



UNIVERSITY OF ALBERTA
FACULTY OF ARTS
Department of Economics

Working Paper No. 2021-06

Should Canada's Capital Gains Taxes be Increased or Reformed?

Melville L. McMillan
University of Alberta

August 2021

Copyright to papers in this working paper series rests with the authors and their assignees. Papers may be downloaded for personal use. Downloading of papers for any other activity may not be done without the written consent of the authors.

Short excerpts of these working papers may be quoted without explicit permission provided that full credit is given to the source.

The Department of Economics, the Institute for Public Economics, and the University of Alberta accept no responsibility for the accuracy or point of view represented in this work in progress.

Should Canada's Capital Gains Taxes be Increased or Reformed?

Melville L. McMillan ^a

August 4, 2021

Abstract

Since being introduced in 1972, taxable capital gains in Canada have been based on partial inclusion of nominal capital gains (i.e., the difference between sale and purchase prices). The inclusion rates have varied between 50 and 75 percent but have been 50 percent since 2000. Recently, there has been discussion of increasing capital gains taxes by increasing the inclusion rate (back to) 75 percent. In this paper, I argue that the capital gains tax is a poorly designed and inequitable tax and so, rather than make another ad hoc adjustment to the inclusion rate, a superior option is to reform capital gains taxation by indexing for inflation so as to measure real capital gains (i.e., the increase in purchasing power that is realized). The Toronto Stock Exchange Composite Index and the index of consumer prices are used to determine 40 and 50 year sequences of the differences between real and nominal measures of capital gains under both 50 and 75 percent inclusion rates for an index asset held for 20, 10 and 5 years. The work demonstrates that taxable capital gains are over and under assessed considerably relative to real capital gains. For example, over the period 1996 to 2020, differences between the taxable capital gains under a 75 percent inclusion rate and real gains would have been about 20 percent for a 10-year hold and about 33 percent for a 5 year hold. The results demonstrate the varying disparities between real gains and those under partial inclusion. Such disparities imply wide differences in effective tax rates and so inequities among investors, over time and with other taxpayers. This evidence argues persuasively that Canada's capital gains taxation should abandon partial inclusion and turn to serious reform by indexing for inflation.

Keywords: Capital gains tax, inclusion rate, inflation, nominal versus real, indexing

JEL Codes: H2, E620

a. Professor Emeritus, Department of Economics, University of Alberta, 8-14 Tory Building, Edmonton, AB, Canada T6G 2H4, E-mail: melville.mcmillan@ualberta.ca

Should Canada's Capital Gains Taxes be Increased or Reformed?

Melville McMillan
Professor Emeritus, Economics,
University of Alberta

August 4, 2021

Prior to the April 2021 federal government budget, there was considerable discussion about increasing capital gains taxes. Smart (2020) made a thoughtful case for increasing the share of capital gains included in taxable income (back to) 75 percent from the current 50 percent. Naturally, there were concerns about any increase (e.g., Whalen and Clemens, 2021). No change occurred but the issue is likely to re-emerge if there is a federal election and certainly before the next budget. The intervening lull is an opportunity to look more closely at capital gains and their taxation. This note is an effort to provide a more complete perspective and, particularly, to assess (in the context of corporate shares) the implications of inflation for the measurement and tax treatment of capital gains.¹

In this paper I argue that the capital gains tax is a poorly designed and inequitable tax and so, rather than make another ad hoc adjustment to the inclusion rate (which is likely to be a simple but, to some, an appealing approach to increasing capital gains taxes), a superior option is to reform the capital gains tax so that it will be both equitable and efficient and from which better decisions can be made as to further improvements. The fundamental problem is that while other forms of income (e.g., wages and salaries, net business income, dividends and interest)² are earned and are taxed in the same year, capital gains normally accumulate over a number of years during which the purchasing power of a dollar declines due to inflation. The existing 50 percent inclusion rate is a very imperfect adjustment for inflation (and a 75 percent inclusion rate is unlikely to be much better in the long term). In fact, any arbitrary inclusion rate of nominal capital gains will produce inequities. Rather, capital gains should be indexed so as not to tax the illusionary gains arising from inflation but rather tax the increase in real purchasing power that the taxpayer experienced. Also, once appropriately measured, the appropriate treatment of capital gains can better be assessed.

Principles and Practices of Income Taxation

Economists' standard definition of income is the Haig-Simons definition. They define income as consumption plus change in net worth or the money value of the net increase to an individual's power to consume during a period.³ This comprehensive definition underlies the recommendations of the 1966 Royal Commission on Taxation (the Carter Commission) and serves as the basis for and guide to income taxation today.

Implementation of the Haig-Simons definition of income in taxation poses practical problems and the taxation of capital gains is a notably troublesome issue. One problem is that assets generating capital gains and losses are typically held for a number of years and, conceptually, the annual gains/losses should enter each year's taxes as they accrue. The measurement of capital gains/losses (i.e., the change in purchasing power) of property and financial assets from one taxation year to the next can be difficult because their value may increase or decrease irregularly

from year to year and also because often the asset is not traded on an active market where the value can be observed. As a result, capital gains are typically determined and taxed when realized at sale (as in Canada) as the difference between the sale and purchase prices. The issue of the deferral of taxes as capital gains accumulate over time (or the possibility of accrual taxation) is not examined here.⁴

The essentially necessary delay in the determination of capital gains until realization creates the second problem which is the focus of attention here. The nature of capital assets means that there is usually a lengthy period between acquisition and sale – a time during which prices normally change due to inflation. As a result, a dollar at the time of sale has less purchasing power than a dollar at the time the asset was purchased. Hence, the nominal difference between the sale and purchase prices overstates the actual change in the seller's purchasing power and so overstates income (i.e., the gain in the power to consume) following the Haig-Simons criterion. To illustrate, assume an individual purchases a vacant lot for \$10,000 and ten years later sells that lot (without doing anything to enhance or diminish its value) for \$12,000. The nominal capital gain is \$2,000. But, if the general price level had increased 20 percent over that time, the \$12,000 would have only the purchasing power of the original \$10,000 paid and the person would have zero gain in real income and no real capital gain. Alternatively, if prices had increased by ten percent, there would be a \$1,000 capital gain that should be taxed. On the other hand, if prices had increased by 30 percent, the seller would have had to sell for \$13,000 just to maintain the purchasing power of the original \$10,000 invested. Selling for \$12,000 would involve a real capital loss (i.e., a loss of purchasing power) and a loss of real income of \$1,000. Were the \$2,000 nominal "capital gain" taxed, the sellers' real loss would actually be amplified as it would augment the \$1000 loss of purchasing power by the amount of the tax. With inflation, a dollar today does not have the value of a dollar in the past so they should not be treated as identical for tax purposes. That is, when it comes to capital gains, a dollar is not necessarily (or may no longer be) a dollar.

Canada has taxed capital gains in various ways.⁵ Prior to 1972, capital gains were not taxed. From 1972 to 1988, 50 percent of capital gains were included as taxable income. The inclusion rate was increased to 66.7 percent from 1988 to 1990, raised to 75 percent from 1990 to 2000, and then reduced to (the still current rate of) 50 percent. (Capital gains are measured in nominal terms; that is, sale price less purchase price.) There have also been a variety of exemptions. Notably, principal residences are exempt. In addition, a general lifetime exemption for individual taxpayers of \$500,000 was introduced in 1985, reduced to \$100,000 in 1987 and eliminated by 1994. However, an exemption for small businesses continued, was indexed for inflation and now (i.e., for the 2020 tax year) stands at \$883,384 while that for farms has been \$1 million since 2016. Obviously, the provisions have varied considerably over time with changes in certain exemptions and partial inclusion rates. Clearly, the indexing of the farm/small business exemption provides some allowance for inflation for some taxpayers. Although the rationale is sometimes debated, a partial inclusion rate (now 50 percent) is often attributed at least partly to being an effort to offset the negative impacts of inflation.

