of municipalities – general property taxes, user fees, and transfers from government (see Table 4). This high variability revenue is due to the cyclical nature of real estate markets, which makes budget planning difficult for cities with an LTT, as evidenced by recent windfalls in Toronto due to higher-than-expected real estate sales (Church 2012). Such

variability is evident from the 62 percent increase in total Canada-wide municipal revenues from LTTs between 1991 and 1992 (the largest annual increase since 1988), while LTT revenues fell by 17 percent the previous year and by 14 percent three years later.

Effects on Real Estate Speculation

One reason policymakers cite for wanting to introduce an LTT is to curb real estate market speculation, and thus reduce the volatility of house prices. However, although higher transaction costs might reduce such price volatility by reducing the number of speculative transactions, this effect is relatively small compared with that of other factors, such as banking supervision (Andrews, Sánchez, and Johansson 2011). Andrews (2010) compares the effect of the equivalent of a three-percentage-point increase in average transaction costs – approximately three times the size of Toronto's LTT – on house price volatility in OECD countries, relative to the effects of other policy tools.²⁹ He finds that such an increase was about two-thirds as effective in reducing year-over-year house price volatility as increasing the OECD's measure of banking supervision strictness from the OECD average in the mid-1990s to the OECD average in 2005. Further, a three-percentage point-increase in transaction costs was less effective at curbing house price volatility than a similarly sized increase in the responsiveness of housing supply to increased demand or a decrease in the maximum loan-to-value ratio of mortgages. These findings suggest

26 *Land Transfer Tax Act*, RSO 1990, c L.6, sections 2(1) and 3, and related Ontario Regulation 70/91.

27 This is a case of the typical tax-cascading effect encountered with older retail sales taxes, now replaced by value-added taxes such as Ontario's harmonized sales tax (HST). The HST eliminates this cascading through input tax credits. Section 9.2 of the Ontario *Land Transfer Tax Act* provides a limited refund of up to \$2,000 on the LTT due on newly constructed owner-occupied housing.

28 See Dahlby, Smart, and Dachis (2009) for a discussion of the market conditions that would result in homebuyers or landowners bearing the economic incidence of a transaction tax.

29 Andrews (2010) measures house price volatility as the standard deviation of annual real house price growth over five-year blocks.

Table 4: Variability of Municipal Revenue Sources

	2008 Revenues (\$ billions)	Standard Deviation of Annual Percentage Revenue Change, 1988/2008
Land transfer taxes	0.5	0.17
Business taxes	0.6	0.15
Sales of goods and services	16.0	0.03
Transfer revenue	15.8	0.11
Property taxes	30.0	0.05

Note: The standard statistical measure of variability is the standard deviation, which measures the degree of dispersion of data points from the mean. A high standard deviation of a revenue source means that revenues in any given year are likely to be either substantially higher or lower than the expected value.

Source: Author's calculations from Statistics Canada, CANSIM database, table 585-0024.

that, if the goal is to curb house price volatility, policymakers should rely on broader policy tools than a transactions tax.

RECOMMENDATIONS AND CONCLUSION

Residential property taxes provide a more reliable revenue source for municipalities and are less harmful than LTTs to the functioning of labour markets. Therefore, Toronto should limit itself to its traditional revenue-raising tools and replace the LTT with a revenue-equivalent property tax levy. Also, provincial governments that impose an LTT should find ways to reduce the cascading effect of the tax, such as through replacing the LTT with revenues from a broader value-added tax.

Replace Municipal Land Transfer Taxes with a Property Tax

Toronto should repeal its LTT and replace lost revenue by increasing its residential property tax, for which it has fiscal room. Indeed, as Bird, Slack, and Tassonyi (2012) show, Toronto has the strongest ability of any GTA municipality to increase residential tax rates while increasing revenues.³⁰ Similarly, Montreal should repeal its additional LTT on house sales above \$500,000, Quebec should no longer mandate that municipalities there collect an LTT, and municipalities in Nova Scotia also should repeal their LTTs.

Improving the Harmonized Sales Tax

All provinces that still levy and collect revenues

³⁰ In making this recommendation, however, I am not unaware of the potential economic harm of increasing taxes; I am merely confining the discussion to looking at a static measure of revenue elasticity with respect to residential property tax rates.

from an LTT – British Columbia, Manitoba, Ontario, New Brunswick, Newfoundland and Labrador, and Prince Edward Island – should eliminate their LTTs as currently designed. Many of these provinces replaced their outdated retail sales taxes with an HST because the former tax caused a tax-cascading problem similar to that of the LTT. Although Ontario provides a limited rebate on the LTT homebuilders pay, the rebate is not indexed to inflation or to house prices and the amount is now only a fraction of the LTT paid throughout the homebuilding process. A value-added tax, in contrast, would eliminate the cascading of taxes through the production chain via input tax credits while retaining the full amount of the tax applied to the end buyer of the new building.

Smart (2012) argues that an optimal consumption tax on housing would levy a similar value-added tax on resale and newly constructed houses, and that such a tax would not be as distortionary as an LTT if it provided a credit (plus interest) to sellers for taxes previously paid on their original purchase. Levying such a tax on resale houses would be impractical, however, given the often decades-long gap between sales and the difficulties of recordkeeping over such a period.

