# The Window Tax
## A Transparent Case of Excess Burden

*Wallace E. Oates and Robert M. Schwab*

A major argument in support of land-value taxation is that it creates no incentives for altering behavior in order to avoid the tax. By contrast, a conventional property tax, levied on buildings, can deter landowners from erecting otherwise desirable structures on their land. For example, homeowners may decide against finishing a basement or adding a second bath because it would increase tax liability. Thus, a conventional property tax can lead to excessively low capital-land ratios and "excess burden"—a cost to taxpayers over and above the actual monetary payments they make to the tax authorities. This article reports on a recent study of excess burden resulting from an early British antecedent of the modern property tax—the 17th-century window tax.

### The Case of the Window Tax

In 1696, King William III of England, in dire need of additional revenues, introduced a dwelling unit tax determined by the number of windows in an abode. The tax was designed as a property tax, as described by this discussion in the House of Commons in 1850: "The window tax, when first laid on, was not intended as a window tax, but as a property tax, as a house was considered a safe criterion of the value of a man's property, and the windows were only assumed as the index of the value of houses" (HCD 9 April 1850).

In its initial form, the tax consisted of a flat rate of 2 shillings upon each house and an additional charge of 4 shillings on houses with between 10 and 20 windows, or 8 shillings on houses with more than 20 windows. The rate structure was amended over the life of the tax; in some cases, rates were raised dramatically. In response, owners of dwellings attempted to reduce their tax bills by boarding

**Blocked windows in Bath, England, owe to a 17th-century property tax levied on the number of windows in a dwelling.**

up windows or by constructing houses with very few of them. In some dwellings, entire floors were windowless, leading to very serious and adverse health effects. In one instance, lack of ventilation led to the death of 52 people in the surrounding town, as reported by a local physician who called on a house inhabited by poor families:

> In order to reduce the window tax, every window that even poverty could dispense with was built up, and all sources of ventilation were thus removed. The smell in the house was overpowering and offensive to an unbearable extent. There is no evidence that the fever was imported into this house, but it was propagated from it to other parts of town, and 52 of the inhabitants were killed. (Guthrie 1867)

The people protested and filed numerous petitions to Parliament. But, despite its pernicious effects, the tax lasted more than 150 years before it was finally repealed in 1851.

The window tax represented a substantial sum for most families. In London, it ranged from about 30 percent of rents on "smaller houses on Baker Street" to as much as 40 to 50 percent on other streets, according to a House of Commons debate in 1850 (HCD 9 April 1850). The tax was particularly burdensome on poor families living in tenements, where assessors taxed the residents collectively. Thus, if a building contained 2 apartments, each with 6 windows, the building was taxed at a rate based on 12 windows. By contrast, on very large houses of the wealthy, the tax typically did not exceed 5 percent of the rental value.

The tax schedule underwent several significant changes before it was finally repealed. In 1784, Prime Minister William Pitt raised tax rates to compensate for lower taxes on tea. Then in 1797, Pitt's Triple Assessment Act tripled the rates to help pay for the Napoleonic Wars. The day following this new act, citizens blocked up thousands of windows and wrote in chalk on the covered spaces, "Lighten our darkness we beseech thee, O Pitt!" (HCD 24 Feb. 1848).

England and Scotland were both subject to the window tax, but Ireland was exempted because of its impoverished state. One member of Parliament quipped, "In advocating the extension of the window tax to Ireland, the Honorable Gentleman seemed to forget that an English window and an Irish window were very different things. In England, the window was intended to let the light in; but in Ireland the use of a window was to let the smoke out" (HCD 5 May 1819).

The window tax, incidentally, was viewed as an improvement over its antecedent, the hearth tax. In 1662, Charles II (following the Restoration) imposed a tax of 2 shillings on every fire hearth and stove in England and Wales. The tax generated great resentment largely because of the intrusive character of the assessment process. The "chimney-men," as the assessors and tax collectors were called, had to enter the house in order to count the number of hearths and stoves. The window tax, by contrast, did not require access to the interior of a dwelling; the "window peepers" could count the apertures from the outside and avoid invading the privacy of the home.

**People chose the number of windows not to satisfy their own preferences, but to avoid paying higher levels of taxes. The window tax, in short, generated a real "excess burden."**

The window tax, however, created some administrative problems of its own—most notably the definition of a window for purposes of taxation. The law was vague, and it was often unclear what constituted a window for tax purposes. In 1848, for example, Professor Scholefield of Cambridge paid tax on a hole in the wall of his coal cellar (HCD 24 Feb. 1848). In the same year, Mr. Gregory Gragoe of Westminster paid tax for a trapdoor to his cellar (HCD 24 Feb. 1848). As late as 1850, taxpayers urged the Chancellor of the Exchequer to clarify the definition of a window.

### Notches and Their Effects on Behavior

Throughout its history, the window tax consisted of a set of "notches." A notch in a tax schedule exists if a small change in behavior—such as the addition of a window—leads to a large change in tax liability.