Partial inclusion is an unsatisfactory adjustment for inflation and so typically results in the under or over taxation of real capital gains. Increasing the inclusion rate from 50 to 75 percent, while possibly offering what may be some temporary advantages, does not fundamentally improve the equity or efficiency of the tax system. A fairer and more efficient tax system calls for more fundamental reform – reform that correctly identifies true capital gains.

Evidence of Differences in Measures of (Taxable) Capital Gains

Examined here are the differences in measures of taxable capital gains that arise from not adjusting for inflation. For a relevant real world illustration, we turn to the Toronto Stock Exchange Composite Index. Figure 1 reports the annual closing levels of the Index over the 50 years from 1971 to 2020. Over that time, the Index rose from 991 to 17,433. Part of the growth in the Index is the result of price change. If the Index is restated in constant 2020 dollar terms, the 1971 level becomes 6493. That is, an investor purchasing units of the TSX Composite Index in 1971 for \$991 (1971 dollars) would need to realize \$6473 (2020 dollars) in 2020 from the sale of those units to maintain the same purchasing power as the initial investment of \$991 in 1971. The upper line in Figure 1 shows the value of the nominal TSX Composite Index expressed in 2020 dollars. The distance between the two lines shows the change in the Index needed to maintain constant purchasing power in 2020 dollars.

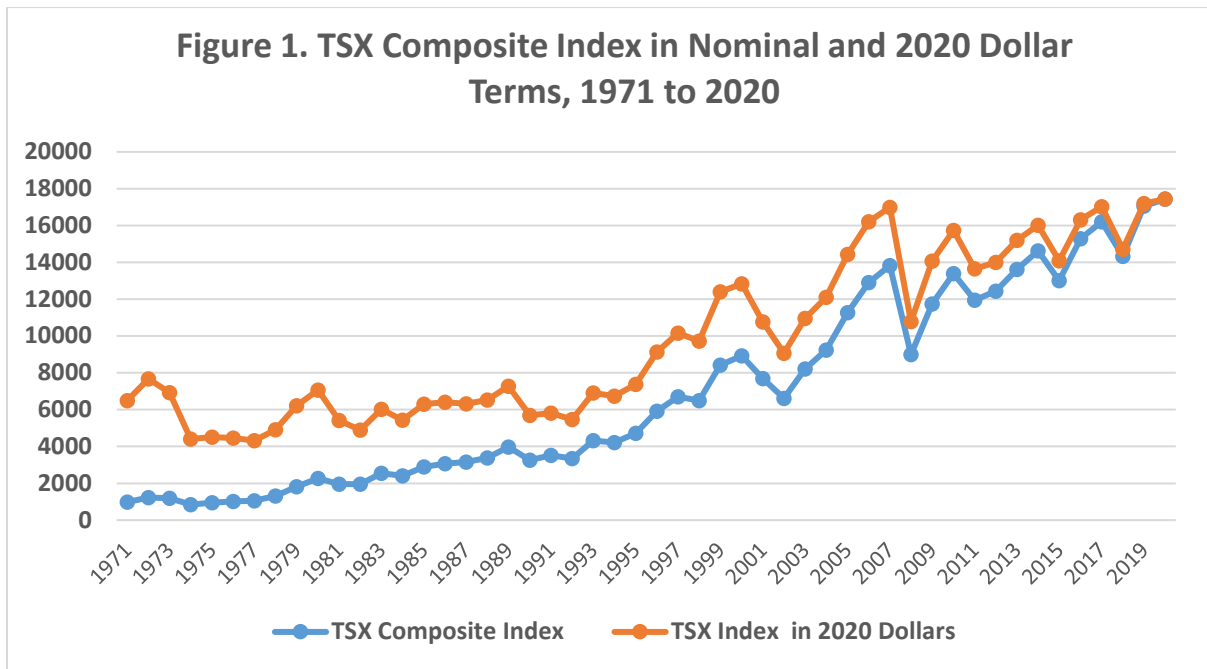
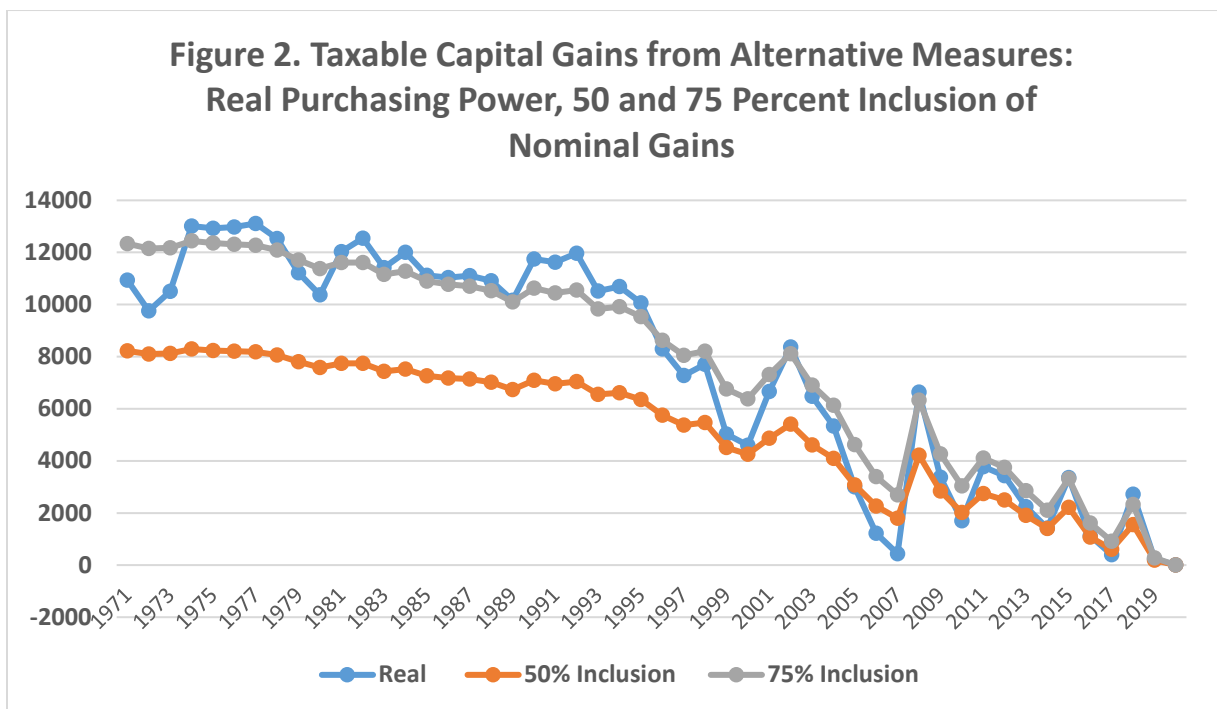


