

Report on Capital Income Taxation in Canada

ECO2600 Term Paper

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Capital income taxation has been a hot topic in Canada in recent years as discussion of inequality has increased. For example, the New Democratic Party proposed raising the capital gains inclusion rate from the current level of 50% to 75% during the recent 2021 federal election. Upon examining the academic literature, we believe that increased capital taxation may be acceptable because it increases progressivity and does not impact savings decisions significantly. However, given the low fraction of capital income (and especially capital gains) in total income of Canadian tax-filers and the already largely non-preferential treatment of capital income, we should by no means expect it to solve any substantial revenue problems, especially compared to the massive COVID-era budget deficits. Hence, the importance of this issue seems overblown and is probably more attractive from a political standpoint than anything else. On the other hand, if we believe that individuals are making poor decisions and saving too little for their own good, the evidence suggests that targeted savings programs like Registered Retirement Savings Plans will be more effective than decreasing the tax rate on capital income.

There are two main concerns with capital income taxes. The microeconomic concern is that these taxes distort individuals' savings decisions. The macroeconomic concern is that capital income taxes discourage investment which leads to slower growth. We will examine the literature on each of these and then consider how they may be applied to the issue of capital income taxation in Canada at this time.

Bernheim (1999) examines both questions through the Lifecycle Hypothesis. Here decisions about consumption and savings are made by rationally maximizing discounted lifetime utility. He notes that the sign of the uncompensated interest elasticity of saving is not obvious, i.e. savings can rise or fall in response to an increase in tax. He states that economists generally view capital taxation as a more inefficient way of raising revenue than other taxes. In simple models, it is optimal to tax capital income briefly but not in the long run because of its distortionary impact. The representative agent will not attain the most lifetime utility possible when a capital tax is used in the long run. However, some caveats are that this may not hold in more elaborate models (e.g. if there are positive externalities from investment), may not be stable (as the government can re-optimize every period and will thus continue with the capital tax in perpetuity), and ignores the growth issues.

In these simple models, capital taxes are not optimal but how inefficient are they? Though many studies have found the uncompensated interest elasticity of saving may be close to zero, this does not imply that welfare losses from capital taxation are small because the relevant elasticity is the compensated elasticity of demand for future consumption with respect to the interest rate. Feldstein (1978) computes the size of the Harberger triangle for a simple two period representative agent model where the agent chooses labour supply and consumption in the first period and consumption in the second period is determined as the residual. He assumes that the uncompensated elasticities are all zero (i.e. the labour supply elasticity, interest elasticity of savings and cross-price elasticities) and finds that capital income taxation has significant welfare costs. To be specific, when the initial taxes on labour earnings and capital income are all 40%, replacing the capital tax with an equivalent revenue raising labour tax raised welfare by 18% of tax revenue.

Feldstein's analysis ignores general equilibrium effects because it takes pre-tax factor returns (wage rate and interest rate) as fixed. Other authors have studied this issue in general equilibrium growth models, some that model infinitely-lived representative agents and others with overlapping

generations (OLG) of agents. Chamley (1981) computes welfare gains from replacing capital income taxes with a lump sum tax in the former case. He finds that under reasonable parametric assumptions, with labour supply fixed, one can gain 11% of revenue when the tax rate is 30% and 26% of revenue when the tax is 50%. Moreover, these estimates increase by up to a third when we allow labour supply to vary.

Judd (1987) improves on Chamley's analysis by comparing capital taxation with other distortionary taxes. There will of course be welfare gains in the Chamley paper because the capital income taxes are being compared to a non-distortionary lump sum tax. His favoured estimates put the welfare loss from a capital tax increase at over 25% of revenue and possibly over 100% under plausible assumptions, while the loss from a wage tax increase ranges from 3 to 10 times smaller.

