



# The effect of property taxes on vacation home growth rates: Evidence from Michigan<sup>☆</sup>

Erik Johnson<sup>a,\*</sup>, Randall Walsh<sup>b</sup>

<sup>a</sup> Quinnipiac University, United States

<sup>b</sup> University of Pittsburgh, United States



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## ABSTRACT

The Tiebout model assumes that individuals sort to the jurisdiction which best matches their fiscal preferences. However, there is a paucity of reliable estimates for the impact of tax changes on household mobility. We utilize a state mandated school finance reform and temporal differences in vacation home densities to provide a unique test of this fundamental Tiebout assumption. The results show that changes in property taxes explain a significant amount of the variation in vacation home growth; a 3–4 mil decrease in property tax rates is associated with an increase of approximately one vacation home per square kilometer.

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## 1. Introduction

The ability of individuals to sort across locations and choose their preferred tax–benefit combination is an essential assumption of Tiebout (1956)'s work. Indeed, sorting has been a fundamental assumption in modern public finance<sup>1</sup> and leads to a simple empirical hypothesis: holding everything else constant, a decrease in property taxes will cause in-migration to a jurisdiction and a corresponding increase in the quantity of housing. In spite of this clear prediction, there have been few reliable empirical estimates of the effect of property tax changes on household mobility. This primarily is driven by empirical challenges that include the potentially endogenous relationship between population and tax levels, attenuation errors due to spatial and population aggregation, and difficulties in controlling for changes in public good levels associated with changes in tax levels.

The dual relationship between population and taxes is a classic 'chicken-or-egg' problem: Do tax changes attract in-migrants to a jurisdiction or do new in-migrants bring with them preferences

for changes in tax levels?<sup>2</sup> Thus, to correctly identify the effect of taxes on household mobility it is important that the determinant of the tax change under consideration is not affected by changing demographics. A second issue common in the literature concerns the impact of aggregating data to the state or county level. Aggregation introduces attenuation issues associated with taking demographic and tax averages across diverse populations and locations.<sup>3</sup> Further, high degrees of aggregation may mask the presence of an inelastic housing supply. In this case, shifts in housing demand due to property tax changes may not be solely observed through changes in housing quantities, but may also be capitalized into housing values.<sup>4</sup>

A third issue is that tax levels are typically associated with spending local public services. In the empirical literature, researchers have used proxies for public good levels such as community demographic composition including race, age and income to address this issue.<sup>5</sup> However, these specifications may suffer from omitted variable bias. To overcome this problem, several studies

<sup>2</sup> Conway and Rork (2006) show that this is a valid concern; elderly migration patterns are not driven by Estate, Inheritance and Gift taxes. Causation does in fact run in reverse; retirees move to jurisdictions for reasons other than low tax rates (superior climate, etc.) and then vote for lower taxes once they arrive. Additional work by Conway and Rork (2012) finds that elderly migration patterns are not driven by income tax breaks.

<sup>3</sup> See for instance: Conway and Houtenville (1998, 2001, 2003), Drescher (1994), and Duncombe et al. (2003).

<sup>4</sup> An additional empirical consideration regarding supply elasticity was identified by Glaeser and Gyourko (2005) and Glaeser and Gyourko (2006), who show that housing supply elasticity is sensitive to the direction of demand shifts as a result of the durability of housing structures.

<sup>5</sup> Examples include Cebula (1974), Cebula (2002).

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\* Corresponding author.

E-mail addresses: [ebjohnson@quinnipiac.edu](mailto:ebjohnson@quinnipiac.edu) (E. Johnson), [walshr@pitt.edu](mailto:walshr@pitt.edu) (R. Walsh).

<sup>1</sup> This assumption is central to such seminal theoretical papers such as Hamilton (1975), Henderson (1980), and Henderson (1985). For an excellent overview of the evolution and implications of the Tiebout model, see Oates (2006).

have used populations that do not consume the public good that is funded with the studied tax.<sup>6</sup> Farnham and Sevak (2006) provide one of the best examples of this identification strategy and argue, based upon a life-cycle model of mobility, that ‘empty-nesters’ (individuals whose children are no longer living at home) will experience fiscal gains by reducing their exposure to public education spending and thus lower property taxes by moving. Their use of empty-nesters helps ensure that the impact of school property taxes on migration patterns may be examined without concern for the confounding influence of the local public good level. Significantly, the authors find that households which move across state lines and those in states without school funding equalization realize large fiscal gains, while those who move within states which have state level school finance equalization do not realize these gains. While this approach addresses the problem of confounding public goods, there is still the issue of causality. Are retirees voting to lower tax rates in jurisdictions that they chose for amenities that are independent of tax rates (e.g., weather)? In related work Shan (2010) estimates the effect of higher property tax rates on 2-year mobility rates of homeowners over the age of 50 and finds that a \$100 increase in annual property taxes is associated with a 0.73 percentage point increase in the 2-year mobility rate.

This paper compliments the existing literature by conducting a direct test of the Tiebout assumption that household location decisions will be responsive to a decrease in tax rates. Our test is conducted using a structural change introduced from Michigan’s Proposal A, which resulted in a state mandated change in school district tax rates in 1993. The reform provides a unique opportunity for a direct test for five reasons. First, it introduces a large, exogenous shock to tax rates across school districts. The changes were imposed by the state, so the duality problem is eliminated and the causal impact must run from the tax change to the change in household counts.