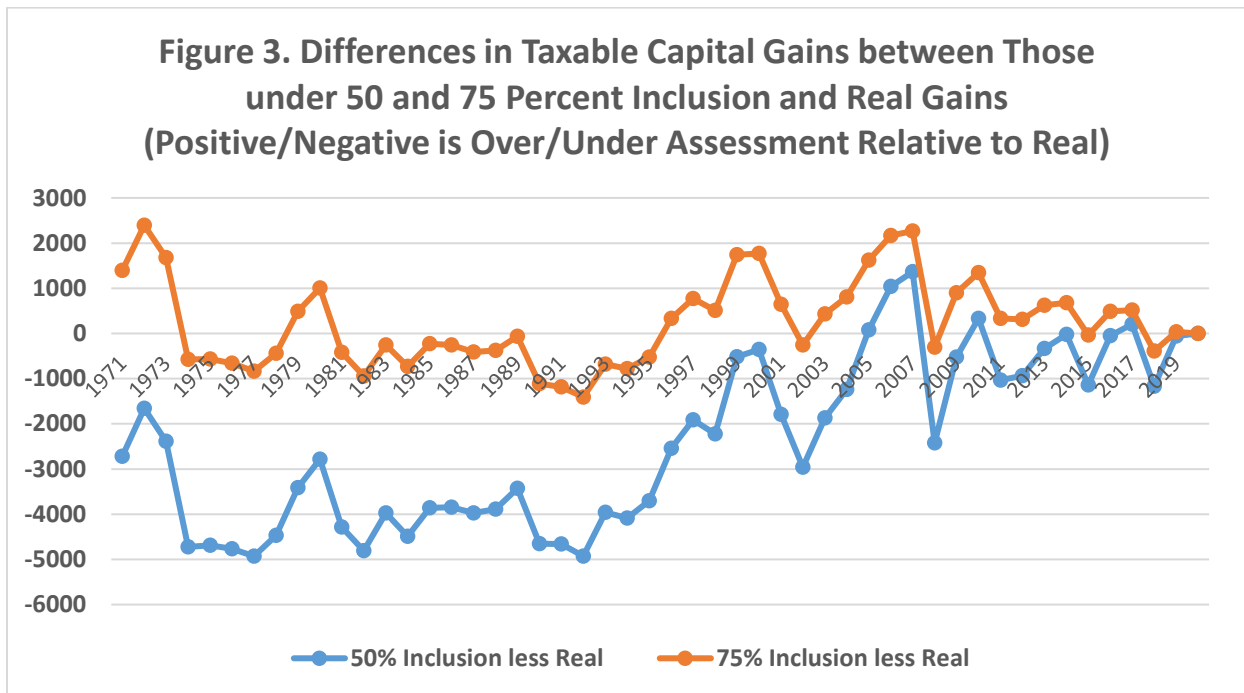
Figure 2 reports taxable capital gains using three alternative measures – the gain in real purchasing power, and 50 percent and 75 percent of nominal capital gains. The calculations assume assets were purchased at the Index value in each year from 1971 on and then sold (the gains realized) in 2020. Thus, the periods that the assets are held range from 50 years to one year

(with zero capital gains in 2020). The illustration calculates capital gains as if the 50 and 75 percent inclusion rates existed over the entire time period although, as noted, that is actually not the case. The nominal capital gains are calculated as the TSX Index value in 2020 less the value in the assumed year of purchase (i.e., from the lower line in Figure 1). As examples, the nominal capital gain for assets purchased in 1971 is \$16,441 (i.e., \$17,433 - \$991), and \$8499 (\$17,433 - \$8934) for those purchased in 2000. The corresponding taxable capital gains are for the 1971 purchase, \$8221 and \$12,332 under 50 and 75 percent inclusion rates respectively, and for the 2000 purchase, \$4250 and \$6375. The taxable capital gains under the two inclusion rates appear in Figure 2 (those under the 50 percent rate being the lower) and both trend downwards to zero in 2020. Real purchasing power capital gains are calculated using data from the upper line in Figure 1. The real capital gains from sale of the 1971 purchase amount to \$10,940 (\$17,433 - \$6493) and \$4604 (\$17,433 - \$12,829) for the 2000 purchase. The real capital gains are shown as the more irregular upper line in Figure 2. The taxable capital gains under a 75 percent inclusion rate appears to track the real capital gains fairly well but further analysis shows still considerable and unappealing deviations.



The differences in the taxable capital gains between those under 50 percent and 75 percent inclusion rates and the real purchasing power capital gains are reported in Figure 3. Negative values indicate under assessment relative to real gains and positive values over assessment. Clearly, a 50 percent inclusion rate has typically under assessed capital gains compared to real capital gains. Even since 2000 (i.e., since the 50 percent rate was re-introduced), the 50 percent inclusion rule has under assessed capital gains in 14 of the 19 years to 2019. The differences are

more modest had 75 percent inclusion been followed throughout and especially so pre-1996 although under assessment still would have prevailed. Since 1996, however, a 75 percent inclusion would have typically over assessed capital gains relative to real gains. During the 20 years with over assessments, the average over assessment would have been \$872 on real capital gains averaging \$3687 (i.e., an average over assessment of 23.7 percent) and, during the four years with under assessments, the under assessments averaged \$197 on real gains of \$5273 (i.e., an average under assessment of only 3.7 percent). In addition, the year-to-year variation is considerable and further undermines equity. For example, during the 20 years having over assessments, the over assessments ranged from \$33 to \$2264 and from 4 to 519 percent of real capital gains. That a 50 percent inclusion rate continues to typically understate taxable capital gains relative to the real gain in purchasing power is a problem. However, the tendency for a 75 percent inclusion rate to over assess real capital gains (by an average of 18.2 percent) even over the low inflation years since 1995 is a concern as is the large the year-to-year variation.⁶



Differences under Alternative Holding Periods

In the above analysis differences between taxable capital gains under 50 and 75 percent inclusion of nominal gains and real gains in purchasing power were examined for holding periods ranging from one to 50 years. It is also helpful to examine the differences that would have emerged under holding periods of a fixed length. The periods examined below are for holding a TSX Composite Index asset for 20 years, 10 years and 5 years.

These periods are selected because they reflect the range of time periods that many capital assets are held before capital gains are realized by individual taxpayers. The Canada Revenue Agency was unable to provide data on holding periods but, fortunately, the U.S. Internal Revenue Service has such information.⁷ The data for long-term capital gains (i.e., those reported for assets held longer than one year) that were reported on individual tax returns for 2012 are summarized in Table 1. That table reports the percentage of individual returns reporting long-term capital gains and the percentage of those long-term gains declared for selected holding periods. The table reports that information for all assets, corporate stock and real estate. Not reported here are capital gains on bonds and on other assets.⁸ Also note that short-term transactions (i.e., held less than one year) of corporate stock amount to 53 percent of total transactions and 12.3 percent of total gains, for real estate the corresponding amounts are 10.3 and 2.6 percent and for all asset types 47.8 and 1.2 percent respectively. Thus, by far, most capital gains arise from assets held for longer than one year.

Holding Period (years)	All Asset Types		Corporate Stocks		Real Estate	
	% of transactions	% of gain	% of transactions	% of gain	% of transactions	% of gain
1 to <2	38.2	11.3	40.6	13.5	8.2	3.4
2 to <5	41.5	23.3	41.1	24.4	18.4	10.9
5 to <10	12.3	18.4	11.0	18.0	23.0	17.4
10 to <15	4.5	13.8	4.1	12.7	15.5	17.3
15 to <20	1.7	8.7	1.7	7.1	10.1	15.1
20 and over	2.0	24.5	1.6	24.4	24.9	35.9
Sum	100.0	100.0	100.0	100.0	100.0	100.0

Source: Data from Wilson and Liddell (2016) with author's calculations.

Notes: a) Additional types of assets generating capital gains but not reported here are bonds and other. Also, the data are for gains alone; that is, not net gains after losses.

Table 1 provide further information on long-term holding. Although corporate stock held from one to (less than) five years amounts to over 80 percent of the transactions of long-term holdings of corporate stock, those transactions account for only 37.9 percent of the capital gains generated from those assets. Eighteen percent of corporate stock gains come from stocks held between five and ten years. Essentially one-quarter of the (long-term) gains from stocks come from those that were held for 20 years or more (even though they represented only 1.6 percent of transactions). Over 44 percent of the (long-term) capital gains from corporate stocks were realized from stocks held for ten years or more and most of those from stocks held over 20 years.

Real estate has longer holding periods. One-half of the real estate transactions generating capital gains were held for over ten years and those transactions accounted for over two-thirds (68.3 percent) of the capital gains and 35.9 percent from assets held 20 years or more.

Note too that the distribution of the transactions and gains of all asset types combined parallel quite closely those of corporate stocks. Hence, assets accounting for a substantial portion of taxable capital gains have had lengthy holding periods. For example, almost one-half of gains come from those held for over ten years and almost one-quarter from assets held over 20 years. Clearly, inflation over such holding periods, even at relatively modest rates, has significant effects on the purchasing power of nominal capital gains.

