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# THE SCHOOL OF PUBLIC POLICY

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SPP Communiqués are brief articles that deal with a singular public policy issue and are intended to provide the reader with a focused, concise critical analysis of a specific policy issue.

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The University of Calgary is home to scholars in 16 faculties (offering more than 80 academic programs) and 36 Research Institutes and Centres including *The School of Public Policy*. Under the direction of Jack Mintz, Palmer Chair in Public Policy, and supported by more than 100 academics and researchers, the work of The School of Public Policy and its students contributes to a more meaningful and informed public debate on fiscal, social, energy, environmental and international issues to improve Canada's and Alberta's economic and social performance.

## ESPlannerBASIC CANADA

Laurence Kotlikoff

### EXECUTIVE SUMMARY

Traditional financial planning is based on a fundamental rule of thumb: Aim to save enough for retirement to replace 80 per cent of your pre-retirement income with income from pensions and assets. Millions of Canadians follow this formula. Yet, there is no guarantee this approach is consistent with a savings plan that will allow them to experience their optimal standard of living — given their income — throughout their working lives.

Consumption smoothing happens when a consumer projects her income and her non-discretionary expenses (such as mortgage payments) all the way up until the end of her life, and is able to determine her household discretionary spending power over time, to achieve the smoothest living standard path possible without going into debt.

When consumption smoothing is calculated accurately, a person's lifestyle should be roughly the same whether she is in her 30s with small children, in her 50s with kids in college, or in retirement, with adult children. Consumption smoothing allows that to happen. But while it is conceptually straightforward, consumption smoothing requires the use of advanced numerical techniques.

Now, Canadian families have access to a powerful consumption-smoothing tool: ESPlannerBASIC Canada. This free, secure and confidential online tool will allow Canadian families to safely and securely enter their earnings and other financial resources and will calculate for them how much they can spend and how much they should save in order to maintain their lifestyle from now until they die, without going into debt. It will also calculate how much life insurance they should buy, to ensure that household living standards are not affected after a family member dies.

Users can easily and instantly run "what-if" scenarios to see how retiring early (or later), changing jobs, adjusting retirement contributions, having children, moving homes, timing RRSP withdrawals, and other financial and lifestyle decisions would affect their sustainable living standards.

ESPlannerBASIC Canada can also be used to understand how families should adjust their saving-and-spending behaviour when there are changes to tax rates and other fiscal policies. When used properly, ESPlannerBASIC Canada gives Canadian families the power to plan the lifestyle they want, based on what they can actually afford, without going into debt, or saving too little — or even too much — for retirement.

<http://canada.esplanner.com>

## ILLUSTRATING ESPlannerBASIC CANADA

To understand ESPlanner's ability to assist Canadians, consider the case of a 40-year-old couple, named John and Jane who live in Alberta. They have two children: one born in 2000 and one born in 2005. Each spouse earns \$50,000 and they each expect to make this same amount in today's dollars (after inflation) right before they retire. They each have \$50,000 in their RRSP accounts and contribute \$2,000 each to their accounts annually. And they plan to spend \$20,000 a year for four years supporting each of their two children in college.

John and Jane have a \$300,000 home with a \$150,000 30-year mortgage. Their monthly mortgage payment is \$800. Their local property taxes are \$2,000 per year and home maintenance expenses come to \$2,000 per year. ESPlanner assumes John and Jane will remain in their home and will not sell it. Finally, ESPlanner plans for John and Jane to each live to a maximum age, which is assumed here to be 100 years old. Planning to live to one's maximum age of life is appropriate for the simple reason that one might very well do so.

### HOW MUCH SHOULD JOHN AND JANE SPEND IN 2015?

How much can John and Jane spend this year on a discretionary basis if they seek to smooth their living standard and meet their off-the-top expenses? The answer is \$52,858.

This level of discretionary spending entails saving \$8,210 in 2015 above and beyond the contributions John and Jane will make to their RRSPs. The program also suggests they take out \$251,950 in term life insurance for each spouse.

