

Real Estate Taxation Mathematics 101 *by Randal S. Doaty*

The fundamentals of real estate taxation mathematics are really quite simple. However, when it comes to *selling* a real estate tax increase to the public, taxing authorities (school districts, counties, and municipalities alike) commonly use a scheme that greatly reduces the apparent cost to the taxpayer, allowing them to slip millions of dollars of real estate tax increases past the unsuspecting public. It is a common sales ploy and we have fallen for it again and again.

This is the Sales Pitch

The school district adds an additional \$1,000,000 to the budget. This number is quickly divided by the average value of a home in the school district. Then that number is divided by twelve to get the cost per household per month. Before you know it, parents and teachers are asking if you really want to do away with sports program, music, after school programs for a measly \$24 per household per month. The spontaneous answer is "no".

Basic Home Buying Mathematics

First, you need to understand that residential real estate values are based upon what it will cost an average consumer per month to own a home. This number is called P.I.T.I, which represents – principle, interest, taxes and insurance. Most real estate consumers are limited by the PITI limits set by the mortgage lenders. You cannot exceed your maximum PITI amount when buying a home.

The PI (principle and interest) part of this number fluctuates with home mortgage interest rates. The T – (taxes) fluctuates with the tax increases by the taxing authorities. The I – (insurance) is the most stable part of the PITI and is controlled by insurance rates. The combination of these three factors determines what a buyer can pay a seller for a home.

If a consumer has a PITI limit of \$1,500 per month, this number must be broken down into each of the three categories. In this case, we work in reverse and call it ITIP (PITI in reverse). We will use this mathematical example. We will deduct \$100 per month for homeowners insurance. We will deduct \$400 per month for real estate taxes. This leaves us with \$1,000 to pay our principle and interest payment to the mortgage company.

If we have \$1,000 per month to spend on principle and interest, we need to know the current interest rate being charged by the mortgage company for a 30-year loan. An example would be a 30-year mortgage at 6% interest will cost a buyer \$6.00 per month for every \$1,000 they borrow. The \$6.00 per month is an important number

to remember when considering the bigger picture – the impact of a tax increase by schools or local government.

In the example we started with, we had a maximum of \$1,000 per month that remained from our PITI calculation to spend on principle and interest payments. To determine how much home we can purchase, we simply divide \$1000 per month, by \$6.00 per month that the mortgage company is going to charge us. This number comes out to 166.666. This is another way of saying that a buyer limited to a \$1,500 per month PITI can purchase a home for \$166,660 if the taxes are \$400 per month and the insurance is \$100 per month.

The Effects of a Property Tax Increase

The big “T” in the middle of PITI represents our taxes. When this number goes up, the amount that we can spend of PI (principle and interest) *automatically goes down*. Since a buyer is limited by the PITI, a tax increase will decrease the amount of money that a buyer can pay to a home seller. When buyers can pay less, sellers will get less. A tax increase will decrease the value of real estate by decreasing what a buyer can pay for that real estate because of the PITI set by mortgage companies. Both the buyer and the seller are at the mercy of the taxing authorities.

Another Look at the Sales Pitch

Remember the measly \$24 per month, per household tax hike we looked at in the beginning? If you take this little number and divide it by another little number, it leads to a much bigger number. In this case, we divide the \$24 per month, by the \$6 per month that was discussed above and that equals 4. That four represents \$4,000 of purchasing power lost by a buyer and \$4,000 of lost potential income for a seller. The question is now whether a buyer or seller is willing to throw \$4,000 of home value into the pot to pay for the school programs. It looks a little different at this scale.

The Bigger Picture

The bigger picture is made bigger by the larger numbers. This is where it really gets scary.

Imagine that the school district needs to raise \$10,000,000 a year in revenue by raising real estate taxes. We go back to our basic real estate taxation mathematics and look at the numbers in a new and different way. Rather than looking at a per-household number, we will look at the overall real estate valuation of the entire school district.

In this case, we will divide \$10,000,000 by 12 months. That means that we will have to make up the new amount at a rate of \$833,333 in the “T” (taxes) in the PITI. That’s a really big number – but it gets much bigger. If we look at the borrowing example of \$6 per month for the 30-year mortgage at 6% interest, we need to factor in that little \$6 per month payment. In this case, we divide \$833,333 per month by \$6 per month. What you get is \$138,000,000! That’s right; a \$10 million dollar tax increase will decrease the value of real estate in the school district by \$138 million dollars using basic real estate taxation mathematics.

To keep this simple, look at it this way. Every time your taxing authority is willing to raise the real estate taxes in your school district by \$1,000,000 – you are essentially reducing the value of all real estate in the school district by nearly \$14 million dollars with the examples we used above. If you think this isn't true, look at how real estate values plunge in boroughs and cities that keep raising taxes despite dwindling revenues.

The Real Estate Tax Elimination Stimulus Effect

The opposite of what I have just presented is also true! The elimination of the "T" in PITI could have a huge economic stimulus effect on a struggling real estate market. By simply removing the tax portion of the total allowable monthly payment, you have significantly increased a buyer's "purchase power". We will go back to the example used above:

"If a consumer has a PITI limit of \$1,500 per month, this number must be broken down into each of the three categories. In this case, we work in reverse and call it ITIP (PITI in reverse). We will use this mathematical example. We will deduct \$100 per month for homeowners insurance. We will deduct \$400 per month for real estate taxes. This leaves us with \$1,000 to pay our principle and interest payment to the mortgage company."

With the removal of the \$400 per month previously allotted for real estate taxes, the Buyer will have another \$400 to spend on principle and interest. Previously, they could only spend a maximum of \$166,660 for a mortgage. With the elimination of the tax portion of the PITI, they can now spend a total of \$233,333. That's right – the Buyer's purchase power has been increased by \$66,673! Purchase power always influences sales price!

Most people wonder how the current real estate market will ever turn around. The elimination of real estate property tax is the answer. No other form of real estate market stimulation could be more instantly powerful than the complete elimination of real estate property taxes.

The Current Government Plan – Low Home Mortgage Interest Rates

The US Government has been keeping home mortgage interest rates at all-time lows to stimulate the real estate market. They can't go much lower without simply giving the mortgage money away at zero percent interest. These low rates have done little to stimulate the real estate market back to a point of recovery. Sadly, few people consider the dark side of this pendulum swing. Interest rates MUST rise at some point.

When the interest rates begin to rise, the PITI factor will again be a point of concern. As the first "I" in PITI rises, the "purchase power" of a Buyer will begin to decrease. In the first example above, I used an interest rate of approximately 6%. If the interest rate would jump to 8%, the purchase power of a Buyer who is limited to \$1,500 total PITI drops from \$166,660 to a maximum of \$136,239. Yep – they lost \$30,000 in purchase power with a 2% increase in home mortgage rates.

The combination of rising real estate property taxes and rising home mortgage rates is the perfect storm of disaster for the US real estate market. It would create a purchase power vacuum that will knock the value of real estate appreciation back by

many decades. It is impossible to counter the rebound that will come in the form of higher home mortgage interest rates. The only other viable solution is the elimination of real estate property taxes. The time has come when no other solution is possible other than immediate real estate property tax reform.

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