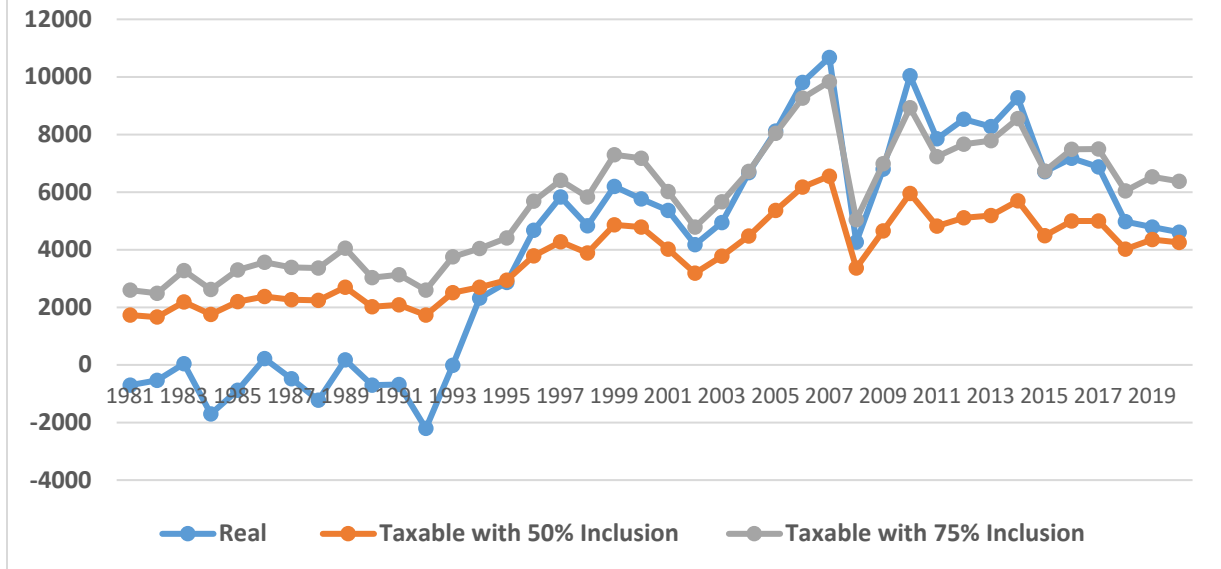
To obtain a better grasp of the impacts of inflation over a range of holding periods and historic conditions, the effects of holding a TSX Composite Index asset for 20, 10 and 5 year periods are examined. These periods represent reasonably well the range of holding periods of corporate stocks (and many other assets generating capital gains).

A Twenty Year Hold

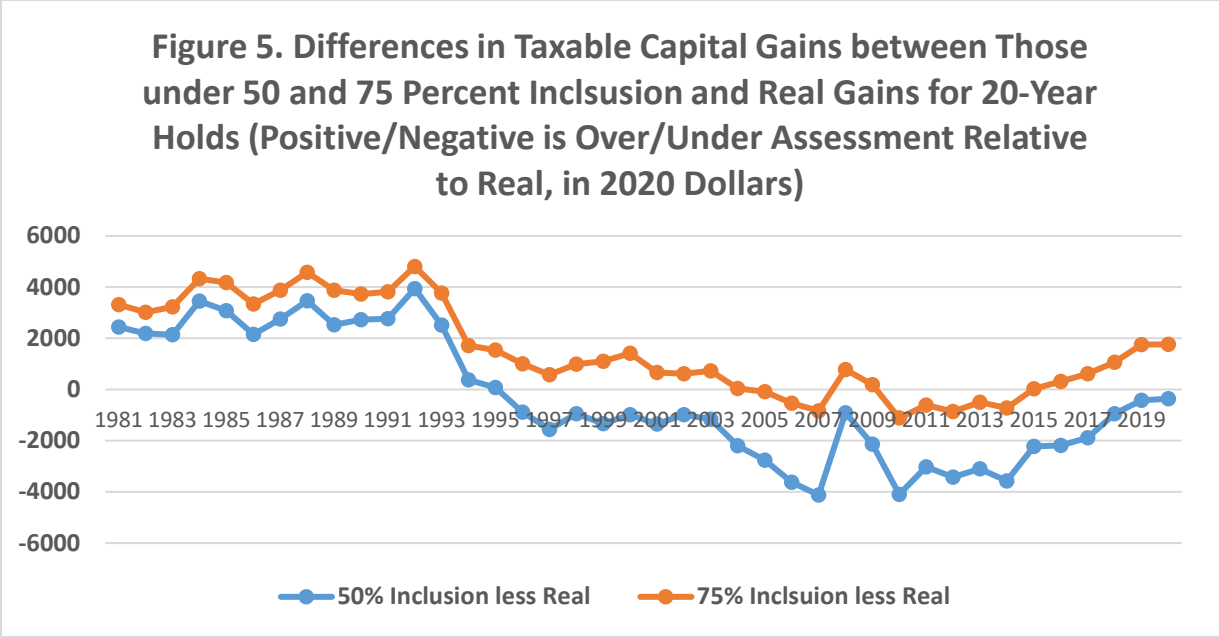
For this analysis, it is assumed that a unit of the TSX Index is purchased and then sold 20 years later. For example, a 1971 purchase would be sold in 1991 and a 2000 purchase sold in 2020.⁹ To extend the time frame, it is assumed that the initial sale was in 1981 implying purchases beginning in 1961 even though the capital gains tax was not introduced until 1971. Thus, there are 40 twenty-year periods examined. The taxable capital gains are calculated for 50 and 75 percent inclusion of nominal gains (assuming that each rate applied over all years) and are compared to real gains in purchasing power. To facilitate comparisons, all gains are reported in 2020 dollars.

The gains under the alternative assumptions are reported in Figure 4 for 40 consecutive 20-year holds from 1981 to 2020. Real purchasing power gains from holding the Index are actually negative (or, at best, very small) from 1981 until 1993. The taxable gains, however, under both the 50 and 75 percent rates over that period are consistently positive. Post-1993, both the real gains and the taxable gains under both inclusion rates are consistently positive. While the real gains average \$6386, the taxable gains under 50 percent inclusion average \$4544 and those under 75 percent inclusion average \$6816. The 50 percent inclusion rate would have taxed less than the real gains in all years after 1993 but for 1995. From the mid-1990s on, the taxable assessment under a 75 percent inclusion rate would have tracked real capital gains much more closely but the differences are still notable.

**Figure 4. Taxable Capital Gains from Alternative Measures:
Real Purchasing Power, 50 and 75 Percent Inclusion of
Nominal Gains for 20-Year Holds (in 2020 Dollars)**



The differences between the taxable capital gains under 50 and 75 percent inclusion rates and real capital gains with a 20-year holding period that appear in Figure 4 are graphed in Figure 5. The large over assessments relative to real gains under the 50 and 75 percent rates from 1981 to 1993 are obvious. Also obvious is that the 50 percent inclusion rate under assesses taxable gains relative to real gains from 1996 onward. On average, the taxable assessment with the 50 percent inclusion method is 30 percent less than the real capital gains. While taxable capital gains under the 75 percent inclusion rate appears to follow real capital gains comparatively well from the mid-1990s forward, the deviations are greater than taxpayers are likely to wish for and might reasonably expect. Considering the 25 years 1996 to 2020, the 75 percent rule would have resulted in over assessments in 17 years and under assessments in eight years. The average over assessment is \$802 which is 14.4 percent of the real capital gains. The largest over assessment would have been \$1771 in 2020 and 38.5 percent of the real gain that year. The under assessments are smaller averaging \$660 or 7.3 percent of the real gains over those years and the largest was \$1116 (in 2010) which is 11.1 percent of the gain that year. Together, since 1995, the average annual absolute deviation from real gain is \$757 which is 11.3 percent of the average real gain. Thus, both the 50 and the 75 percent inclusion rules would have resulted in large over assessments for 20-year holding period of the TSX Index relative to real capital gains over the initial 13 years examined. During the last 25 years, the 75 percent rate would have more closely approximated real gains but, even so, the deviations are not minor and the year-to-year variations can be major.