Notches are rare (Slemrod 2010) and not to be confused with kinks, which are far more common even today. A kink in a tax schedule exists if a small change in behavior leads to a large change in the marginal tax rate but just a small change in tax liability. The income tax in the United States, for example, has several kinks. Married couples with taxable income from $17,850 to $72,500 are

in the 15 percent marginal tax bracket; couples with taxable income from $72,500 to $146,400 are in the 25 percent marginal tax bracket. If a couple with income of $72,500 were to earn an extra dollar, its marginal tax rate would jump to 25 percent, but its tax liability would increase by just $.25.

**In some dwellings, entire floors were windowless, leading to very serious and adverse health effects.**

Microfilm records of local tax data in the U.K. from 1747 to 1830 allow for a more systematic examination of the impact of the window tax and notches. This article draws on a data set from 1747 to 1757, with information on 493 dwellings from Ludlow, a market town in Shropshire, near the border of Wales. Over this period, the window tax schedule included 3 notches. A homeowner in this period paid:

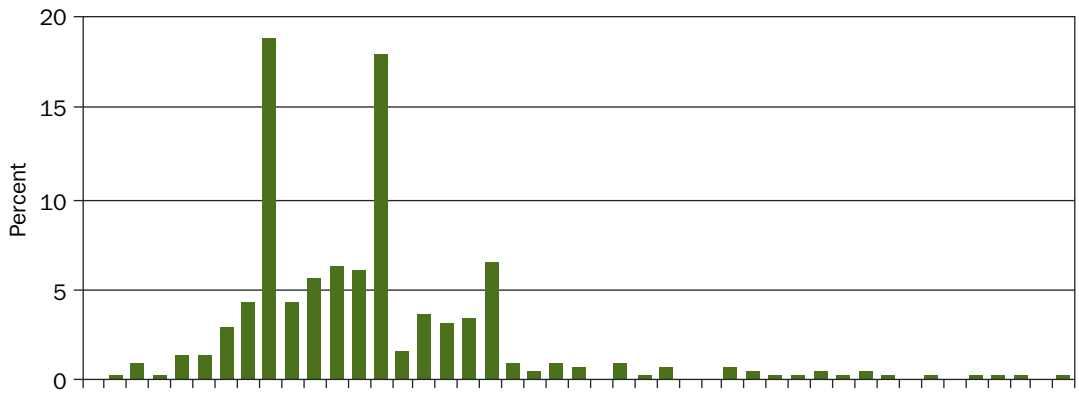
- no tax if the house had fewer than 10 windows;
- 6 pence per window if the house had 10 to 14 windows;
- 9 pence per window if the house had 15 to 19 windows;
- 1 shilling per window if the house had 20 or more windows.

Homeowners who purchased a 10th window thus paid a 6 pence tax on the 10th window as well as on each of their 9 other windows, which previously had been untaxed. Thus the total tax on the 10th window was 60 pence, which was equal to 5 shillings. If the window tax distorted decisions and thus led to excess burden, then one would expect to find many homes with 9, 14, or 19 windows but very few with 10, 15, or 20. A test of this argument is discussed below.

Through the first half of the 18th century, the administration of the tax had been troublesome, as homeowners frequently camouflaged or boarded up windows until the tax collector was gone, or took advantage of loopholes or ambiguities in the tax code. As a result, tax collections were much lower than expected. In 1747, however, Parliament revised the tax by raising rates and introducing measures to improve its administration. Most notably, it prohibited the practice of blocking up and subsequently reopening windows in order to evade assessment; violators had to pay a penalty of 20 shillings (1 pound) for every window they reopened without notifying the tax surveyor (Glantz 2008).

The 1747 act reduced tax evasion significantly, so the data for the following 10 years should provide reasonable estimates of the actual number of windows. If the window tax distorted behavior, one would expect to find spikes in the number of dwellings at the notches, with 9, 14, or 19 windows. And this is precisely what the data demonstrate. Figure 1 is a histogram showing the number of windows for homes in the sample. The pattern is clear; there are sharp increases in the number of homes with 9, 14, or 20 windows:

**FIGURE 1**
**Distribution of the Number of Windows per Dwelling Unit 1747–1757**




Source: Authors' calculations using local tax data in Ludlow, England.

- 18.4 percent of the homes have 9 windows, 3.9 percent 8 windows, and 4.6 percent 10 windows.
- 16.6 percent have 14 windows, 6.0 percent 13 windows, and 1.8 percent 15 windows
- 7.1 percent have 19 windows, 3.4 percent 18 windows, and 0.7 percent 20 windows.

Standard statistical tests reject the hypothesis that there are equal numbers of houses with 8, 9, or 10 windows; with 13, 14, or 15 windows; or with 18, 19, or 20 windows. It is manifestly clear that people responded to the window tax by locating at one of the notches so as to minimize their tax liability.