Chari and Kehoe (1999) also examine this issue. They show that even with heterogeneous consumers, it is optimal to set long run capital income taxes to zero even though it has redistributive benefits. They further specialize and consider a situation with workers who supply labour, do not save or borrow, and own no initial assets and capitalists who own all the capital and supply no labour. Further, we only optimize workers' utility; no attention is paid to capitalists' welfare. In this framework, it is still optimal for long run capital income taxes to be zero! The cumulative intertemporal distortions make even the workers prefer the static distortions of a labour income tax. However, it is possible to put restrictions on the tax system such that long run capital income taxes are positive. For example, we can require that tax rates do not differ across consumer types or that tax rates are constant over time. If we restrict capital income tax rates to be constant and leave wage taxes unrestricted, the optimal long run capital income tax is positive. Since the unrestricted optimum is to set high initial rates and then remove them completely, the optimal solution balances those two opposing forces, resulting in a positive long run rate.

Moving on to the OLG models, it is generally more difficult to prove the optimality of no long run capital taxation. Thus it may seem less likely that reducing capital income taxes will raise welfare. In addition, it is important to note that different policies may shift the intergenerational distribution of resources which is separate from the efficiency effects. Tax policies affect capital accumulation in two ways: directly changing savings through the after-tax rate of return and through the intergenerational distribution of resources. For example, consider a wage tax versus a consumption tax. The wage tax leaves more in the hands of current retirees and less for the current workers. Since retirees have a higher marginal propensity to consume this lowers capital accumulation which reduces future wages. Summers (1981) finds that replacing steady-state welfare would increase by 12% if capital taxes were replaced by consumption taxes and 5% if they were replaced with wage taxes. However, his analysis ignores the transition period. The effects are large because the economy is below the golden rule level of saving, a substantial interest elasticity of savings is implied, and the intergenerational redistribution is not offset by changes in government deficit policy. Further there is no labour supply choice in this model so labour is supplied inelastically.

Auerbach, Kotlikoff, and Skinner (1983) improve on Summers' work by allowing labour supply to vary and solving for the full path of the economy. In this scenario, replacing the proportional income tax with a consumption tax negatively affects the current retirees but increases steady state welfare by about 6%. Replacing with a wage tax positively affects current retirees but decreases steady state welfare by about 4%. The benefits are reduced because labour supply is variable so these are not

distortion free alternatives anymore. As with the Summers results, these alternatives differ because of differences in timing of tax collection and the fact that the government does not borrow at all. Importantly, they separate distributional effects from efficiency effects by considering a second type of tax reform experiment where lump sum transfers and government borrowing are used to keep the utility of those alive at the time of the reform constant and distribute the rest of the effect equally across all future generations. When considering the second type of experiment, switching to a consumption tax raises subsequent welfare by about 2% and switching to a wage tax decreases it by about 2%. Though this does not sound too substantial, these are magnified four times when considering them as a fraction of lifetime earnings because only a small portion of the discounted value of lifetime resources comes from lifetime earnings. For example, these results imply that switching from a consumption tax to a wage tax has welfare costs equivalent to about 16% of lifetime earnings.

Bernheim reviews some important variants of the Lifecycle Hypothesis. These include bequest motives, liquidity constraints, and uncertainty. Starting with bequest motives, intergenerational transfers are generally considered to be substantial but estimates vary widely from 25% to 80% of total wealth. There are multiple theories of why people leave wealth to their heirs. Some posit that agents are uncertain about the length of their life and annuity insurance contracts to efficiently resolve this problem are not widely available. Others believe that agents care about the amount of wealth they transfer to their heirs or that they altruistically care directly about their heirs' utility/consumption. Still others consider bequests as payments in transactions within families. Unsurprisingly, the evidence points to a mixture of these motives, though all theories have difficulty explaining the empirical observation that over two thirds of US testators divide their estate equally among their heirs.

The implications of tax policy depend on the motives behind bequests. For example, taxation of bequests is non distortionary if they are accidental but may incur substantial efficiency costs otherwise. The interest elasticity of savings is also sensitive to assumptions about bequest motives. The usual models of an altruistic motive imply a much higher long run interest elasticity. On the other hand, several studies found that the interest elasticity can decrease when accidental bequests or preferences over wealth bequeathed to heirs are assumed. If bequests are altruistic then a sequence of finite-lived generations can be treated as a single infinitely lived agent as before. If preferences are over the amount of wealth bequeathed to their heirs, the welfare costs of capital income taxation are sensitive to how the model is calibrated.