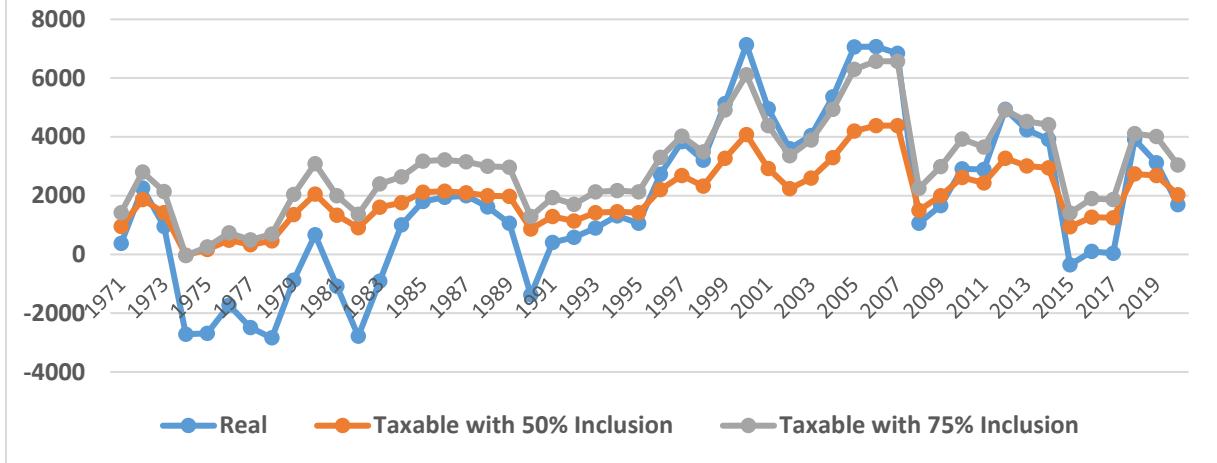


A Ten Year Holding Period

Now assume that taxpayers hold a unit of the TSX Index for ten years. That is, an asset purchased in 1970 is sold in 1980, one purchased in 1971 was sold in 1981 and so on with the unit sold in 2020 having been purchased in 2010. As above, the data are extend back prior to the introduction of the capital gains tax (in this case) to 1961 so as to report an initial gain as of 1971 and to have 50 years of consecutive 10-year holding period observations concluding in 2020. The taxable capital gains are calculated for the 50 and 75 percent inclusion of nominal gains assuming that each rate applied over the full period and those are compared with the real gains in purchasing power. All gains are reported in 2020 dollars.

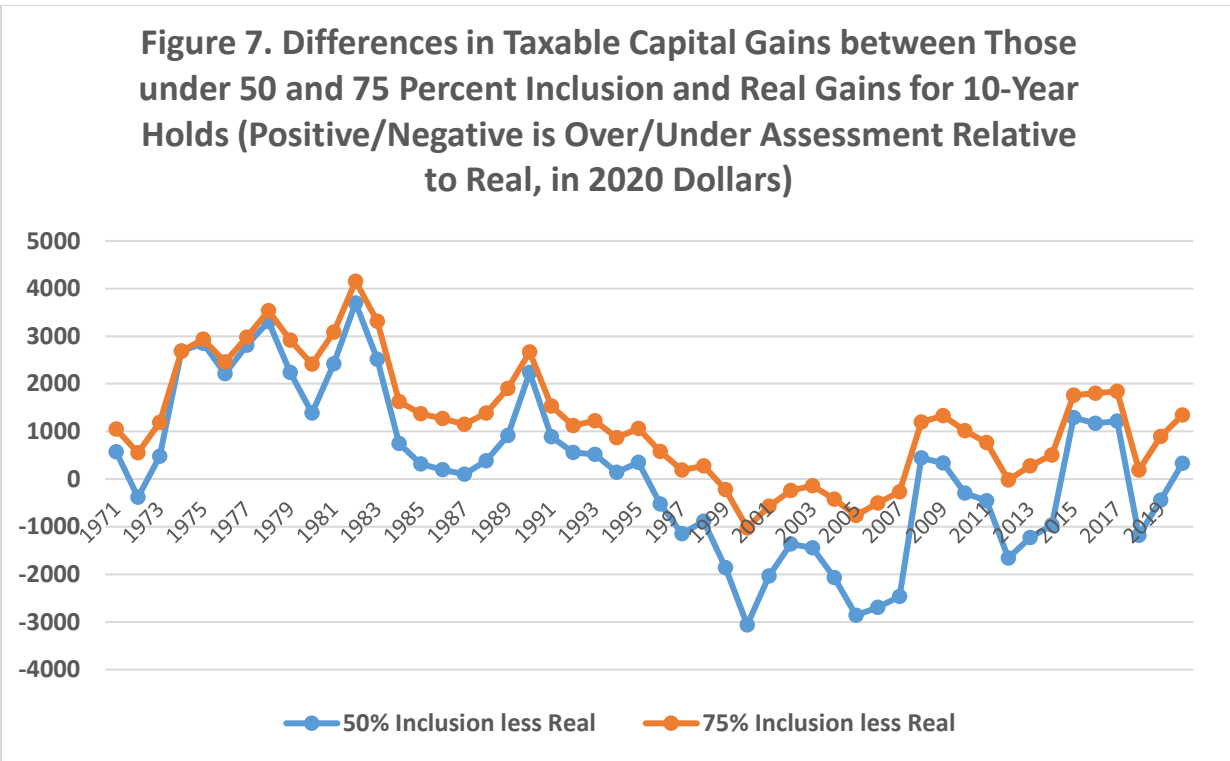
The three 50-year series of the capital gains resulting from holding the Index for ten years are shown in Figure 6. Prior to 1984, real capital gains were mostly negative although the taxable nominal gains under both the 50 and 75 percent inclusion rates would have been positive for all those years but 1974. Thereafter, the real gains were positive but for 1994 and 2015 although barely positive in 2016 and 2017. The taxable capital gains under both inclusion rates exceeded real gains until 1995. Post-1995, capital gains were quite volatile, taxable gains under the 50 percent inclusion rate were typically less than real capital gains (but for the six years 2008, 2009, 2015-17 and 2020), and taxable capital gains under the 75 percent inclusion rate tended to follow the real gains rather better but they were considerably greater or less especially after 2007.

Figure 6. Taxable Capital Gains from Alternative Measures: Real Purchasing Power, and from 50 and 75 Percent Inclusion of Nominal Gains for 10-Year Holds (in 2020 Dollars)



Differences in taxable capital gains under the 50 and 75 percent inclusion rates and the real capital gains are plotted in Figure 7. But for 1972, both the 50 and 75 percent inclusion rates would have resulted in over assessments relative to real capital gains from 1971 until 1995 for the 50 percent inclusion and until 1998 for the 75 percent rate. The average over assessment under the 50 percent inclusion to 1995 would have amounted to \$1439 annually on real capital gains averaging \$92. For the 75 percent inclusion rate, the over assessment to 1998 would have averaged \$1834 on real capital gains averaging \$312. Thus, for the first half of the 50 years examined, the taxable capital gains under the 50 and 75 percent inclusion rates exceed real gains by large amounts.