Data on a sample of 170 houses for the period 1761 to 1765 shed light on the response to Parliamentary revisions to the tax in 1761. In addition to rate increases, the 1761 revisions expanded coverage of the tax to include houses with 8 or 9 windows. Under the earlier rate structures, houses with fewer than 10 windows paid no window tax. For this second sample, figure 2 shows a large spike at 7 windows: 28.2 percent of the houses have 7 windows, but only 5.2 percent have 6 windows, and just 2.9 percent have 8 windows. Once again, it's easy to reject the hypothesis that there were an equal number of houses with 6, 7, or 8 windows.

In summary, the evidence from our two samples makes it quite clear that there was a widespread tendency to alter behavior in order to reduce tax payments. People chose the number of windows not to satisfy their own preferences, but to avoid paying higher levels of taxes. The window tax, in short, generated a real "excess burden."

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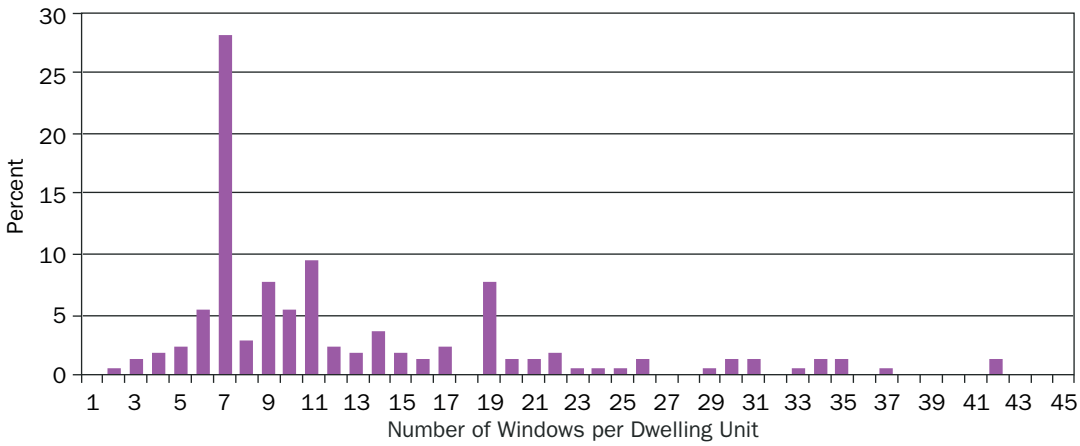
**"The adage 'free as air' has become obsolete by Act of Parliament," quipped Charles Dickens in 1850, in response to the window tax.**

## How Large Was the Excess Burden from the Window Tax?

As discussed, the window tax was substantial and induced widespread tax-avoiding behavior. Based on some standard techniques of economic analysis, our simulation model generates an estimate of what people would have been willing to pay for their preferred number of windows. The model captures each consumer's demand for windows

**FIGURE 2**
**Distribution of the Number of Windows per Dwelling Unit 1761–1765**




Source: Authors' calculations using local tax data in Ludlow, England.

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with and without the tax, the taxes paid, and the loss of welfare from adjusting the number of windows in response to the tax.

In the sample from 1747 to 1757, the estimated welfare losses were very large for households at one of the notches. For them, the welfare loss (i.e., excess burden) is 62 percent of the taxes they paid. That is to say, for every dollar collected under our simulated version of the window tax, the tax imposed an additional burden or cost of 62 cents on these households. The excess burden, not surprisingly, is particularly large for households that chose 9 windows. One criterion economists use to evaluate a tax is excess burden relative to taxes paid. By this standard, a good tax is one that collects significant revenue buts leads to very small changes in decisions. Consumers who purchased 9 windows are thus the worst possible case. Those consumers paid no tax; so, for them, the entire burden of the tax is excess burden.

For our entire sample of 1,000 simulated households, the excess burden as a fraction of taxes paid is about 14 percent. Thus for each tax dollar raised by the window tax, our simulation suggests an additional cost of 14 cents to taxpayers as a result of their distorted choices.

### Some Concluding Remarks

The window tax represents a very clear, transparent case of excess burden—a tax that placed heavy costs on taxpayers in addition to their tax liabilities resulting from tax-avoiding adjustments in behavior. But, as mentioned early on, modern property taxes also create an excess burden, although the consequences are less dramatic than in the case of the window tax.

In designing a tax system, it is important to consider this issue. The ideal, in principle, is a neutral tax that raises the desired revenues but doesn't distort taxpayer behavior so as to create additional burdens. Such a tax is a pure land-value tax levied on the site value of the land—that is, its value with no improvements. Thus, the assessed value of the land (and hence the tax liability of the owner) is completely independent of any decisions made by the owner of the land parcel. Unlike the window tax, which provides a compelling example of the additional costs that arise when property tax liabilities depend on the behavior of the property owner, a land-value tax creates no incentives for tax-avoiding behavior.