The 2015 living standard for each person in the household is \$23,053. This is derived by dividing the household's total discretionary spending by the number of members (four in 2015) with adjustments for two factors: first, two can live more cheaply than one; three can live even more cheaply than two; and four can live yet more cheaply than three. Second, the program assumes that children are 70 per cent as expensive as adults in providing them with the same living standard as their parents.

### HOW MUCH SHOULD JOHN AND JANE SPEND THROUGH TIME?

Chart 1 plots John and Jane's annual discretionary spending, living standard per household member, and non-discretionary spending in each future year. Note first that the living standard is very smooth year after year. Indeed, once the children have left the home and their college expenses have been covered, the couple experiences a perfectly smooth (i.e., stable) living standard.

This consumption smoothing occurs despite a very irregular pattern of non-discretionary spending on college, mortgage payments, etc. The household's income is also highly variable through time, changing as it does from primarily labour earnings to primarily government pension benefits and RRSP withdrawals. Finally, total discretionary spending changes considerably when the children leave home and there are fewer mouths to feed. By anticipating these future drops in spending, ESPlannerBASIC Canada allows you to smooth your lifestyle through the years.

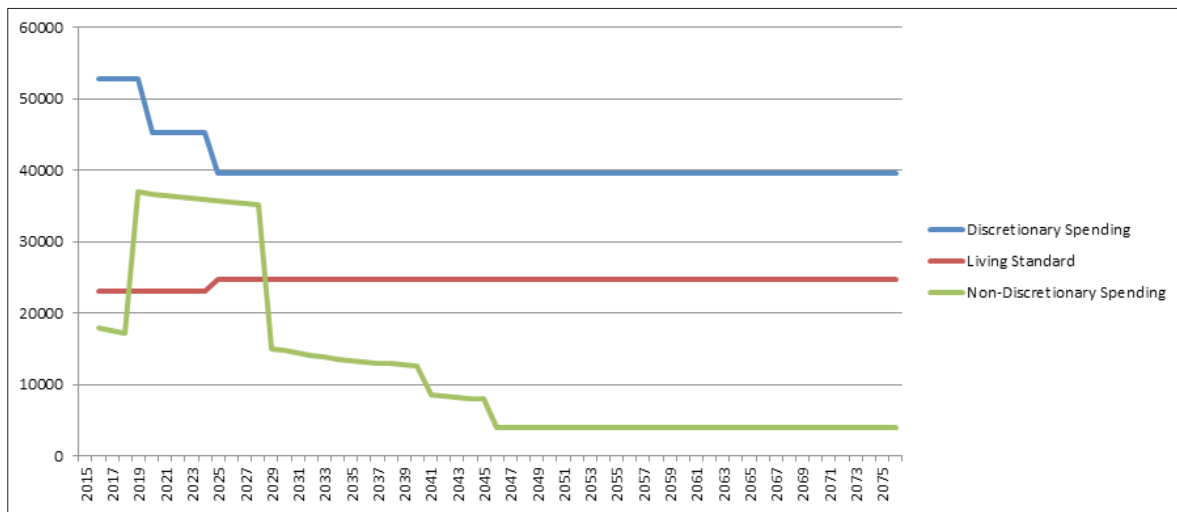
Chart 2 shows the path of John and Jane's regular assets — their non-retirement-account assets. Note that, in the near term, the couple saves (i.e., builds up their assets) to accommodate their college spending goals. And after the children leave college, the couple begins saving in earnest for their retirement. By age 65, the couple has accumulated assets of over \$300,000, which they gradually spend down during retirement.