During the second half, the results would have been much less consistent. Considering the 25 years from 1996 to 2020, there were periods of over and under assessment for both the 50 and 75 percent inclusion rates. Under assessment prevailed for the 50 percent inclusion rate (for all but the six years 2008, 2009, 2015-2018 and 2020) and, across the 25 years, the average taxable assessment was \$2691 while the average real gain was \$3644 for an average under assessment of \$954.¹⁰ In the case of 75 percent inclusion, there were 10 years of under assessment and 15 of over assessment. The average annual taxable assessment over the 25 years was \$4036. With the 25 year average real capital gain (as before) of \$3644, the over assessment averaged \$392 annually. While, on average, the 75 percent inclusion would have tracked the real capital gains better than the 50 percent inclusion, substantial year-to-year variation is observed. The 75 percent inclusion case over assessed as much as \$1839 and under assessed as much as \$1024 on real gains of \$31 and \$4971 respectively. The average absolute discrepancy between the taxable and real gains under 75 percent inclusion is \$726 which amounts to 19.9 percent of the average real gain. Thus, the 75 percent inclusion rate approximates real capital gains better than the 50 percent rate over the past 25 years but there are still substantial discrepancies.



A Five Year Holding Period

The analysis in this section parallels that in the previous two but now examines the capital gains arising from holding a TSX Composite Index asset for only five years. Here, as in the 10-year hold case, the data are extended back so that there are 50 observations that cover the 1971 to 2020 time period. That is, the data calculated for the 1971 observation assumes a purchase in 1966 that is sold in 1971 and taxable that year. As before, the data are expressed in 2020 dollars.

Figure 8 shows the capital gains as determined for the three measures. The general patterns, once again, separate into the first and second halves of the 50 years examined with the latter half displaying greater volatility. Real losses occur in 12 of the 25 years from 1971 to 1995 but taxable losses occur in only two of those years. From 1996 to 2020, real capital gains were negative in seven years and positive in 18 years while taxable capital gains were negative in only four years. During this second half, taxable gains under 75 percent inclusion tended to follow real capital gains more closely than if using the 50 percent inclusion rate and especially when the real gains were positive and large.

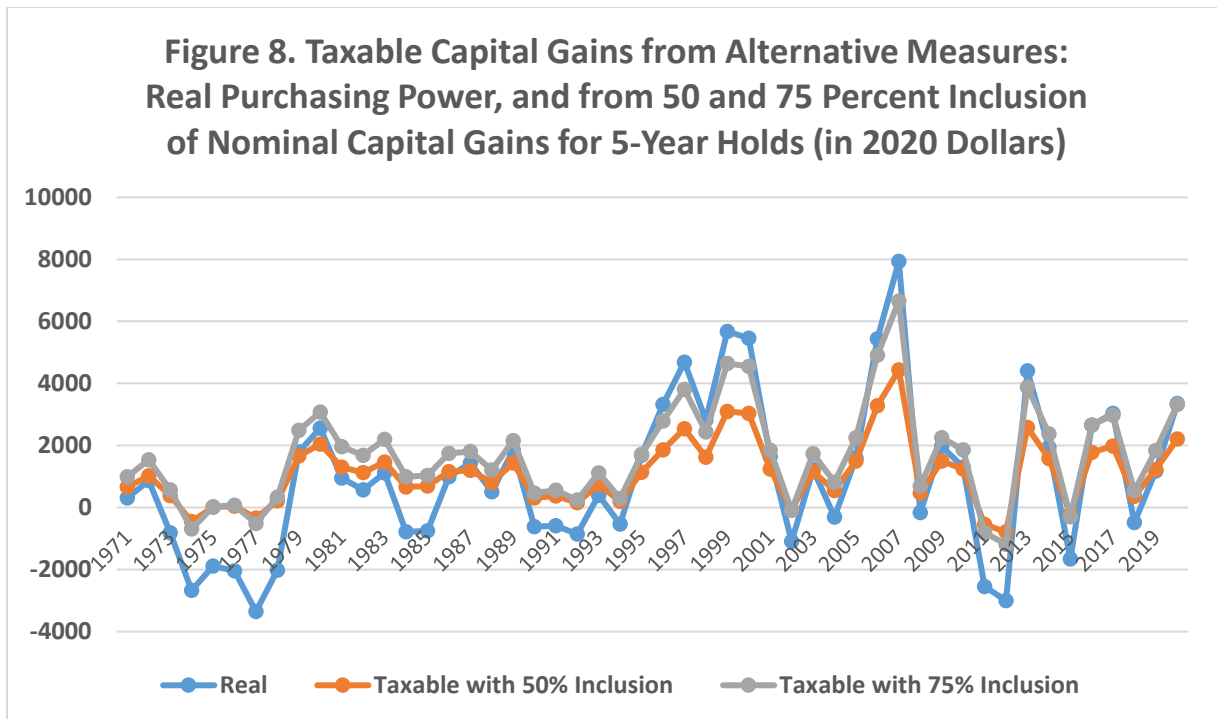


Figure 9 reports the differences between the taxable gains under the 50 and 75 percent inclusion of nominal capital gains and the real gains; that is, the over (if positive) and under (if negative) assessment relative to real capital gains. From 1971 to 1995, over assessment prevailed. Under assessment occurred in only two years with the 50 percent inclusion rate and never with the 75 percent inclusion rate. During that 25 year period, real gain averaged -\$77 (i.e., a small loss in real purchasing power) while taxable gains were \$720 with 50 percent inclusion and \$1051 if 75 percent inclusion.

The results are much less consistent during the second 25 years; that is, from 1996 to 2020. If following the 50 percent inclusion criterion, taxable gains were under assessed relative to real gains in 17 years and over assessed in eight. The average difference between the 50 percent inclusion taxable assessment and the real capital gain over that 25 years was -\$510 (i.e., under assessment) on an average real capital gain of \$2015 annually (i.e., under assessed on average 25.3 percent). Taxable assessed gains relative to real gains ranged widely – from -\$1284 to \$1135 with an average absolute deviation of \$1236 or 61.3 percent from real gains. Under the 75 percent inclusion rate, gains were under assessed in 10 years and over assessed in 15. The average difference is \$242 on the \$2015 average real gain or 12 percent. The under and over assessments ranged from -\$1283 to \$1818 with an average absolute deviation from the real gain of \$735 (32.6 percent). Unlike for the 1971 to 1995 period, over the latest 25 years the 75 percent inclusion rule approximates real gains more closely than the 50 percent inclusion rule. However, the deviation from the true capital gain is on average large and varies greatly from year to year.

Figure 9. Differences in Taxable Capital Gains between Those under 50 and 75 Percent Inclusion and Real gains for 5-Year Holds (Positive/Negative is Over/Under Assessment Relative to Real (in 2020 Dollars)



Summary Observations

Table 2 provides a summary of the results of the analyses for the 20, 10 and 5 year holding periods. The results are shown for two time periods. The latter period covers realizations made from the 25 years 1996 to 2020 while the earlier period covers those from 1971 to 1995 for the 10 and the 5 year holds but for the 15 years 1981 to 1995 for the 20 year holds. Deriving the results for at least initial parts of the earlier period required assuming that the capital gains tax existed prior to 1971. For example, for the 5-year hold case, the results for realizations up to 1975 are as if capital gains taxation existed pre-1971. Also, results are reported for taxable capital gains under both 50 and 75 percent inclusion and assuming the two rates applied over all the years analyzed. The dollar amounts are in 2020 dollars.

The summary table highlights some interesting features. In the earlier period, average annual real capital gains were negative (i.e., a loss of real purchasing power) for all three holding periods. Despite that, taxable capital gains were on average positive so, generally, in addition to experiencing real losses those selling stockholdings were being taxed on illusory gains with the result that the taxes augmented the real losses. The average amount of over assessment (i.e., the difference of the taxable assessments less the real gains) was larger than the taxable assessment and ranged across the six cases pre-1996 from \$797 to \$3541. As the range between the maximum and minimum differences indicate, the degree of over assessment varied widely over the years. For example, for 50 percent inclusion in the 10-year hold case, the maximum was \$3699 (over assessment) while the minimum was -\$384 (an under assessment). Similarly, the averages of the absolute values of the differences (i.e., the average deviation of taxable from real capital gains) were considerable and across the three holding periods ranged widely (from \$943

to \$3541). Thus, in the pre-1996 cases, there was substantial over assessment and over taxation of capital gains.