Liquidity constraints are another important way this model can be extended. The simple model assumes that consumers can save and borrow at the same rate. The implications for the impacts of capital income taxation depend on how the liquidity constraints are modeled. The simplest approach is to impose non negativity constraints on consumers' (financial) net worth. Liquidity constrained individuals do not alter their savings in response to small changes in the rate of return so the interest elasticity of aggregate savings generally falls as binding credit constraints become more common. In this framework, tax-deferred savings accounts can increase savings even when there are contribution limits. If desired savings is less than the limit and the agent has no other wealth, the limit does not bind. This account can then increase the marginal rate of return and induce new savings, which cannot happen in the simple model previously discussed. Another way this diverges from that simple model is that tax-deferred savings are not perfect substitutes for other savings. Given substantial penalties for early withdrawal of savings, agents sacrifice liquidity when they save through these accounts.

Hubbard and Judd (1986) state that the welfare costs of capital income taxation tend to be smaller in models with exogenous liquidity constraints. Firstly, since constrained individuals are prevented from choosing their unconstrained optimum, policies that exacerbate the constraints can have substantial first-order efficiency costs, particularly when the intertemporal elasticity of substitution is low. Switching from capital income taxation to wage taxation does this because it reduces the consumption of constrained consumers. Secondly, efficiency gains from reducing capital income taxes are smaller because constrained consumers do not alter their current consumption in reaction to the increase in the after-tax rate of return. As a result, positive capital income taxes may be optimal. However, in some situations, like when credit market failure is due to information asymmetries, it may be inappropriate to model these liquidity constraints as exogenous. Here it is no longer necessarily true that switching to a wage tax will reduce current consumption.

Finally, we can consider uncertainty in the Lifecycle Hypothesis. When consumers are uncertain about the future such as their future income, they may engage in precautionary saving so that they can smooth their consumption in case of a negative shock. Precautionary saving is relatively insensitive to the after-tax rate of return which can dramatically reduce the interest elasticity of saving. When liquidity constraints are present, uncertainty increases the value of liquidity which further reduces the degree of substitutability of tax-deferred savings and normal savings. In the stochastic life cycle model, younger individuals desire liquidity more so more of their tax-deferred savings is new savings. But younger individuals contribute less because of the high illiquidity cost. Thus, most tax-deferred savings comes from individuals with high substitutability between tax-deferred savings and normal savings, so that most of the contributions are not new savings. However, simulations suggest that tax-deferred accounts can substantially increase national savings in the long run. Finally, using a similar OLG model as those discussed earlier, Engen (1994) finds steady state welfare gains from replacing a capital income tax with either a wage or consumption tax are much lower when income is stochastic.

Bernheim also reviews behavioural theories of savings which depart from the Lifecycle Hypothesis in important ways. The two main concerns relate to bounded rationality and self-control. For the first, it is very complicated to solve a standard life cycle model such that it seems unrealistic that everyone does so to determine how much to consume and save. It can be that people act as if they solve these problems by acquiring enough information to determine roughly the optimal decisions. However, this is more likely if the relevant decision is repeated many times so that they can learn, information about others' choices and the consequences is available, or individuals understand that they need good information to make their decision and can obtain such. It may be that none of these is true. Most people only retire once and everyone only lives once. Information on others' decisions is often lacking, especially since the consequences become evident over a long period of time, and may not be relevant because of the rapidly changing nature of the economy and society more generally. Finally, people may not be able to evaluate the quality of advice or information they receive and may not seek it in the first place.

There are different approaches to modeling bounded rationality in the literature. Some models impose a certain structure on beliefs e.g. a bias towards optimism, tendency to forget information in the absence of repetition, updating beliefs in a simple way etc. Others do the same for decisions e.g. saving a constant fraction of income. These are usually empirically motivated but the drawback is that they are not derived from a general theoretical principle which can be applied to other problems. Others include

computational costs in their model but it is unclear why the consumer can solve this problem but not the original model.