Second, in contrast with the rest of the literature, this tax change is measured at a spatially disaggregated level. The demographic data is identified and school level taxes are imputed at the tract level thus ensuring that proxies for housing supply elasticity are plausible, and that errors due to demographic and tax aggregation are minimized.

Third, our analysis decouples taxes from the quantity of local public goods by focusing on changes in vacation home households who do not consume the local school provision and are unlikely to receive significant spillovers from school expenditure in their vacation jurisdiction. Thus, consistent with studies of elderly migration undertaken by Farnham and Sevak (2006) and Shan (2010), we can be assured that the mobility response is not driven by changes in school expenditures, but rather by local tax rates.

Fourth, in contrast to Farnham and Sevak (2006) and Shan (2010) our unit of observation is the tax jurisdiction, not the household. This is a subtle but important distinction since we can more confidently proxy for other factors such as housing supply elasticity and changes in local amenities which may affect household mobility responses to changes in fiscal conditions.<sup>7</sup>

Finally, unlike studies of the retiree population, vacation home owners typically cannot vote in their vacation jurisdictions and thus concerns about reverse causality are greatly reduced.

As we discuss below, our analysis finds evidence that the vacation home market is sensitive to property tax rates. After controlling for baseline millage rates prior to Proposal A, we show that jurisdictions

which had a larger drop in tax rates saw a corresponding increase in vacation home densities. We estimate that the magnitude of this response is approximately 1 additional vacation home per square kilometer for every 3–4 mill drop in the tax rate. The desire of potential vacation homeowners to locate in places with low property taxes is the most plausible explanation for this growth pattern.

## 2. Background: Michigan's 1994 Proposal A

Prior to Michigan's 1994 school finance reform, school funding was primarily provided by locally determined property taxes. This system led to vast differences in per pupil expenditures across school districts, with the poorest district funding schools at \$3400 per pupil and the richest district at \$10,000 per pupil. With support from Governor John Engler, State Senator Deb Stabenow proposed legislation to end the property tax as a funding source for local public schools. This legislation passed, thus ensuring that voters no longer had the status quo as a ballot option and forced action to find a new school funding source. In March of 1994, voters were given two choices both of which would drastically reduce property taxes from the pre-1993 level; either they choose Proposal A, which would impose an increase in sales taxes or choose a statutory alternative which would require an increase in income taxes. Proposal A passed by a margin of 2–1.<sup>8</sup> In addition to lowering property tax rates and increasing the dependency on a sales tax, Proposal A also switched the school funding mechanism from a power equalization plan to a foundation grant system, capped assessment increases on property, and included a homestead exemption for residents which assured that they received an 18 mill property tax discount relative to commercial, rental, and non-resident (including vacation home) properties.

While the fiscal equalization measures of Proposal A decoupled the majority of K-12 revenues from local sources, school districts retained the power to raise local revenue through three general channels; a general millage for operating purposes levied on non-homestead property, a hold-harmless millage for high spending districts, and millages for capital purposes funded either via bonds or sinking funds. The first of these, the general millage for operating purposes, was used to finance local school district operations and capped the non-homestead millage rate at the minimum of 18 mills or the number of mills levied in 1993 while leaving homestead property exempt. This tax was collected and spent locally but districts had no control over the actual level. Importantly, this meant that the vast majority of districts (97% in 1995) had a state-mandated vacation to residential tax differential exactly equal to 18 mills. The second local millage allowed by Proposal A was the hold-harmless millage which allowed the 51 highest spending school districts (of the 557 total districts) to levy an additional tax on both homestead and non-homestead property in order to ensure that districts would have the ability to raise the same amount of operating revenue per pupil as they had prior to Proposal A.<sup>9</sup> Of these 51 highest spending districts, 32 utilized the hold-harmless millage as of 1995, with an average of 8.7 mills levied by these districts. While the previous two local operating millages granted minimal control to a small set of the highest spending school districts, much more discretion was allocated for the financing of capital projects. These projects could be funded either through school district saving via sinking funds or through the more commonly used debt financing through bond issuance. As of 1995, 426 of the 557 school districts had outstanding capital obligations, the vast majority of which had been allocated prior to Proposal A.

Given that Proposal A caused a large and heterogeneous drop in property tax rates across local districts and effectively centralized school taxation, funding, and spending control to the state level with a single

<sup>6</sup> Dresher (1994), Duncombe et al. (2003), Conway and Houtenville (2001), Farnham and Sevak (2006) and Shan (2010) examine the role of taxation and school expenditures on the elderly population.

<sup>7</sup> The one possible downside of using tax jurisdiction as the unit of observation is the possibility that local tax rates may be affected by migrant households thus introducing an additional source of endogeneity. This potential bias may be alleviated by using household level data such as those of Farnham and Sevak (2006) and Shan (2010), or in our case by looking at the vacation home market, whose members do not have the right to vote in the vacation home jurisdiction.

<sup>8</sup> For a more detailed examination of Michigan before and after the school finance reform, see Courant et al. (1995) or Cullen and Loeb (2004).

<sup>9</sup> The threshold for a school district to qualify for the hold-harmless millage was that 1993 per-pupil revenues must have been higher than %6500.

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