Table 2. Summary of Results from Analyses of Capital Gains under Selected Fixed Holding Periods (2020 Dollars)^a					
Inclusion Level	1971 to 1995 ^b		1996 to 2020		
	50%	75%	50%	75%	
20 Year Hold (1981-1995)					
Real (Average)	-234	-234	6689	6689	
Taxable (Average)	2205	3307	4682	7024	
Taxable less Real					
Difference (Average)	2438	3541	-2007	334	
Over/Under Observations	15/0	15/0	0/25	17/8	
Maximum	3941	4807	-354	1771	
Minimum	73	1543	-4120	-1116	
Absolute (Average)	2438	3541	2001	757	
Absolute (% of Real)			30.0%	11.3%	
10 Year Hold					
Real (Average)	-62	-62	3644	3644	
Taxable (Average)	1304	1956	2691	4036	
Taxable less Real					
Difference (Average)	1366	2018	-954	392	
Over/Under Observations	24/1	25/0	6/19	15/10	
Maximum	3699	4156	1294	1839	
Minimum	-384	550	-3062	-1024	
Absolute (Average)	1396	2018	1337	726	
Absolute (% of Real)			36.7%	19.9%	
5 Year Hold					
Real (Average)	-77	-77	2015	2015	
Taxable (Average)	720	1081	1504	2257	
Taxable less Real					
Difference (Average)	797	1157	-510	242	
Over/Under Observations	20/5	25/0	5/17	15/10	
Maximum	3012	2842	1135	1818	
Minimum	-541	28	-1284	-1283	
Absolute (Average)	943	1157	1236	735	
Absolute (% of Real)			61.3%	32.6%	
Notes: a. Based on TSX Composite Index data.					
b. For all but the 20 year hold. The results are for 1971-1995 for the 10 and 5 years holds while the 20 year hold results are for 1981-1995.					

The patterns are different over the 25 years 1996-2020. The average annual real capital gain was positive and relatively large; \$6689, \$3644 and \$2015 for the 20, 10 and 5-year holds. Not surprisingly, taxable capital assessments were consistently positive but not so the over/under assessment calculations. Under 50 percent inclusion the differences between taxable and real gains were negative (indicating under assessment on average) in all three cases. Under 75 percent inclusion, the average differences were positive (indicating over assessment). Over the 25 years, both over and under assessments of notable amounts occurred except for the 20-year case with 50 percent inclusion for which under assessment existed in every year. As the average absolute differences show, the 75 percent inclusion rate provided a closer approximation of the average real capital gains than the 50 percent inclusion rule. Nonetheless, the disparities between the taxable gain under the 75 percent inclusion rate and the real capital gains are substantial – 19.9 percent for a 10-year hold and 32.6 percent for a 5-year hold ¹¹ -- is concerning.

This degree of “error” is concerning especially because following the index reflects only the average. Besides the average year-to-year variations, individual investors, whether due to luck or skill (or the lack thereof), can experience even wider variations in over and under assessments relative to real changes (gains/losses) in purchasing power. Furthermore, an individual investor realizing capital gains in a given tax year from assets held for different lengths of time will probably have different degrees of over/under assessment applied to those assets. However experienced, over and under assessments imply that identical investors (or even the same investor) will experience different effective tax rates on their investment incomes. That is unfair (and one expects that such variations would be deemed unacceptable if they existed for other forms of taxable income). Equitable tax treatment requires assessing the real gains in purchasing power from investments.¹²

The over assessment that prevailed pre-1996 results at least in part from the comparatively high inflation during that period. From 1971 to 1995, the inflation rate averaged 6.1 percent. The mixed pattern of over/under assessment that occurred in the last 25 years reflects in part the low inflation which averaged 1.8 percent. While 75 percent inclusion has tracked real capital gains better than the 50 percent rate during this low inflation period, the persistence of large year-to-year and average deviations from real capital gains is discouraging as they indicate the existence of substantial inequities among investors.

Conclusions and Closing Observations

This analysis has demonstrated in the context of the Toronto Stock Exchange the extent by which the assessment of taxable capital gains in Canada under partial inclusion deviates from real capital gains. Taxable capital gains are over and under assessed considerably and consistently relative to an accurate measure of gain (i.e., the gain in purchasing power). Hence, capital gains taxation is inequitable among investors and, in turn, across all taxpayers. Increasing the partial inclusion rate from 50 to 75 percent offers only a very rough, modest and possibly temporary improvement. More fundamental reform, in the form of indexing for inflation, is needed and, as indicated by the results for the 1996-2020 period, is required even in a low inflation environment.

Assessing real capital gains requires adjusting for inflation. That is not a simple exercise but very little in our taxation system is simple. For example, adjusted cost bases (ACB) are calculated for share prices. Surely an adjustment for changing purchasing power could be incorporated. The problems inflation causes for measuring capital income and the logic of indexing so as to tax real capital gains and better approximate the Haig-Simons criterion has been long and widely acknowledged (as have the difficulties of indexation and other approaches to addressing the inflation problem).¹³ Some countries use (or include) some form of inflation indexation (Israel, Mexico and Turkey). Most, however, as in Canada, have adopted (possibly for various reasons beyond offsetting inflation) various seemingly ad hoc practices including partial inclusion, exemptions, time period adjustments, and alternative tax rates.¹⁴ Lochan provided an insightful analysis of the inflation and capital gains issue in Canada to 2001. He documented the problem with partial inclusion (then over taxation), reviewed two methods of addressing the issue (the accrual method and indexing), argued the soundness of indexation but acknowledged the complications of introducing indexation. Those issues led him to propose a system of tapering that would gradually adjust for inflation as the holding period increased.¹⁵ Tapering, however, would fail to address a number of the concerns so it may be time to reconsider indexing (as Vaillancourt and Kerkhoff also recommend). Indexing should not be considered impractical. Indexing was recommended by the United States Treasury in advance of the 1986 tax reform but that proposal was not accepted by Congress (see U.S. Treasury, 1984; Auerbach, 1989; and Slemrod and Bakija, 1998).

Partial inclusion is a very imperfect adjustment for inflation (and likely for achieving other objectives) as it typically results in the under or over taxation of real capital gains. That under/over assessment and taxation results in inequities among investments, among investors, among alternative forms of income plus it introduces non-neutralities that creates inefficiencies. Those problems persist even in the low inflation environment of recent years. Increasing the inclusion rate from 50 to 75 percent, for example, while possibly offering what may be seen as some temporary advantages, does not fundamentally improve the equity and probably not the efficiency of the tax system. Partial inclusion is a crude instrument. A fairer and more efficient tax system calls for more fundamental reform – reform that correctly identifies true capital gains.

Once having properly identified the change in real incomes resulting from capital gain, that information can be used by tax authorities and the public to assess how capital gains can be taxed more equitably and efficiently. This analysis suggests that taxing the entire real (purchasing power adjusted) capital gains may be a candidate. Thinking more broadly, information on real capital gains would enable better assessments of the treatments of other capital income such as interest and dividends and aid the search for the fair and efficient treatment of all capital income including capital gains. Accurate information on real capital gains would afford more insight into how or if to address the advantage of deferring the taxation of capital gains until realization. Academics have suggested how accrual taxation of capital gains might be approximated but no country appears to have implemented such a mechanism. The point of this exercise has been to demonstrate that taxing nominal capital gains (or any arbitrary portion of capital gains) results in uneven, and so unfair, taxation over time and among comparable individual taxpayers. Recognizing this problem and measuring inflation adjusted capital gains would go far in

recognizing the real incomes resulting from capital gains and in providing information that would enable the superior assessment and tax treatment of capital income generally.