A more practical approach would be for provinces to replace the revenues they would lose

from eliminating their LTTs with revenues from eliminating the existing preferential HST treatment on a number of other goods and services, such as groceries, or sales from public sector bodies.

Finally, LTTs create an incentive for firms to organize their property ownership and transactions so as to avoid paying the tax, while a more broadly based value-added tax would be neutral with respect to these property reorganizations.

In summary, Toronto's LTT offers a unique test case for estimating the consequences of a housing transaction tax on households' propensity to relocate. The analysis I have presented in this *Commentary* shows that the LTT has substantially reduced the volume of housing transactions in Toronto, which likely reduces the mobility of Toronto families and workers, and increased the propensity of homeowners to renovate their houses rather than to move. There is reason to think that, under similar conditions, these results would extend to other regions of the country as well. Accordingly, Toronto should repeal its LTT and offset the lost fiscal revenues with less economically damaging property tax adjustments. Provinces that collect or mandate LTTs should consider restructuring their taxes along the lines of a value-added tax such as the HST.

APPENDIX

To conduct my analysis, I isolated the forward sortation areas (FSAs) in Toronto and surrounding suburban municipalities where the geography of the FSA that directly borders Toronto is predominantly residential (see Figure 1), and ignored FSAs in which industrial use or parkland predominates in the areas directly bordering Toronto. This leaves 30 FSAs: 16 in Toronto, 2 in Pickering, 3 in Markham, 3 in Vaughan, and 6 in Mississauga. According to the 2006 Census, these FSAs had an average of 34,500 residents and 11,000 private dwellings.

I eliminated a small number of sale records with contradictory information, such as those with a reported postal code that did not correspond with the reported municipality of the dwelling that was sold. I also dropped records for which the information on the postal code, sale date, closing date, or listing date entries was clearly incorrect.

I calculated the number of freehold dwelling sales at both the individual postal code level and the FSA level per calendar month and quarter (see Table A-1). After the introduction of the LTT, the average number of sales in Toronto FSAs in the study area fell from 23 per month per FSA to 19 sales per FSA per month – a decline of about

18 percent, and a steeper proportional fall in sales volumes than in suburban FSAs (from 33 to 29 per FSA per month). Conducting regressions of the number of sales per postal code per month is computationally time consuming, however, due to the size of the dataset, so I do not report the regressions done at this level of detail.

The dependent variable in the main regressions is the number of sales per FSA per month. The variable of interest is an indicator variable for the treatment effect of the LTT, which takes the value of 1 for transactions that were subject to Toronto's LTT and 0 for all other sales. I used an ordinary least squares (OLS) regression (see column 1 of Table A-2 as the baseline specification),³¹ and progressively added spatial fixed effects at the FSA level (column 2), and month, house, and property tax controls to reach the preferred specification reported in the text (column 3).³²

I also tested a single time trend and a double time trend for the City of Toronto and, following Dachis, Durantou, and Turner (2012), I created a monthly time trend for Toronto. A single time trend for the entire time period suggests that the number of housing sales per FSA in Toronto increased by 0.3 percent per month. With such a control, the

- 31 Except in the case of a Mississauga FSA located at the Lester B. Pearson airport, where Statistics Canada reports only a single residential dwelling, there are no months when no sales occurred in any FSA along the Toronto border between 2005 and 2012. The distribution of the number of houses sold is approximately normally distributed, making OLS a potentially appropriate analysis tool. I also conducted a regression using a Poisson regression; the results, which are very similar to those using ordinary least squares, are available from the author upon request.
- 32 As controls for housing quality, I included the following average characteristics of houses sold in each FSA in a given month: number of bedrooms, number of parking spaces, number of rooms, number of bathrooms, number of kitchens, whether the house has a den, whether the house has a fireplace, lot depth (feet), lot front (feet), square footage of the lot, the log of square footage of the lot, indicators of heat source (for example, electric, gas, oil), indicators of heat type (for example, baseboard, forced air, water), indicators of garage type (for example, attached, built-in, underground), indicators of exterior type (for example, brick, concrete, aluminum siding), indicators of basement type (for example, finished, separate entrance), indicators of house style (for example, bungalow, two-storey), indicators of property type (for example, detached, semi-detached), and the total and log of the estimated average property taxes due per house sold in that FSA that month. Although not reported in the text, for Poisson regressions I used a limited subset of controls of number of bedrooms, lot front length, lot square footage, number of rooms, and property taxes paid.