Self-control refers to the consumers' ability to forego immediate gratification in order to obtain better future outcomes. Many psychological studies have shown that imperfect self-control is critical to understanding intertemporal decision making. This can be formalized in a model in several ways. Thaler and Shefrin (1981) created a model where an individual is composed of two distinct entities: a far-sighted patient "planner" and an impulsive "doer". The planner has to expend costly willpower to keep the doer in check i.e. to continue on the optimal path. However, solutions to these models are even more complicated than the standard life cycle models, raising more bounded rationality concerns. We think the previous argument may be somewhat valid here: consumers act as if they solve this problem because they have many opportunities to learn from their experiences of failing to control themselves, e.g. impulsively spending too much online.

In general, behavioural models have not been used to examine the effect of taxes on savings. However, certain assumptions have clear implications. For example, if advice from professional financial advisors has a significant impact on individuals' savings decisions, we need to investigate this advice and how it changes with taxes. The most common retirement strategy is to set a fixed target and compute the annual inflation-adjusted savings necessary to achieve this target. In this situation, the interest elasticity is negative because higher rates of return reduce the amount of savings necessary. Laibson, Repetto, and Tobacman (1998) investigate the steady-state effects of tax-deferred accounts. They find they significantly increase the national savings rate and that the effect is about 30% larger when consumers use hyperbolic discounting (when consumers discount payoffs less the further away they are in the future). Several general principles suggested by behavioural considerations are that taxes can affect perceptions about the costs and benefits of saving, affect self-control by influencing private behavioural rules, and alter savings by its impact on third parties' actions. These generally suggest that savings incentives are more effective than we would expect from the standard life cycle models.

Savings incentives can increase savings by changing perceptions about savings. Boundedly rational individuals are more likely to learn that others consider saving important. For example, the existence of the Registered Retirement Savings Plans may stimulate conversations about investing and retirement and promote competition among social groups. The existence of these segmented accounts also makes it easier for individuals to track their progress (or lack thereof).

Savings incentives can also promote effective private rules. The self control literature emphasizes the role of private rules in individuals' attempts to control their impulses. They do so by making their own rule (e.g. do not go out for food on Mondays) and attach global significance to violations. For example, if one breaks this rule and goes for food on a Monday, one will feel awful about themselves that they cannot stick to their plan. In this way, their impulses are controlled because the costs of breaking the rule outweigh the benefits.

One way they can promote private rules is by creating obvious savings rules (e.g. always contribute the maximum amount allowed each year). Individuals may also develop private rules around using wealth stored in these accounts (e.g. only withdraw for emergencies). The existence of penalties for early withdrawal further supports this channel, especially for the impatient who are very averse to significant immediate penalties. Contributing to these accounts can therefore be a sort of commitment

device. Finally, these accounts make it easier to monitor progress towards long-term goals, which is essential to maintain effective private rules.

Taxes can also stimulate savings by incentivizing third parties to act in ways that increase savings by individuals. For example, the private pension system is probably popular at least in part because of the tax benefits. When employers offer traditional defined benefit or defined contribution pension plans, savings automatically increase. A “life cycle” consumer would treat accrued pension savings as a close substitute for other long term savings though it may still increase savings by forcing certain consumers to save more than they desire. Under behavioural hypotheses, pensions may stimulate additional savings because consumers may not consider pension savings and other long term savings very substitutable (perhaps they keep track of these in different “mental accounts”) or it raises awareness about saving for retirement.

Supporters of pro-savings policies often claim that consumers generally save too little and will not be adequately financially prepared for retirement. Under the Lifecycle Hypothesis, consumers optimize perfectly over their lifetime and thus lower rates of saving simply reflect their more impatient preferences. However, behavioural theories are much more amenable to this argument. For example, individuals may not understand their financial vulnerability in case of a significant negative shock or may have self-control issues. In general, variation in consumption has a larger impact on welfare when the initial state was already far from the optimum. Since behavioural theories suggest that consumers may be far from the optimum even in the absence of a tax, in contrast to the Lifecycle Hypothesis, the marginal benefit from encouraging savings may be substantially larger. Simulations by Laibson (1996) suggest that consumers with hyperbolic preferences gain almost a year’s income in welfare from the government implementing optimal revenue-neutral saving incentives.