References

- Auerbach, Alan J., "Capital Gains Taxation and Tax Reform," *National Tax Journal*, September 1989, 391-401.
- Boadway, Robin W. and David E. Wildasin, *Public Sector Economics (2nd edition)*, (Toronto: Little, Brown and Company, 1984).
- Boadway, Robin W. and Harry M. Kitchen, *Canadian Tax Policy (3rd edition)*, (Toronto: Canadian Tax Foundation, 1999).
- Feldstein, Martin and Joel Slemrod, "Inflation and the Excess Taxation of Capital Gains on Corporate Stock," *National Tax Journal*, June 1978, 107-118.
- Harding, Michelle and Melanie Marten, Statutory Tax Rates on Dividends, Interest and Capital Gains: The Debt-Equity Bias at the Personal Level. OECD Taxation Working Papers No. 34, February 2018.
- Lochan, Frank, "Should Inflation be a Factor in Computing Taxable Capital Gains in Canada?," *Canadian Tax Journal*, Vol. 50, No. 5, 2002, 1833-1867.
- McKenzie, Kenneth, The Taxation of Capital Income in Canada Part 1: Taxes on Dividends and Capital gains, Finances of the Nation Commentary, November 4, 2020.
- OECD, Taxation of Capital Gains of Individuals: Policy Considerations and Approaches, OECD Tax Policy Studies No. 14, November 2006.
- Rosen, Harvey, Jean-Francois Wen, Tracey Snoddon, *Public Finance in Canada (4th edition)*, McGraw-Hill, 2012.
- Slemrod, Joel and Jon Bakija, *Taxing Ourselves: A Citizen's Guide to the Great Debate Over Tax Reform*, (Cambridge: MIT Press, 1998).
- Smart, Michael, It's Time to Increase Taxes on Capital Gains, Commentary, Finances of the Nation Commentary, January 7, 2021.
- U.S. Treasury, *Tax Reform for Fairness, Simplicity and Economic Growth*, November 1984.
- Vaillancourt, Francois and Anna Kerkhoff, "Capital Gains Taxation in Canada, 1972-2017: Evolution in a Federal Setting," *ejournal of Tax Research*, February 2019, 340-361.
- Whalen, Alex and Jason Clemens, Correcting Common Misunderstandings about Capital Gains Taxes, The Fraser Institute, January 2021.
- Wilson, Janette and Pearson Liddell, Sales of Capital Assets Data Reported on Individual Tax Returns, 2007-2012, IRS Statistics of Income Bulletin, Winter 2016.

Endnotes

¹ Smart presents two rationales for that recommendation. First, such a change would result in approximating neutrality (i.e., the effective tax rates) of capital gains, dividends and interest income received from businesses. Second, a 75 percent inclusion rate would generate additional tax revenue and serve as a form of annual wealth tax that would be preferable to the wealth taxes recently proposed. Other suggestions for increasing capital gains taxes, and primarily in the media, included numerous proposals to add capital gains from the sale of primary residences to the tax base.

² Because they represent returns to capital, it can be debated whether dividends and interest represent only current income rather than also some return to capital. That issue is not addressed here.

³ See, for example, the discussion of personal income taxation in the various editions of *Public Finance in Canada* by H. Rosen et al.

⁴ See Lochan (2002) for a discussion of tax deferral on capital gains in the Canadian context.

⁵ See Ken McKenzie (2020) for a short description and Vaillancourt and Kerkhoff (2019) for more detail.

⁶ Inflation averaged 6.96 percent from 1971 to 1991 but 1.75 percent since.

⁷ See Wilson and Liddell (2016). I thank Randall Morck and James Poterba for directing me to these data. Although there are differences between Canadian and United States tax treatment of capital gains, the U.S. holding periods, especially for corporate stock, should approximate those in Canada.

⁸ Of the total long-term gains, corporate stock accounts for 25.9 percent, real estate for 8.3 percent and bonds and other for 1.0 and 63.7 percent respectively. As a percentage of the long-term transactions reporting gains, corporate stock was 37.8 percent and real estate 1.5 percent.

⁹ As above, Index units are assumed to be bought and sold on the last trading day of each year at the market closing level.

¹⁰ Only one year, 2015, had a negative real gain.

¹¹ U.S. data indicates that ten years approximates the average holding period of the average realized capital gain from corporate stocks held over one year as reported by individual taxpayers.

¹² Furthermore, while the inequities are most glaring, differing degrees of over/under assessment and taxation cause at least some taxpayers to modify their investment behaviour and, so, causes inefficiencies. One such source of inefficiencies is in the allocation among financial assets.

¹³ See for example, Auerbach, (1989), Boadway and Kitchen (1999), Boadway and Wildasin (1984), Feldstein and Slemrod (1978), Lochan (2002), OECD (2006) and Slemrod and Bakija (1998).

¹⁴ For reviews of the tax treatments of capital gains in OECD countries see Harding and Marten (2018) and OECD (2006).

¹⁵ The United Kingdom utilizes a form of tapering.

Department of Economics, University of Alberta Working Paper Series

2021-05: Financial Shocks, Uncertainty Shocks, and Monetary Policy Trade-Offs – Brianti, M.
2021-04: Valuing Elementary Schools: Evidence from Public School Acquisitions in Beijing – Su, X., Yu, H.
2021-03: Colonel Blotto's Tug of War – Klump, T.
2021-02: Stockpiling and Shortages (the "Toilet Paper Paper") – Klump, T.
2021-01: When Social Assistance Meets Market Power: A Mixed Duopoly View of Health Insurance in the United States – Ranasinghe, A., Su, X.
2020-15: First to \$15: Alberta's Minimum Wage Policy on Employment by Wages, Ages, and Places – Fossati, S., Marchand, J.
2020-14: The Impacts of Load-Following Forward Contracts – Brown, D., Sappington, D.
2020-13: Loss of Life and Labour Productivity: The Canadian Opioid Crisis – Cheung, A., Marchand, J., Mark, P.
2020-12: Equilibrium Indeterminacy and Extreme Outcomes: A Fat Sunspot Ta(i)l(e) - Dave, C., Sorge, M.
2020-11: Marginal Entrants and Trade-Liberalization Effects Across Models of Imperfect Competition - Alfaro, M., Lander, D.
2020-10: Export Conditions in Small Countries and their Effects On Domestic Markets - Alfaro, M., Warzynski, F.
2020-09: Trade Liberalizations with Granular Firms – Alfaro, M., Warzynski, F.
2020-08: Routine Tasks were Demanded from Workers during an Energy Boom – Marchand, J.
2020-07: Financial Frictions, Borrowing Costs, and Firm Size Across Sectors – Bento, P., Ranasinghe, A.
2020-06: Bank Lending, Monetary Policy Transmission, and Interest on Excess Reserves: A FAVAR Analysis – Dave, C., Dressler, S., Zhang, L.
2020-05: Vertical Integration and Capacity Investment in the Electricity Sector – Brown, D., Sappington, D.
2020-04: Residential Electricity Pricing in Texas's Competitive Retail Market – Brown, D., Tsai, C., Woo, C., Zarnikau, J., Zhu, S.
2020-03: Competition in Higher Education – Kaganovich, M., Sarpca, S., Su, X.
2020-02: Misallocation across Establishment Gender – Ranasinghe, A.
2020-01: Does Locational Marginal Pricing Impact Generation Investment Location Decisions? An Analysis of Texas's Wholesale Electricity Market – Brown, D., Zarnikau, J., Woo, C.
2019-16: A Unified Explanation of Trade Liberalization Effects Across Models of Imperfect Competition – Alfaro, M., Lander, D.
2019-15: Analyzing Firm Behaviour in Restructured Electricity Markets: Empirical Challenges with a Residual Demand Analysis – Brown, D., Eckert, A.
2019-14: LinkedIn(to) Job Opportunities: Experimental Evidence from Job Readiness Training – Wheeler, L., Garlick, R., Johnson, E., Shaw, P., Gargano, M.
2019-13: Entry Preemption by Domestic Leaders and Home-Bias Patterns: Theory and Empirics – Alfaro, M.
2019-12: How Much are Good Schools Worth? Evidence from School Acquisitions in Beijing – Su, X., Yu, H.