## HOW CAN JOHN AND JANE RAISE THEIR LIVING STANDARD?

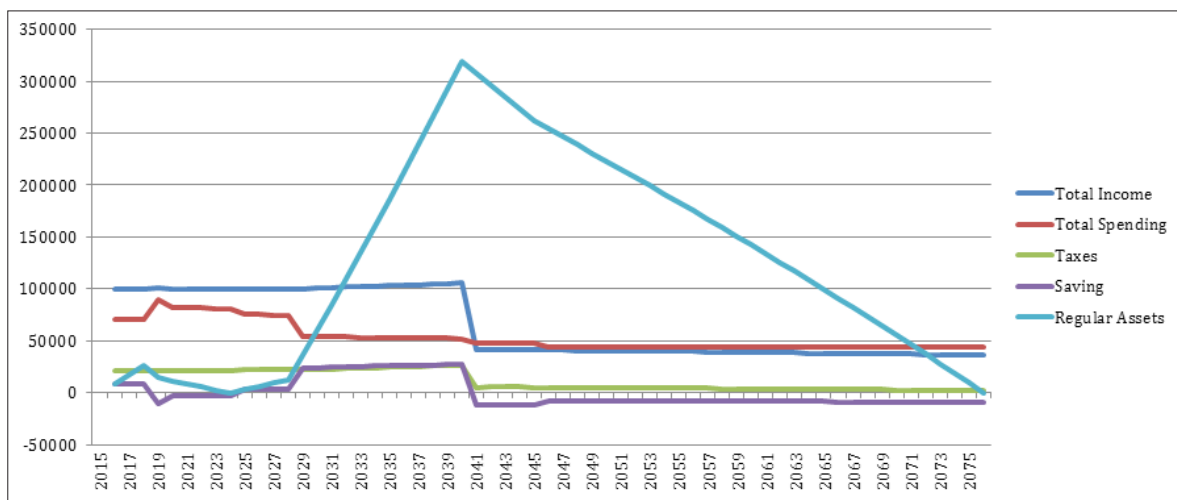
What happens if the couple doubles their contributions to their RRSPs and they pay for this by reducing their non-RRSP saving? Doing so lowers the couple's lifetime taxes, permitting their living standard to rise by 4.1 per cent, from \$24,693 to \$25,707, by the time the children finish college.

If they can each also work two years longer, retiring at 67 rather than 65, their sustainable living standard will be 13 per cent above its initial value, increasing to \$27,895. Finally, if they contribute more to their RRSP, work the extra two years, and defer their RRSP withdrawals by two years, their ongoing living standard ends up 13.6 per cent higher at \$28,048.

**CHART 1 JOHN AND JANE'S ANNUAL LIVING STANDARD, DISCRETIONARY SPENDING AND NON-DISCRETIONARY SPENDING**



**CHART 2 JOHN AND JANE'S REGULAR ASSETS, INCOME, SPENDING, TAXES AND SAVING**



## USING ESPlannerBASIC CANADA TO UNDERSTAND RESPONSES TO CHANGES IN CANADIAN FISCAL POLICY

ESPlannerBASIC Canada can be used to understand how Canadian household spending-and-saving behaviour should optimally respond to changes in fiscal policy. Table 1 and Chart 3 consider a permanent reduction from 15 per cent to 10 per cent in the first federal income-tax bracket. Table 1 shows 2015 levels of discretionary spending and saving for different scalings of John and Jane’s inputs. To be precise, we multiply each of their inputs by the following factors: 0.5, 1.5, and two. For example, under the 0.5 scaling, John and Jane earn \$25,000 each per year, have an initial \$25,000 each in each of their RRSP accounts, and spend \$10,000 per year on each child for college. Furthermore, the housing inputs, including their mortgage balances, monthly mortgage payments, and annual maintenance costs are all scaled by 0.5.

According to the table, the reduction from 15 to 10 per cent in the bottom tax rate dramatically reduces taxes for John and Jane no matter their level of earnings. But it has a truly sizable effect if they have relatively low earnings. For example, if they earn a combined \$50,000, their 2015 taxes fall by almost 90 per cent. If they together earn \$200,000, they see their 2015 taxes fall by almost 15 per cent.