We now apply this to the specific issue of capital income taxation in Canada at the present time. Two things are immediately apparent. The first is that capital income is not a very large portion of total income reported by individuals in Canada. According to the Canada Revenue Agency (2019), it stands at about 10% for the 2017 tax year. (It remains to be seen how much this will increase as a result of the COVID-19 pandemic). Employment income is by far the largest line item at about 60% though of course, the capital income is generally taxed at higher rates as most of those who own assets are wealthy (and most others do not have to pay taxes on their investment income because one does not have to pay taxes on capital gains from the sale of a primary residence or because of preferential treatment by programs like the Tax-Free Savings Account and Registered Retirement Savings Plan).

Consider the proposed increase in the capital gains inclusion rate from 50% to 75%. The mechanical effect amounts to a revenue increase of about \$6 Billion under the optimistic assumption that all the new taxable income is subject to the highest federal tax rate of 33%. This amounts to about 1.8% of 2017 federal government expenditures while increasing the tax on capital gains by at least and potentially more than 50% (given the progressivity of the tax system). In the meantime, the federal government has run enormous budget deficits on the order of hundreds of billions of dollars during the current COVID-19 pandemic. As a result, we conclude that this proposal is more useful politically than it is for revenue purposes. Moreover, the preferential treatment of capital gains is largely the extent of preferential treatment of capital income in Canada, so there is not much scope to increase capital income taxes unless one is ready to treat capital income worse than regular income. (There is a dividend

tax credit but this is designed to compensate for the fact that these dividends were already taxed at the corporate level).

On the other hand, developed countries appear to be swimming in capital. The historically low interest rates that have prevailed in the past decade signal that the marginal product of capital is quite low. Castelnovo et al (2018) list some possible explanations: the substantial demographic transition in these countries driven by longer life expectancies and slower population growth; a shortage of safe assets; and a slowing of growth from technological progress. Consequently, insufficient capital accumulation may not be as important to growth anymore.

The evidence we have presented suggests that increasing capital taxation may not have significant welfare costs. We have seen that in simple models, this is not true. However, many realistic extensions to the model reduce the magnitude of this effect, such as liquidity constraints, uncertainty, positive externalities from investment like research and development, and heterogeneous agents with the restriction that capital income taxes need to be constant.

Additionally, behavioural theories challenge the assumption that consumers make the best possible decisions for themselves. If we believe that consumers are saving too little, the evidence suggests that targeted savings programs like Registered Retirement Savings Plans are more effective at stimulating savings than the tax rate on capital income. (COVID-19 has thrown a wrench in this argument as household savings rates soared and have remained persistently high. It remains to be seen if this is the new reality). Whether one feels comfortable making the assumption that the government knows better than consumers what is best for them is another matter. We will note that such a policy will decrease the relative advantage enjoyed by those who make better savings decisions and thus reduce the incentive to do so.

As for the macro growth concerns, as we have written, savings seems insensitive to the after-tax rate of return and moreover the low interest rates in developed countries signal that capital is not particularly productive at the moment. As a consequence, we should not worry that increasing capital income taxes will significantly slow growth.

To conclude, we have found that while the drawbacks of capital income taxation may not be as high as traditional models predict, the benefits are not very substantial either. However, if the belief is that consumers save too little for their own good and the government should intervene, the evidence suggests that expanding savings accounts with preferential tax treatment like Registered Retirement Savings Plans and Tax Free Savings Accounts are the way to go rather than decreasing capital income taxes. We have seen that simple models predict that zero long run capital income taxation is optimal and that positive rates can have substantial welfare costs. However, realistic extensions of these models like liquidity constraints and uncertainty can overturn these results. Persistently low interest rates also suggest that decreased investment may not hurt growth significantly and in any case increased capital income taxation does not appear to decrease savings much. But it is also true that there is not much scope to raise revenue from taxing capital income more without treating capital income worse than regular income. If we believe that consumers save too little for their own good, as behavioural theories allow, models that include liquidity constraints and various studies predict that registered savings accounts can significantly increase consumer savings.



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