Table A-1: Single Family Resale Housing Market Characteristics, Toronto and Suburban Municipalities

	Toronto		Suburbs	
	Pre-LTT (2005/2007)	Post-LTT (2008/June 2012)	Pre-LTT (2005/2007)	Post-LTT (2008/June 2012)
<i>All FSAs in GTA</i>				
Total number of sales	64,278	79,949	46,163	67,281
Average price	\$488,704	\$608,912	\$400,626	\$500,754
<i>FSAs Straddling Border of Toronto</i>				
Total number of sales	13,444	16,575	14,329	18,827
Average price	\$367,802	\$457,168	\$413,395	\$524,979
Sales per FSA per month	23.3	19.4	33.1	29.0
In FSAs where average house price above median	20.6	18.4	36.2	33.1
In FSAs where average house price below median	25.2	20.1	28.5	22.9
Sales per FSA per quarter	69.9	55.0	99.5	82.6
Percent of dwellings per FSA sold per quarter	0.57%	0.47%	0.82%	0.71%

Notes: Percent of dwellings sold is the average of forward sortation areas (FSAs) in each region; the denominator in the percent of dwellings sold is the number of all occupied dwellings (including condominiums) from the 2006 Census.

Suburban municipalities include Mississauga, Vaughan, Markham and Pickering.

Sources: Author's calculations from MLS and Statistics Canada.

coefficient of the LTT (-6.86, unreported) effect suggests that the LTT reduced sales per FSA per month by 30 percent. A double time trend for Toronto, for the period from January 2005 through December 2007 and from February 2008 through June 2012, produces a coefficient nearly identical to the preferred specification (column 4). Results for sales in FSAs where the average sale price was below or above the median yearly GTA sale price

is provided in columns 5 and 6. Sales per FSA per quarter, with month dummies replaced by quarter dummies, are reported in column 7.

I also tested the effect of the LTT by excluding from the preferred specification sales from November 2007 through April 2008, to eliminate sales that were most likely to have been brought forward by the LTT, not just forgone. The coefficient (not reported) is -3.59, suggesting a

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Table A-2: Ordinary Least Squares Regression, Effect of Toronto's Land Transfer Tax on Single Family Home Sales, 2005–June 2012

Dependent variable	Sales per FSA per Month				Sales per FSA per Quarter		
	Houses subject to Toronto LTT	-8.743**	-3.969***	-4.093***	-3.915***	-1.549	-6.275***
[Standard error]	[3.671]	[0.938]	[0.968]	[0.781]	[1.233]	[1.313]	[3.454]
Percentage reduction in sales due to LTT	-35%	-16%	-16%	-16%	-6%	-25%	-19%
Average of house characteristics and property tax paid in FSA and month of year controls	No	No	Yes	Yes	Yes	Yes	Yes
Double time trend in Toronto (pre/post-LTT)	No	No	No	Yes	No	No	No
Spatial fixed effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Houses	All	All	All	All	Above yearly median sale value	Below yearly median sale value	All
Number of observations	2,516	2,516	2,516	2,516	1,256	1,260	843
Number of spatial areas		30	30	30	23	24	30
R-squared	0.054	0.025	0.438	0.441	0.433	0.491	0.489

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05.

Percentage reduction in sales due to LTT calculated using the overall mean number of sales per FSA over all FSAs and time periods.

Source: Authors' calculations from MLS, municipal property tax data.

similar effect as when looking at the entire study period in the preferred specification. To test if the proposed extension of the Yonge-University-Spadina subway line might have been spuriously related to a change in transactions, I ran a regression that excluded postal codes in north Toronto and Vaughan where the new subway stations would be located. Again, the results do not differ substantially from the preferred specification.

To analyze the value of permits, I compiled data on all residential permits issued in Toronto (see <http://www.Toronto.ca/open>), except for those for new residential construction, and merged those data with Statistics Canada data on residential permit values for the municipalities of Mississauga, Vaughan, Markham, and Pickering. I used municipality-wide data on the value of residential construction permits in the same municipalities as

Table A-3: Effect of Toronto's Land Transfer Tax on Residential Renovations, January 2005—April 2012

<i>Dependent Variable</i>	<i>Log of Estimated Renovation Value per Geographic Area per Month</i>	
	By Suburban Borough	All City of Toronto
Dummy indicator if subject to Toronto LTT	0.457***	0.594***
[Standard error]	[0.154]	[0.061]
Month of Toronto strike	-4.435***	-3.250***
[Standard error]	[0.630]	[0.213]
Other controls	Month, year, city, month before and after strike in Toronto	
Observations	607	380
R-squared	0.742	0.779

Standard errors in brackets. *** p<0.01.

Note: Suburban municipalities are Mississauga, Vaughan, Markham, and Pickering. Toronto boroughs are Etobicoke, North York, and Scarborough.

Source: Author's calculations from Statistics Canada Toronto Open Data.

in the resale housing analysis above. I aggregated the value of permits in FSAs in Toronto along the border and the boroughs of Etobicoke, North York, and Scarborough. I used an OLS regression of the log of the total value of housing permits per month in each municipality or borough. I also added dummy variables to indicate when Toronto municipal workers were on strike in July 2009 to control for the city's not issuing permits during that month and potentially experiencing a surge of

permits issued in the month before and after the strike, as well as controls for the month, year, and city of permit issuance. As I used the log of permit values, I took the exponent of the coefficient of 0.457, which means that the LTT led to an increase in permit values by 58 percent (column 1 of Table A-3). I obtained similar results when I aggregated the value of permits in border FSAs in Toronto (column 2).

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