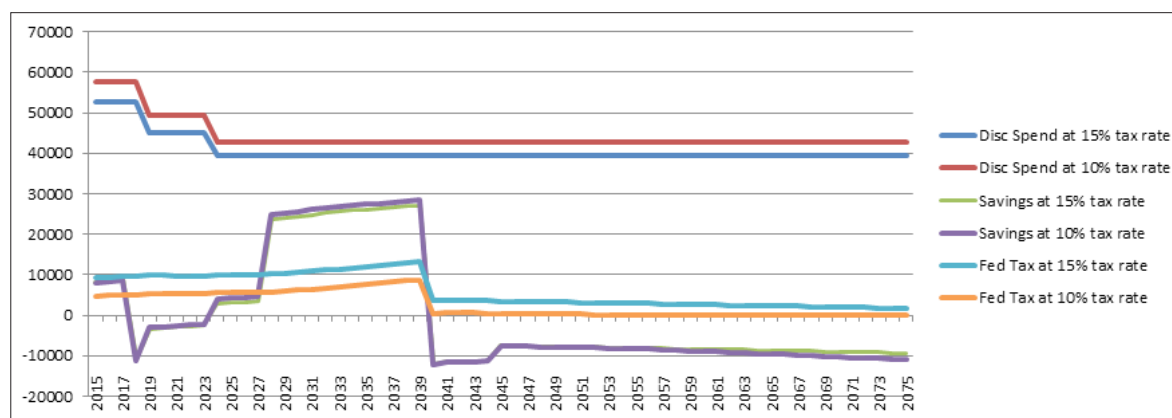
Their optimal discretionary-spending response also depends greatly on their combined earnings. If the couple earns \$50,000, their 2015 discretionary spending rises by roughly \$2,000. But at higher levels of earning, it rises by \$5,000 to \$6,000.

Chart 3 shows how the reaction to the tax cut plays out over time for John and Jane if their combined earnings total \$100,000. In the short run, John and Jane spend more and save less in response to the lower bottom tax rate. But during their pre-retirement years they save somewhat more. Their reluctance to save more early on reflects the couple’s short-term cash flow problems. But after they put their children through school and start paying attention to saving for retirement, they save up some of their tax cuts in order to afford higher spending in retirement.

**TABLE 1 2015 DISCRETIONARY SPENDING AND SAVING BY HOUSEHOLD EARNINGS ASSUMING THE LOWEST FEDERAL TAX BRACKET IS EITHER 15 PER CENT OR 10 PER CENT**

Tax Rate	\$50,000			\$100,000			\$150,000			\$200,000		
	Disc Sp	Saving	Tax	Disc Sp	Saving	Tax	Disc Sp	Saving	Tax	Disc Sp	Saving	Tax
15%	31,128	3,804	2,253	52,858	8,210	9,323	73,872	12,640	19,829	91,634	20,113	30,826
10%	33,540	3,387	275	57,750	7,815	4,795	78,740	12,255	15,301	97,599	18,618	26,298
Change	7.7%	-11.0%	-87.8%	9.3%	-4.8%	-48.6%	6.6%	-3.0%	-22.8%	6.5%	-7.4%	-14.7%

**CHART 3 DISCRETIONARY SPENDING, SAVINGS, AND TAXES FOR JOHN AND JANE, ASSUMING \$100,000 IN HOUSEHOLD EARNINGS WITH LOW FEDERAL TAX BRACKET SET AT 15 PER CENT AND AT 10 PER CENT**





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## About the Author

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Laurence J. Kotlikoff is a Distinguished Fellow at The School of Public Policy, University of Calgary. He is also a William Fairfield Warren Professor at Boston University, a Professor of Economics at Boston University, a Fellow of the American Academy of Arts and Sciences, a Fellow of the Econometric Society, a Research Associate of the National Bureau of Economic Research, and President of Economic Security Planning, Inc., a company specializing in financial planning software.

An active columnist, Professor Kotlikoff's columns and blogs appear in the Financial Times, Bloomberg, Forbes, Vox, the Economist, Yahoo.com, and the Huffington Post. Professor Kotlikoff is author or co-author of 16 books and hundreds of professional journal articles. Professor Kotlikoff's writings and research address financial reform, personal finance, taxes, Social Security, healthcare, deficits, generational accounting, pensions, saving, and insurance.